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C O N T E N T S

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Dr. K.VICTOR BABU
Editor-in-Chief

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Editorial ……..

Provoking fresh thinking is certainly becoming the prime purpose of International Journal of Multidisciplinary Educational Research (IJMER). The new world era we have entered with enormous contradictions is demanding a unique understanding to face challenges. IJMER's contents are overwhelmingly contributor, distinctive and are creating the right balance for its readers with its varied knowledge.

We are happy to inform you that IJMER got the high Impact Factor 2.735, Index Copernicus Value 5.16 and IJMER is listed and indexed in 34 popular indexed organizations in the world. This academic achievement of IJMER is only author's contribution in the past issues. I hope this journey of IJMER more benefit to future academic world.

In the present issue, we have taken up details of multidisciplinary issues discussed in academic circles. There are well written articles covering a wide range of issues that are thought provoking as well as significant in the contemporary research world.

My thanks to the Members of the Editorial Board, to the readers, and in particular I sincerely recognize the efforts of the subscribers of articles. The journal thus receives its recognition from the rich contribution of assorted research papers presented by the experienced scholars and the implied commitment is generating the vision envisaged and that is spreading knowledge. I am happy to note that the readers are benefited.

My personal thanks to one and all.

(Dr.Victor Babu Koppula)

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HUMAN VALUES IN VEDIC & CLASSICAL LITERATURE

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Bharatiya values regarding human rights perhaps have the oldest pedigree. Rigveda which is regarded as the oldest document, declares that all human beings are equal and they are brothers. The Atharvan Veda declared that all human beings have equal right over water and food (natural resources). The Vedas including Upanishads (Shruti) were the primodrdial sources of 'Dharma' which is a compendious term for all the human rights and duties, the observance of which was regarded as essential for securing peace and happiness to individuals and the society as well.

Referring to the source of fundamental rights incorporated in our constitution, the supreme court of Bharth has said thus:

"These fundamental rights represent the basic values cherished by the people of this country since the Vedic times and they are calculated to protect the dignity of the individual and create conditions in which every human being can develop his personality to the fullest extent" (Maneka Gandhi Vs. Union of India – 1978 (1) SCC 248).

The highest ideal of human life, evolved in India, is incorporated in a short but meaningful manner in the most popular prayer:

"सर्वे भवन्तु सुखिन्:"

"Let all people be happy"

This is the basis of the famous slogan:

"वसुद्वैव कुटुम्बकम्"

"The world is one family"

These indicate the large heartedness and width of our vision.

Human Right to happiness

The natural desire of all human beings is to be happy at every stage and in every aspect of life. It is natural human right, for without happiness life becomes meaningless. Therefore, the right of every individual to happiness has been recognized in the Bharatiya culture since ancient times. This being the most important and comprehensive human right, it includes every kind of right, the fulfillment of which leads to happiness. An individual has the capacity to fulfil his desires by his efforts and thereby secure happiness for himself, for members of his family and for fellow human beings.

However, no-fulfillment of desires 'causes unhappiness to an individual. He can also cause unhappiness to himself and to his fellow human beings by his mistakes and misdeeds. The hard fact is that life is a mixture of both of happiness and sorrow or misery.

"Dharma" was evolved to secure right to happiness for all without any exception. The idea, that for the food or happiness of greater number, unhappiness or misery could be inflicted on a smaller number was never accepted in Bharateeya culture and civilization. Instead the "right to happiness" of every human being was laid down as an ideal. This was incorporated in the following most ancient prayer.

सर्वेपि सखिनः सन्तु सर्वे संन्तु निरामयाः ।

सर्वे भद्राणि पश्यन्तु मा कक्षिद् दुःखभाग्भवेत्॥

"Let all be happy,

Let all be free from diseases,

Let all see auspicious things,

Let no body suffer from grief."

"Rajadharma", the constitutional law of ancient Bharat emphatically declared the right to happiness of all individuals and the duty of the King. [Ruler] to protect that right. The said verse reads:-

प्रजासुखे सुखं् राज्ञः प्रजानां च हिते हितम्।

नात्मप्रियं हितं राज्ञः प्रजानां तु प्रियं हितम्।

In the happiness of citizens, lies the King's happiness. In their welfare, his welfare; whatever is in the interest of his people, the king shall consider as good."

Right to equality is perhaps the most valuable right without which happiness is impossible. Unjust discrimination always results in misery and unhappiness to those discriminated against. The Vedas, which constituted the primordial source of Dharma declared a character of equality in the Vedas. It is worth quoting.

अज्येष्ठासो अकनिष्ठास एते

सं् भ्रातसो वावधुः सौभगाय॥

No one is superior (ajyestasa) or inferior (akanishrasa).

All are brothers (ete bharataraha). All should strive for the interests of ail and should progress collectively.

सङ्ग् च्छध्वं सं् वदध्द्ं सं् वो मनांसि जानताम्।

Oh human beings, all of you should

Live together with mutual co-operation,

Converse with each other in a friendly manner,

Acquire knowledge having common ideals of life.

समानो मन्त्रः समितिः समानी समानं मनः सह् चित्तमेषाम्।

All your prayer and desires be similar and for common good

All your get-together be without separatist feeling

All of you be united in thought, word and deed.

समानी व आकूतिः समानानि हृदयानि वः।

समानमस्तु वो मनो थथा वः सुसहासति ॥

Lest there oneness in your resolutions, hearts and minds.

Let the strength to live with mutual co-operation be firm in you all.

(Rigveda, Mandala 10, Sukha 191, Mantra 4)

Atharvanaveda – Samajnana Sukta

समानी प्रपा सह वोन्नभागः।

समाने योवत्रे सह् वो युनज्मि।

आराः नाभिमिवाभितः॥

All have equal rights in articles of food and water. The yake of the chariot of life is placed equally on the shoulders of all. All should live together with harmony supporting one another like the spokes of a wheel of the chariot connecting its rim and hub.

It is equally interesting to refer to the contents of article I and article 7 of the universal declaration of human rights. They read:

All human beings are born free and equal in dignity and rights. They are endowed with reasons and conscience and should act towards one another in a spirit of brotherhood.

All are equal before law and are entitled without any discrimination to equal protection of the law. All are entitled to equal protection against any discrimination in violation of this discrimination and against any incitement to such discrimination.

This declaration, made in 1948, is similar to the declaration of equality made in Rigveda from times immemorial.

Duty of State to give Equal protection.

After the establishment of the state the obligation to protect the right to equality was cast on the rulers. It was made a part of the rules of Rajadharma, the constitutional law.

यथा सर्वाणि भूतानि धरा धरयते समम्।

तथा सर्वाणि भूतानि बिभ्रात्ः पार्थिवः व्रतम्॥

Just as the mother earth gives equal support to all the living beings, a king should give support to all without any discrimination (Manu IX-31).

Mahabharata declared that acquisition of knowledge and its dissemination to the next generation was one of the four pious obligations of an individual. This aspect was highlighted by the supreme court in Mohini Jain's case (A.I.R 1992 S.C 1858 at 1866). Holding that the right to education must be regarded as a fundamental right it said:

Indian civilization recognizes education as one of the pious obligations of the human society. To establish and administer educational institutions is considered a religious and charitable object. Education in India has never been a commodity for sale". (Paraa – 18)

Again in the case of Unnikrishnan (A.I.R. 1993 S.C. 2178), the supreme court referred to the importance of education as emphasized in the Neethishatakam by bhartruhari and held that the right to education is therefore part of the fundamental rights under article 21 of the constitution of India.

The said verse of Bhartruhari which is referred to in the judgment of the supreme court while coming to the conclusion that right to education is a fundamental right, reads as follows:

विध्या नाम् नरस्य रूपमधिकं प्रच्छन्नगुप्तं धनं

विध्या भोगकरी यशः सुखकरी विध्या गुरूणां गुरूः।

विध्या बन्धजनो विदेशगमने विध्या परं दैवतं

विध्या राजसु पूज्यते नहि धनं विध्याविहीनः पशुः

"Education is special attribute of man which is latent in him.

Education secures wealth, fame and happiness.

Education is the teacher of the teacher.

Education is the real friend when one goes abroad.

Education is god incarnate.

Education is hounoured by the state and not money/wealth.

A man without education is equal to animal."

The real meaning of the verse is that as every individual has the right to live as human being and not as an animal, right to education is a basic human right of every individual.

Right to practice any Religion

Whether to believe in the existence of god or not, is another matter in respect of which there was absolute freedom for every individual. Whatever that may be, those who believed in god, had the liberty to believe in any god by any name and to follow any religion of their choice and to adopt any method of worship. Though basically every one among Hindus believed that god is one, on account of the aforesaid liberal approach, several names are given to god, according to the desires and choice of individuals and their need, such as god for protection, goddess of knowledge, goddess of Shakti (Strength), goddess of wealth, god of removal of obstacles, god of nature in the form of elements, god in the form of air, water, earth, light and tree etc, as a result, the number of gods swelled, but without disturbing the belief that god is one.

This probable is the mark of distinction of Hindus culture and civilization in the whole world. This broad outlook is found expressed in the following popular verse:

आकाशात्पतितं तोयं यथा गच्छति सागरम्।

सर्वदेवनमस्कारः केशवं प्रति गच्छति॥

Just as the rain water coming down to the earth from the sky reaches the same ocean, obeisance to god may be in any name, but the destination is the same, by whatever name the god is called.

Special Rights of Women

Undoubtedly the right to equality and all other human rights are all applicable to men and women equally. However, the ancient

Bharatiya thinkers considered that having due regard to the special attributes of womanhood, they require special protection, for it is indisputable that women are vulnerable to attack by men with evil propensities. It is a matter of common knowledge that offences against women by men has been a problem throughout human history and not vice-versa. Even at present, when we boast of modern civilization and scientific advancement, the rate of offences against women are on the increase every year. Men behave in inhuman against women. In particular sexual assault against women which is most heinous which ruins the whole life of a woman, is indulged in by many men who are nothing but demons in human form. The law enforcing agencies such as the police and the courts come into the picture only after a woman suffers an irreparable injury and consequently they are not adequate to protect the rights of women.

Hitopadesha of Narayana is a compilation of code of conduct. In that in his inimitable style, Narayana lays down the following directive.

मातूवत्परदारेषु परद्रव्येषु लोष्टवत्।

आत्मवत्सर्व भूतेषु यः पस्यति स पण्डितः॥२४॥

A person who regards, every woman other that his wife as equal to his own mother, who regards wealth, which belongs to another as equal to a clod of earth and who regards every other individual, as his own-self, is an educated man in the real sense of the term.

This value appears to have been created and cultivated assiduously as an antidote to sexual propensity of man, for, once the value that every woman is mother is ingrained in the heart of an individual, sinful thoughts of committing any offence against woman get destroyed. There can be no doubt that inculcating of such a value is greatest safety against sexual propensity of man. The creation and

maintaining of this value is really the most valuable contribution of Indian thinkers to humanity.

Apart from creating the value of respect for womanhood, there have been special provisions for protecting several human rights of women, in view of the disabilities and vulnerability of women to attack by men. Rules of dharma created an obligation on the part of the male members of a family to afford protection to every woman at every age and stage to provide further, under Raja Dharma it was the duty of the state to provide protection to women. The rule of Dharma which made it the duty of male members of the family to afford protection to women reads:

पिता रक्षति कौमारे भर्ता रक्षति यौवने॥

रक्षन्ति स्यविरे पुत्र न स्री स्वातन्यमर्हति॥

Father protects the girl during her childhood, the husband protects her after marriage and her sons protect her in old age. At no stage a women should be left free (Manu IX-3)

i. Expection to women's property from law of adverse possession:

The provisions of ancient Indian law regarding perfecting title to an immovable property by adverse possession was very strict, but was made inapplicable in respect of property belonging to women, state and temple.

न भोगं कल्पये त्सी षु देवराजधनेषु च ।

No plea of adverse possession is tenable in respect of property belonging to women, state and temple (Katyayana. 330)

ii. Death sentence for the Rape of Women in Custody:

संरूद्धस्य वा तत्रैव घातः।

तदेवाध्य क्षेण गहीतायामार्थाथां विध्यात्॥

Capital sentence should be imposed for offence of reape committed against a woman arrested by an officer of the state (Kautilya's Arthasastra; p.256)

iii. Protection to girls carried away by force:

बलाच्चेसहता कन्या मन्त्रैर्थदि न् संस्कुता।

अन्यस्मै विधिवध्येथा थथा कन्या तथैव सा ॥

If a damsel has been abducted and not given in marriage in accordance with law, she may lawfully be given to another man. She is as chaste as maiden (Vasishta, p.72-73, Dharmakosha, p.1021)

ENVIRONMENTAL ISSUES IN INDIA

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INTRODUCTION:

The rapid growing population and economic development is leading 10 a number of environmental issues in India because of the uncontrolled growth of urbanization and industrialization, expansion and massive intensification of agriculture, and the destruction of forests.

Major environmental issues are forest and agricultural degradation of land, resource depletion (water, mineral, forest, sand, rocks etc.), environmental degradation, public health, loss of biodiversity, loss of resilience in ecosystems, livelihood security for the poor.

It is estimated that the country's population will increase to about 1.26 billion by the year 2016. The Projected population indicates that India will be the first most populous country in the world and China will be ranking second in the year 2050. India having 18% of the world's population on 2.4% of world's total area has greatly increased the pressure on its natural resources. Water shortages, soil exhaustion and erosion, deforestation, air and water pollution afflicts many areas. India's water supply and sanitation issues are related to many environmental issues.

OBJECTIVES OF THE PAPER:

1. To Study the major environmental issues in India
2. To analyze the different types of pollution in India

3. To analyze the conservation in India.

Major issues:

One of the primary causes of environmental degradation in a country could be attributed to rapid growth of population, which adversely affects the natural resources and environment. The uprising population and the environmental deterioration face the challenge of sustainable development. The existence or the absence of favorable natural resources can facilitate or retard the process of socio-economic development. The three basic demographic factors are births (nasality), deaths (mortality) and human migration (migration) and immigration (population moving into a country produces higher population, global warming, climate change, water scarcity and water pollution. Noise pollution, Land pollution, and Industrial Pollution.

Environmental issues in India include various natural hazards, particularly cyclones and annual monsoon floods, population growth, increasing individual consumption, industrialization, infrastructural development, poor agricultural practices, and resource mal distribution have led to substantial human transformation of India's natural environment. An estimated 60% of cultivated land suffers from soil erosion, water logging, and salinity. It is also estimated that between 4.7 and 12 billion tons of topsoil are lost annually from soil erosion. From 1947 to 2002, average annual per capita water availability declined by almost 70% to 1,822 cubic meters, and overexploitation of ground water is problematic in the states of Haryana, Punjab, and Uttar Pradesh. Forest area covers 18.34% of India's geographic area (637000 Km2). Nearly half of the country's forest cover is found in the state of Madhya Pradesh (20.7%) and the seven states of the northeast (25.7%); the latter is experiencing net forest loss. Forest cover is declining because of harvesting for fuel wood and the expansion of agricultural land. These trends, combined with increasing industrial and motor vehicle pollution output, have led to atmospheric

temperature increases, shifting precipitation patterns, and declining intervals of drought recurrence in many areas.

The Indian Agricultural Research Institute of Parvati has estimated that a 30^{c} rise in temperature will result in a 15 to 20% loss in annual wheat yields. These are substantial problems for a nation with such a large population depending on the productivity of primary resources and whose economic growth relies heavily on industrial growth. Civil conflicts involving natural resources most notably forests and arable land have occurred in eastern and northeastern states.

Pollution

Water Pollution - 1974, 14 Rivers in India the Ganga is polluted.

Out of India's 3,119 towns and cities, just 209 have partial treatment facilities, and only 8 have full waste water treatment facilities (WHO 1992).114 cities dump untreated sewage and partially cremated bodies directly into the Ganga River. Downstream, the untreated water is used for drinking, bathing, and washing. This situation is typical of many rivers in India as well as other developing countries.

Water resources have not therefore been linked to either domestic or international violent conflict as was previously anticipated by some observers. Possible exceptions include some communal violence related to distribution of water from the Kaveri River and political tensions surrounding actual and potential population displacements by dam projects, particularly on the Narmada River. Punjab is today another hotbed of pollution, for example, Buddha Nullah, a rivulet which run through Malwa region of Punjab, India, and after passing through highly populated Ludhiana district, before draining into Sutlej River, a tributary of the Indus river, is today an important case point in the recent studies, which suggest this as another Bhopal in making. A joint study by PGIMER and Punjab

Pollution Control Board in 2008, revealed that in villages along the Nullah, calcium, magnesium, fluoride, mercury, beta-indosulfhan and heptachlor pesticide were more that permissible limit (MPL) in ground and tap waters. Plus the water had high concentration of COD and BOD (chemical and biochemical oxygen demand), ammonia, and Phosphate, chloride, chromium, arsenic and chlorpyrifos pesticide. The ground water also contains nickel and selenium, while the tap water has high concentration of lead, nickel and cadmium. The Hindon River, which flows through the city of Ghaziabad, highly polluted and ground water of this city has colored and poisoned by industrial effluents, Hindon Vahini is strongly opposing of water pollution activities.

To know why 1,000 Indian children die of diarrheal sickness every day, take a wary stroll along the Ganges in Varanasi. As it enters the city, Hinduism's sacred river contains 60,000 fecal coli form bacteria per 100 milliliters, 120 times more than is considered safe for bathing. Four miles downstream, with inputs from 24 gushing sewers and 60,000 pilgrim bathers, the concentration is 3,000 times over the safety limit. In places, the Ganges becomes black and septic. Corpses, of semi-cremated adults or enshrouded babies, drift slowly by.

More than 400 million people live along the Ganges River. An estimated 2,000,000 persons ritually bathe daily in the river, which is considered holy by Hindus. In the Hindu religion it is said to flow from the lotus feet of Vishnu (for Vaisnava devotees) or the hair of Shiva (for Saivites). The spiritual and religious significance could be compared to what the Nile River meant to the ancient Egyptians. While the Ganges may be considered holy, there are some problems associated with the ecology. It is filled with chemical wastes, sewage and even the remains of human and animal corpses which carry major health risks by either direct bathing in the water, or by drinking (the Fecal-oral route).

News Week describes Delhi's sacred Yamuna River as "a putrid ribbon of black sludge" where a fecal bacterium is 10,000 over safety limits despite a 15 year program to address the problem. Cholera epidemics are not unknown.

Air Pollution

Indian cities are polluted by vehicles and industry emissions. Road dust due to vehicles is also contributing up to 33% of air pollution. In cities like Bangalore, around 50% of children suffer from asthma. India has emission standard of Bharat Stage IV (Euro IV) for vehicles since 2005.

One of the biggest causes of air pollution in India is from the transport system. Hundreds of millions of old diesel engines are continuously burning away diesel which has anything between 150 to 190 times the amount of sulfur out European diesel has. Of course the biggest problems are in the big cities where there are huge concentrations of these vehicles. On the positive side, the government appears to have noticed this massive problem and the associated health risks for its people and is slowly but surely taking steps. The first of which was in 2001 when it ruled that its entire public transport system, excluding the trains, be converted from diesel to compressed gas (CPG). Electric rickshaws are being designed and will be subsidized by the government but the supposed ban on the cycle rickshaws in Delhi will require a huge increase on the reliance of other methods of transport, mainly those with engines.

It also appeared that the excessive pollution was having an adverse effect on the Taj Mahal. After the court ruling all the transport in the area was shut down shortly followed by the closure of all industrial factories in the area. The air pollution in the big cities is rising to such an extent that it is now 2.3 higher than the amount recommended by W H O (world health organization).(Pollution through

Cremation by Savita Sethi published by Paryavaram Sanrakshan Nyas 2005).

Noise Pollution

The Supreme Court of India gave a significant verdict on noise pollution in 2005. Unnecessary honking of vehicles makes for a high decibel level of noise in cities. The use of loudspeakers for political purposes and by temples and mosques make for noise pollution in residential areas. Recently Government of India has set up norms of permissible noise levels in urban and rural areas. How they will be monitored and implemented is still not sure.

Land Pollution

Land pollution in India is due to pesticides and fertilizers as well as corrosion. In March 2009, the issue of Uranium poisoning in Punjab came into light, caused by fly ash ponds of thermal power stations, which reportedly lead to severe birth defects in children in the Faridkot and Bhatinda districts of Punjab.

Conservation

India, lying within the Indomalaya ecozone, hosts significant biodiversity; it is home to 7.6% of all mammalian, 12.6% of avian, 6.2% of reptilian, and 6.0% of flowering plant species. In recent decades, human encroachment has posed a threat to India's wildlife; in response, the system of national parks and protected areas, first established in 1935, was substantially expanded. In 1972, India enacted the Wildlife Protection Act and Project Tiger to safeguard crucial habitat; further federal protections were promulgated in the 1980s. Along with over 500 wildlife sanctuaries, India now hosts 14 biosphere reserves, four of which are part of the World Network of Biosphere Reserves; 25 wetlands are registered under the Ramsar convention.

As the population in India is quite high it requires to live in for this builders destroy the greenery to make way for making buildings, colonies and complexes.

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REVIEW ON ELECTRICAL ACTIVITY IN HUMAN BODY

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Abstract

Human electrical energy is generated by chemical processes in nerve cells. Billions of nerve impulses travel throughout the human brain and nervous system. A nerve impulse is a wave of electrical activity that passes from one end of nerve cell to another. Brain - an organ of soft nervous tissue contained in the skull of vertebrates, functioning as the coordinating centre of sensation, intellectual and nervous activity. Human brain cells fire electrical impulses to communicate with one another. Ion channels located in the membranes, some with calcium and some with potassium, work in sync to deliver messages throughout the brain. Within a single neuron, information is conducted through electrical signaling. Synthetic fabrics and friction can charge a human body to about 3 Kv. Signals like ECG, EEG, EMG, EOG, not only examine a person's health but also diagnoses illness of a person. In future, these signals can be helpful in finding various therapies for treatment of diseases that are still unknown.

Key Words:-ECG, EEG, Potential, Repolarisation

1. Introduction

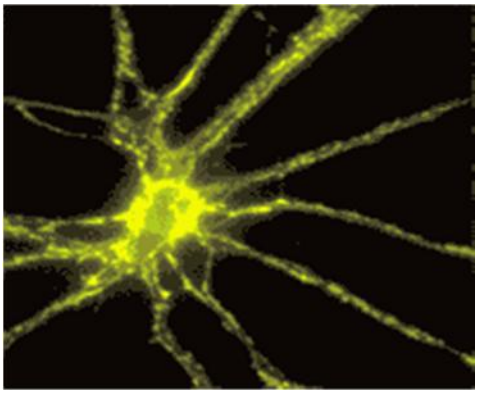
In principle this document should provide a complete image on the bioelectricity in the human body, how to measure it and which information it holds. Detailed information is omitted, but curious students are always encouraged to follow the web links or to search for the keywords provided after each paragraph. All subjects will be

discussed during three meetings. After these meetings there will be two more weeks to work on your own ECG application. The structure is as follows: first the basic principles will be discussed. This involves nerves cells and their operation. Secondly the human heart will be discussed. Finally measurement principles and safety issues will be discussed. If time permits the brain will be discussed in the third week as well. The last two weeks will be completely different. After the third week you will be asked to present your design ideas to the group after mailing it to the lector. Presentations can be held as a couple or individually. The rest of the students attaining to the assignment will be asked to provide feedback on your ideas. Think for example of questions like: will it work? Is your idea innovative? Which values do you extract from the ECG? Etc. If the assignment lector is satisfied with of the level of your proposal you can continue to build a prototype, your task for the last two weeks. At the end you have to write and hand in a short report and demonstrate the prototype.

2. Electrical Biosignals

2.1ELECTICAL ACTIVITY

Electrical activity is the study of the electrical properties of biological cells, tissues and organs. It includes measurements of change in voltage or electric current on a far-ranging variety of scales from single ion channel proteins to entire organs like the heart.



2.2 NERVE IMPULSE-ELECTRICITY IN THE BODY

Human electrical energy is generated by chemical processes in nerve cells. Billions of nerve impulses travel throughout the human brain and nervous system. A nerve impulse is a wave of electrical activity that passes from one end of nerve cell to another. Each impulse is the same size that carries information about the intensity of the nerve signal. Neurons, basic unit of nervous system, are responsible for sending, receiving, and interpreting information from all parts of the body.

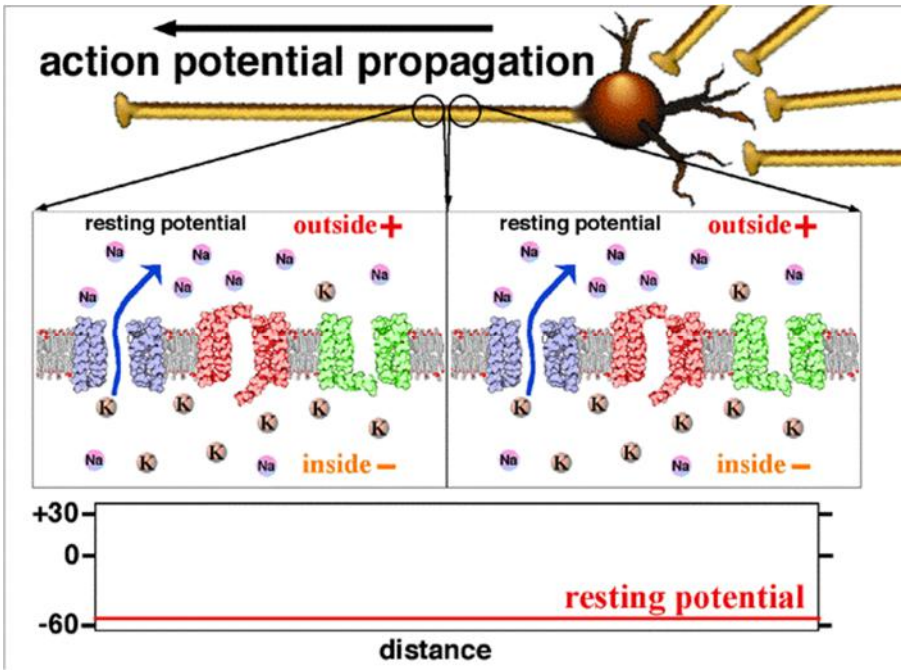
Our body is a complex and carefully-balanced superhighway of cells, tissues and fluids that direct an incomprehensible array of electrical impulses almost every second. This is only possible due to a homeostatic environment where electricity is well conducted to carry the signals to their intended destinations. They key to maintaining this conductive superhighway lies within the ELECTROLYTES. Electrolytes regulate our nerve and muscle function, our body's hydration, blood pH, blood pressure and the rebuilding of damaged tissues. Various mechanisms exist in our body that keep the concentrations of different electrolytes under strict control.

2.3 ELECTRICAL ACTIVITY OF CELL

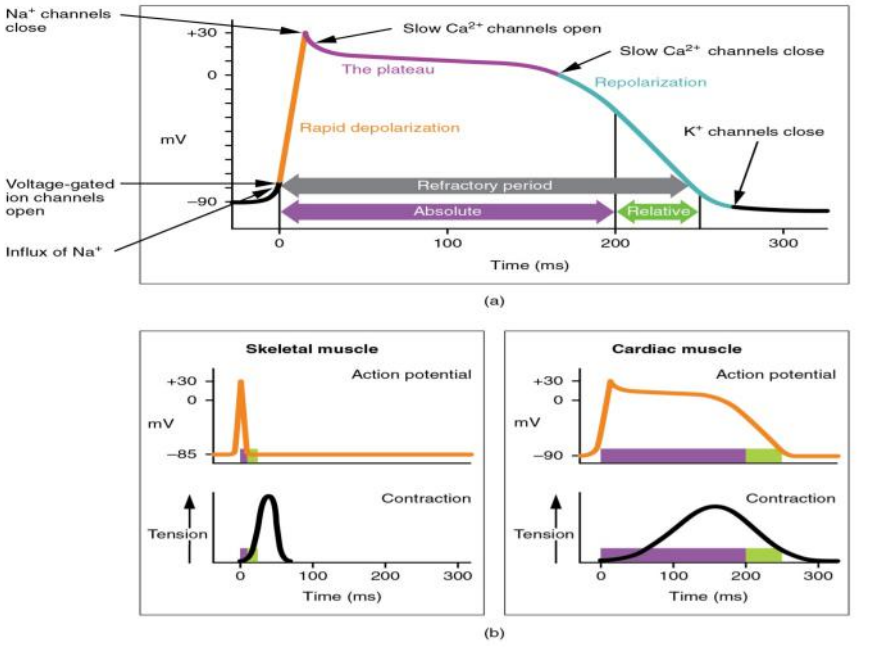
One of the simplest physiological units is the cell. It has the power of maintaining itself alive given suitable surroundings. The endocrine pancreas consists of clusters of cells called islets of Langerhans. Most of the cells in an islet are insulin-secreting β-cells. Electrical impulses or action potentials are generated in bursts when the bath or blood glucose level is in the stimulatory range. Insulin insufficiency is generally a result of β-cell damage by autoimmunity. Closing adenosine triphosphate (ATP)-sensitive K+ channels (KATP) in response to glucose increase is generally considered the initial event that depolarizes the β-cell membrane and activates the voltage-dependent Ca2+ channels, which triggers the release of insulin. However, glucose is unable to extract insulin release if electrical activity and the accompnying Ca2+ influx are prevented. Thus beta-cell electrical activity is a key element in the series of steps culminating in glucose-induced insulin secretion.

2.4 ELECTRICAL ACTIVITY OF ORGANS

Brain - an organ of soft nervous tissue contained in the skull of vertebrates, functioning as the coordinating centre of sensation, intellectual and nervous activity. Human brain cells fire electrical impulses to communicate with one another. Ion channels located in the membranes, some with calcium and some with potassium, work in sync to deliver messages throughout the brain. Within a single neuron, information is conducted through electrical signaling. When a neuron is stimulated, an electrical impulse, called an action potential, moves along the neuron axon. Action potential then enables signals to travel very rapidly along the neuron fiber. When large numbers of neurons show synchronized activity, the electric fields generated can be large enough to detect outside the skull, using Electroencephalography (EEG) or Magneto encephalography (MEG).



Heart - a hollow muscular organ that pumps blood through the circulatory system by rhythmic contraction and dilation. The heart's pumping action depends on the rhythmic, coordinated contraction of the ventricles and the proper functioning of the valves. Each mechanical heartbeat is triggered by an action potential which originates from a rhythmic, pacemaker cell within the heart. The impulse is then conducted rapidly throughout the organ in order to produce coordinated contraction. The action potential of a cardiac muscle starts from more negative resting membrane potential (-90mv), it has rapid depolarization phase (phase 0) due to opening of fast Na+ voltage gated channels , partial repolarization (phase 1) due to opening of Cl- Channels and/or some K+ channels , (phase 2) the plateau phase which is due to opening of slow Ca+2 channels, (phase 3) the repolarization phase due to opening of K+ voltage gated channels, and (phase 4) is the coming back to the resting membrane potential .

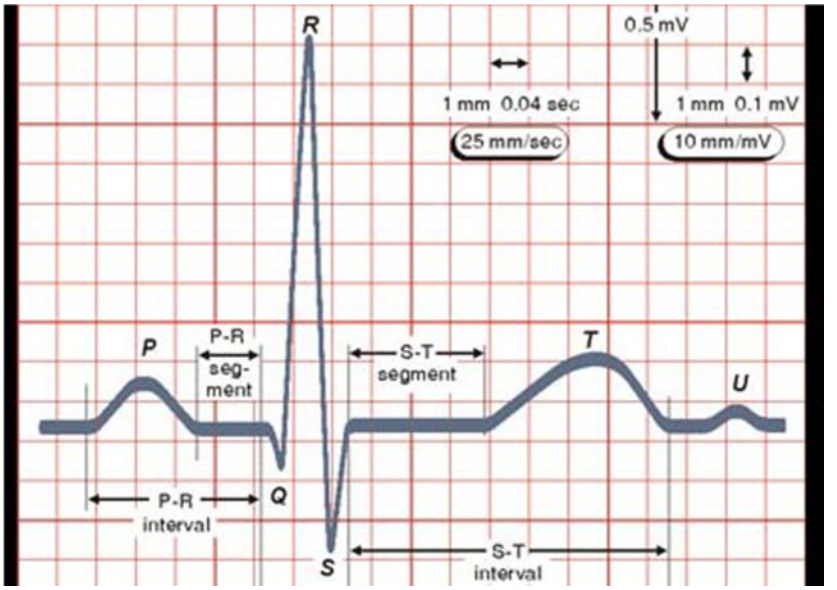


• QRS complex represents Ventricular depolarization

Q wave = 1st negative deflection ;

R wave = 1st positive deflection ;

S wave = 1st negative deflection after the R wave



Importance in Clinical Medicine

EEG is an electrophysiological monitoring method to record electrical activity of the brain over a period of time. It measures voltage fluctuations resulting from ionic current within the neurons of the brain. In clinical contexts, EEG refers to the recording of the brain's spontaneous electrical activity over a period of time. It has also been shown to be useful for locating tumors. With every good thing comes a bad. EEG causes low spatial resolution on the scalp, and unlike PET and MRS, it cannot identify specific locations in the brain at which various neurotransmitters, drugs, etc can be found.

The electrocardiogram (ECG or EKG) is a noninvasive test that is used to reflect underlying heart conditions by measuring the electrical activity of the heart as line tracings on paper. A natural electrical system causes the heart muscle to contract. This pumps blood through the heart to the lungs and the rest of the body. It is done to check the

heart's electrical activity or find the cause of unexplained chest pain or pressure.

Bioelectricity has many effects other than the hazards discussed here. Devices such as pacemakers and defibrillators have saved countless lives. The measurement of the electrical characteristics and electrical activity of the human body have proved essential in ECG, EEG and other techniques. The uses of electricity and electromagnetic effects in healthcare are immense and are only going to grow in the future.

3. CLASSIFICATION OF BIO-SIGNALS

According to existence of bio signals, they are classified as: Permanent bio signals• Induced bio signals• Permanent bio signals are available inside the body and there do not require any artificial impact, trigger. Example: ECG signal. Induced bio signals require artificial triggering or excitation. They exist for short duration. Example: electric plethymography. According to dynamic nature of bio signal, they are classified as:

- Static bio signal•
- Dynamic bio signal

- Static signal carry information in a static level. They do not change with time and are slow in nature. Example: body temperature

Dynamic signal undergo changes with time. Example: heart beat

According to origin of bio signal, they are classified as:

Electric bio signal (eg. EEG, ECG, EMG)• mechanic bio signal (eg. mechanorespirogram)• thermal bio signal (eg. core body temperature)• magnetic bio signal (eg. MMG)• optic bio signal (eg. optoplethysmogram)• acoustic bio signal (eg. phonocardiogram)• chemical bio signal (eg. cortisol secretion)

• 4. SOURCES OF BIO-POTENTIAL

4.1 ELECTROENCEPHALOGRAM (EEG)

Electroencephalography is an imaging technique used commonly in medical field, to study brain functioning. In this multiple electrodes is placed over the scalp and the voltage fluctuation resulting due to current flow in neurons. When neurons in brain get active, a current results due to exchange of ions. These ions are of sodium (Na+), potassium (K+), calcium (Ca++), and chloride (Cl-). A difference in potential is experienced across the channel in cell membrane. Neurons keeps on maintain its resting potential and create action potential. Ions have the property to repel similar type and attract the opposite one. In similar fashion, when more ions are pushed out of the neurons a wave like structure generates in the neurons these create voltage fluctuations. These wave when subjected to electrodes; its ions attract or repel the metal of electrodes. This pulling and pushing of ions to metal of the electrode create voltage differences that are recorded over to obtain an EEG signal.

An EEG signal consists of four different wave structures:

1. Gamma waves have frequency above 30 Hz and are not fit for medical purpose.

2. Beta waves have frequency between 14-30 Hz and are below 30μV. these are resulted due to tension. They show attentive state and wakefulness.

3. Alpha waves have frequency between 8-14 Hz and are below 50 μV. they show relaxed and mentally inactive state.

4. Theta waves have frequency between 4-8 Hz

5. Delta waves have frequency between 0.3- 4 Hz

EEG signal are used to distinguish between non rapid eye movement stage and rapid eye movement stage. It is also helpful in diagnosing sleep disorders, head injuries, brain infection, brain death etc.

ELECTROCADIOGRAPHY (ECG)

Electrocardiography is again one of the most useful techniques of medical field. In this electrodes are placed over the chest or thorax and heartbeat is continuously monitored. Heart is a four chambered organ having upper two atria and lower two as ventricles. The muscle cells of heart are negatively charged during the resting state. The exchange of sodium and potassium ions across the cell membrane results in decrease of negative charge of cells to zero. This is called depolarization and it results in contraction of muscles. A continuous high ion concentration across the cell membrane results into a current that creates an external potential field. This field excites the neighboring cell and this neighbor to neighbor transfer creates a good amount of electric potential that propagate into the body surface exciting

muscular tissues. At each heartbeat, these wave spreads over the atrium and then to ventricle through atrioventricular node. A rise and fall of voltage creates the electrocardiogram signal.

An electrocardiogram consists of following waves:

1. P wave shows activation of the right atrium. Its duration is 80ms

2. QRS complex shows rapid depolarization between right and left ventricles. Its duration is 80 – 100 ms.

3. T wave shows repolarization of ventricles. Its duration is 160 ms.

4. U wave shows repolarization of interventricular septum. ECG is used to diagnose blood clots, hypotension,

Dizziness, high blood pressure congestive heart failure etc.

4.3 ELECTROMYOGRAM (EMG)

Electromyography is a technique used to record the electrical activities of skeletal muscles. Motor unit is the smallest unit that controls muscular contraction. Muscular membrane has resting potential maintained by ions inside and outside the membrane. Depolarization and repolarization are seen in motor neurons resulting in excitation and contraction of muscle fibers. In depolarization state, sodium ions get inside and potassium ions are pumped out of the muscle fiber membrane. In repolarization condition gets reversed i.e. sodium outside and potassium inside. This creates a potential difference along the length of muscle fiber. These potential differences are recorded to get electromyogram. EMG signal is algebraic sum of action potential of many muscle fibers as one motor unit. EMG signal can be used in medical field, ergonomics, rehabilitation, sports science.

4.4 ELECTROOCULOGRAM (EOG)

Electrooculography is one of great medical technique in which electrodes are placed on forehead near the eyes to record eye

movements. It records the resting potential between cornea and retina known as corneal retinal potential. Electrically active nerves in the eye produce potential difference. Cornea are said to be positive while retina is negative, as a whole eye acts as dipole. Eye movements can be recorded by placing electrodes either left or right of eye or above and below eye. When eye moves towards one of the electrode it is positive side of retina and to the other electrode it is negative side. Eye movement gives the positive and negative impulses due to presence of action potential which is about -0.06 to +0.06 volt. Four to five electrodes are used to record EOG signal. Two of them are placed on sides of eye to detect horizontal movementwhile other two are placed above and below to detect vertical movement. EOG is used in ophthalmological diagnosis.

4.5 MECHANOMYOGRAM (MMG)

Mechanomyogramis a technique that uses mechanical signal to observe muscle activity. When a muscle is contracted, a peak is experienced in a MMG signal. As we know a muscle is combination of millions of muscle fibers. When these fibers are oscillated, vibration is experienced in muscles. In this technique, electrodes are placed over the skin surface. These vibrations create pressure wave showing muscle activity. An MMG signal can be recorded using an accelerometer or microphone, piezo electric contact sensors. MMG is used to find muscular pain, fatigue, diseases etc.

4.6 MAGNETOENCEPHALOGRAPHY (MEG)

It is one of popular technique to record neuronal brain activity. Brain consists of millions of neurons that are responsible for transmission and reception of information from body. Neurons of brain undergo ions exchange chemically that creates a magnetic field across the cell membrane. Axon of the neuron has bidirectional current hence two dipoles of opposite polarity exist. This leads to cancellation of magnetic

field. Post synapses of neurons have unidirectional current. Hence magnetic field persists here. Magnetic field of a single neuron cannot be measured so neurons of same spatial orientation are taken together and their combined magnetic field is measured using sensitive magnetometers. Superconducting quantum interference devices commonly known as SQUIDs are best suited to measure MEG signal. MEG provides high spatial and temporal resolution. MEG is used to study brain processes, parts of brain, neuro feedback etc.

4.7 GALVANIC SKIN RESPONSE

Galvanic skin response is a method to study electrical properties of human skin. It is also called electro dermal response. When a human body comes under the interaction of environment, some changes are seen in person's psychological state. Due to this some changes are observed in electrical properties of its skin. As it is a known fact that human skin is a good conductor of electricity so ions exchange is experienced between external and internal environment of skin. This leads to flow of electric current in skin. Hence we can say that human skin possesses resistance or conductance. In GSR, a constant voltage is applied through electrodes on human skin. This leads to current flow that can be measured and then we can find resistance or conductance by simply dividing voltage applied by electrodes with current flowing in skin. Thus, skin observes two types of conductance, one is tonic and other is phasic. In tonic stage of conductance, there is absence of any external environment, hence a baseline conductance called skin conductance level is observed. In physic stage of conductance, changes in external environment like some stimuli leads to changes in skin conductance. These are called skin conductance response. GSR finds application in lie detection tests, hypnotherapy, psychotherapy, behavior therapy.

4.8 ELECTRORETINOGRAM (ERG)

Electroretinogram is another helpful technique to study electrical response of retina human eye. It helps in diagnosing status of retina in case of eye diseases. When a light stimulus is applied through LED or strobe lamp, an electrical activity takes place in neural and non- neural cells of retina. This produces a biphasic waveform comprising of three important waves known as a-wave• b-wave• c-wave• Due to sodium ion channel closure in outer membrane, there exists hyper polarization of photoreceptors. a- waves are reflected from rods and cones of outer photoreceptor layers of the retina. When a light stimulus is applied on the retina, rhodopsin gets triggered leading to activation of transduction. This further activates cyclic guano sine monophosphate phosphodiesterase (cGMP). CGMP helps sodium ions to move inside the membrane. a- waves are negative in nature and are measured from baseline to trough of a wave. b-waves are positive corneal deflection from inner retina. Due to hyper polarization of photoreceptors, there is decrease in number of sodium ions. This leads to depolarization of bipolar cells which further increases amount of potassium ions. This balancing of sodium and potassium ions across the cell membrane generates current. These are measured from trough of a-wave to the peak of b-wave. c-waves are result of pigments of retina i.e. epithelium and photoreceptors ERG is helpful in diagnosing retinitis pigmentosa, cone dystrophy, choroideremia.

5.CONCLUSION

Bio potential is gaining importance in research in both medical as well as electronics field. They are hot topic of research todaybecause they are concerned with human health and wellbeing. Signals like ECG, EEG, EMG, EOG, not only examine a person's health but also diagnoses illness of a person. In future, these signals can be helpful in finding various therapies for treatment of diseases that are still

unknown. The statistics of accidents show that the percentage of accidents due to electric current is very low, where as those of deadly accident is much higher. The widespread use of electricity leads to many accidents that can be very serious and a sizeable percentage results in death. The study of the effects of electric current on the human body and that of the electrical impedance of the human organism are essential. A non-exhaustive part has been studied in the present work.

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ASSESSING ABORIGINAL LITERARY HISTORY THROUGH EUROPEAN COLONISATION: A BIRD'S OVER VIEW

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Aboriginal people are inseparable part of Australia. They are one of the oldest cultures in the world, their existence going back at least 40,000 years. When looking at Australia we cannot consider just the isolated continent and its exceptional animal species but also its inhabitants. In Black Words, White Page, Shoemaker stresses the importance of Aboriginal people although they make up only 2% of the country population: "How the nation is perceived internationally depends, in part, on its own Fourth World: The Aboriginal people" (1). The Aboriginal people are not the only native inhabitants who had to face the cruel reality of European invasion and later settlement. However, the development of land seizure was distinct from other parts of the world: Australian Aborigines have much in common with other indigenous peoples who suffered under the impact of European colonisation. But there are a number of distinctive features about the Australian Aborigines and the formation of the Australian colony that need to be recognized, in order for us to understand the particular forms of the representational complex which was constructed on their behalf. (Hodge and Mishra 24) One of the most important features which distinguishes Australian Aboriginal people from other Indigenous people is the attempt of Europeans to reeducate Aboriginal people by sending them to special settlements or to white families and thus stealing the children from their families. Although Aboriginal people are the minority of Australian population, they play a very important role in Australian culture and history. As it was mentioned in the introduction, they are not a homogenous folk – the Aboriginal

people who do not live in the urban areas still remain in isolated rural communities and they share a common heritage which may be different from community to community. According to Heiss "Aboriginality like sexuality is a personal issue," (21) so it must be treated very carefully. It is quite a delicate issue nowadays and it always was. It is a matter of subjectivity and everybody has the chance to build up their own opinion of Aboriginal people. Marcia Langton underlines the subjective approach to Aboriginality: 'Aboriginality' arises from the subjective experience of both Aboriginal people and non-Aboriginal people who engage in any intercultural dialogue, whether in actual lived experience or through a mediated experience such as a white person watching a program about Aboriginal people on television or reading a book. Moreover, the creation of 'Aboriginality' is not a fixed thing. It is created from our histories. It arises from the inter subjectivity of black and white in dialogue. (31) Aboriginal people are a distinctive group of people who have strong traditions and whose culture is rooted in the remote past. A lot of books and materials have been devoted to the theme of Aboriginality because it seems to be a 'secret chamber' which remains unrevealed for most people. It is a quite complicated concept which cannot be fully understood by non-Aboriginal people. However, there is more to this concept: "The concept of Aboriginality is certainly a difficult thing to grasp for contemporary Australians; indeed, sometimes even for Aboriginal people themselves, especially those who have been denied access to family, culture and community due to government policies of the past" (Heiss 42). The Aboriginal people who were taken from their families suffer from a certain kind of estrangement from their culture which needs to be restored. The concept of Aboriginality started to be used only after white people came to Australia and demanded the land which had already been occupied by somebody else. Anita Heiss claims that "the actual concept of Aboriginality didn't exist before colonisation" (20). In 'Well, I heard it on the radio and I saw it on the television…', Marcia Langton draws

attention to the concept of Aboriginality in terms of history: "Before Cook and Phillip, there was no 'Aboriginality' in the sense that is meant today. [...] The term 'Aboriginal', and the colonial and post-colonial implications of the concept, began to take shape in Australia to some extent in 1770, but more so in 1788" (32). Since that time Aboriginal people have become the limelight not only for specialists but also for writers, scientists and other people. In Blacklines – Contemporary Critical writing by Indigenous Australians, Michael Dodson stresses that "since first contact with the colonisers of this country, Aboriginal and Torres Strait Islander peoples have been the object(s) of a continual flow of commentary and classification" (25). Perception of Aboriginality depends on deeper understanding of this concept and it is important to point out that it has changed a lot. Dodson supports this theory when he says: "Representations of Aboriginality are not simply isolated phenomena which can be eliminated. They are both weapons and symptoms of the oppressive relationship that exists between Indigenous peoples and colonizing states" (32). This phenomenon cannot be treated separately but only in a broader context. Aboriginal people share similar principles within their community and their relations are very close. Aboriginality is defined with "identity, descent and acceptance" (Heiss 22). Generally speaking, it is not enough to be Aboriginal in your own eyes but the others from the community must agree on your membership in the community. The colour of skin is not the only factor determining the 'extent' of Aboriginality. Moreover, Aboriginality is rather a social concept. Marcia Langton discusses the role of Aboriginality: "Where my discussion is pointing here is that 'Aboriginality' is not just a label to do with skin colour or the particular ideas a person carries around in his/her head which might be labelled Aboriginal such as an Aboriginal language or kinship system. 'Aboriginality is a social thing [...]" (31). It bears many negative connotations which come from the experience of white settlers. The judgements of European newcomers were quite

narrow-minded at that time. They perceived Aboriginal people as 'savages' living in the bush without knowing the principles which were common for white people. Without any effort to get to know Aboriginal people, white settlers condemned them as inferior human beings. Langton supports this notion: "The racism of conviction that blacks are morally and/or intellectually inferior defines the 'common sense' perception of blacks" (41). Portraying of Aboriginal people in literature and films is always stereotypical to a certain extent. The picture of the Aboriginal person as a wild savage "of inferior innate capacity" (Healy 5) is quite common. The Aboriginal people are usually shown as members of a cruel nation. As Michael Dodson emphasizes in Blacklines: The defining characteristics of 'Indigenous' were frequently described in unambiguously loaded language; Indigenous people were generally identified not in terms of their positive attributes, but in terms of what they lacked: they were 'under-developed', 'primitive', unable to speak the language of the non-Indigenous population, uneducated in the ways of the non-Indigenous population, 'backward'. (29)

The European traditions and cultures differs significantly from the Aboriginal ones and that is the main reason why Europeans cannot understand that Aboriginal people do not need to read in the bush but they need completely different skills to be able to survive there. Aboriginal people had to cope with the European colonization. They had no choice, nobody had asked them if they wanted to share the land with some strangers. They had to adapt to European practices and a way of life. White settlers wanted Aboriginal people to be institutionally assimilated. They wanted to eliminate Aboriginal culture and let it 'dissolve' in the European one.

Anita Heiss draws attention to the origin of assimilation practices: "The assimilation policy was developed from the racist notion that European society is superior/more highly valued socially than

Indigenous cultures" (17). This led to one of the most dreadful aspects of Australian history which gave rise to the so called "Stolen Generation". White settlers took Aboriginal children of usually mixed parentage from their Aboriginal families and sent them to be raised in white households or the so called missions or native settlements. White authorities started to solve the problem "[...] how to make a useful worker and member of society, and at the same time protect the Aboriginal from contacts which no government had been determined or able to control" (Healy 5). Aboriginal people seemed to be an obstacle to the life of Europeans in Australia.

Part-Aboriginal children were considered to be more intelligent and also more adaptable than their full-blood Aboriginal contemporaries. The aim was to send the part-Aboriginal children to white families to re-educate them. For "half-caste" children it was not easy to find and discover their identity because they did not know where they belonged. Anita Heiss stresses the fact that "being defined as 'half-caste' or 'part-Aboriginal' not only detracted from someone's Aboriginality, forcing even Aboriginal people to question their identity, but also supported the policy of assimilation designed in 1951[...]" (17). The problem of re-education of part-Aboriginal children was to be solved by placing these children into white households. The solution was brutal and ill-considered. The tremendous consequences were not taken into account. It is a widely known fact that about 100,000 mixed-descent children were stolen away from their families and were disconnected from their culture. The great irony about this is that the white settlers wanted to "protect" these children. Aboriginal Protection Officers were in charge of these cases and they decided about removing "half-caste" children from their parents. The separation from everything the children of the Stolen Generation had and liked had severe impact on them.

On the 13th February 2008, Australian Prime Minister Kevin Rudd apologized for the past policies towards Aboriginal people. His

predecessor, the conservative Liberal Party leader John Howard, refused to do this. Now, this date is very important for Aboriginal people, even though it is just a formal apology without any promise of compensation. On the other hand, nothing can rectify the violation of the Indigenous inhabitants. The words can not heal the 'wounds' of the Stolen Generation members. Aboriginal people can not forget the injustices as their rights were limited and they were forced to abandon their heritage and were forbidden to speak their language. They were not given full citizenship in Australia until 1967. Nowadays, Australia is said to be one of the so-called multicultural countries. Such a country should be tolerant to the immigrants and Indigenous inhabitants but the reality is different. Aboriginal people are still living on the margin of Australian society. The images of Aboriginal people are all around Australia in many different forms. Dark Side of the Dream by Bob Hodge and Vijay Mishra draws attention to the fact that Aboriginal people still remain inseparable part of Australia despite several attempts to change it: The role of Aboriginal Australians in the dominant constructions of Australian identity is at first sight contradictory and ambiguous. The 'typical Australian' is all White and he occupies a landscape from which all Aboriginal traces have been removed. But the iconography of Australia that is packaged for the tourist industry is full of Aboriginal motifs. (23)

Modern Australian society cannot be presented as a 'white society' as Indigenous people are the rightful inhabitants of Australia. All these aspects mentioned above will be applied to the Aboriginal characters from the three works and they will be considered while analyzing the individual protagonists. The concept of Aboriginality is projected in all the three novels and a lot of attention is paid to it. Aboriginality helps to show the different kind of life in Australia which is in contrast to the European settlers' tradition.

Aboriginal people must have relied on their memory. They trained it through telling stories – the more they talked and listened, the better their memory was. Storytelling is thus an instrument for education, keeping traditions, transferring information and last but not least entertainment. It is almost unimaginable for people who have not experienced the oral tradition thatstory telling could work for such a long time. It is admirable that Aboriginal people were able to absorb so much information and pass it further on. When we move to contemporary times, oral tradition still remains an inseparable part of Aboriginal life. However, as well as all the other nations in the world, Aboriginal people discovered the advantages of writing. Suddenly, it was possible to express their ideas in a different way and share them not only with people from their surroundings but also with people from all over the world: "Over the last few decades, Aboriginal people have found a new 'voice' for keeping their stories alive and that is through literature: printed storytelling" (van den Berg, "Aboriginal Storytelling"). As soon as Aboriginal people could express themselves in writing, they took advantage of this possibility. Kim Scott draws attention to the main reason for the beginning of Aboriginal writing: "The long neglect–the silencing–of Australia's Indigenous voices must be noted" (Foreword i). Aboriginal people were aware of the fact that they could inform people all around the world about the history of their nation through writing.

Although Aboriginal writing forms a great part of Australian literature, it has always been marginalized. Kim Scott supports this view in the Foreword to Anita Heiss' book: Increasingly, enlightened Australians recognise how important Indigenous culture is to the connection of Australia (as a nation) to its land. Indigenous writing is an important, although undervalued, part of making that connection. Yes, it is a by-product of colonisation, but it can also be part of the continuation and regeneration of a prior Indigenous culture. (i)

Australians had to accept Aboriginal writing as a part of Australian literature because Aboriginal people are the inhabitants of this land and thus they have the right to express their opinions by means of writing. In spite of this formal acceptance white Australians went on considering Aboriginal writing as something inferior: "Until recently, Aboriginal literature was treated as not even 'literature', much less part of Australian literature, and Aborigines appeared only on the margins of works in the mainstream of White literature" (Hodge and Mishra 27). However, Aboriginal writing is not inferior at all.

As far as the themes of Aboriginal writing are concerned, they are manifold. It is important to point out that despite of this diversity, the purpose of Aboriginal writing is always very similar. The cultural heritage of Indigenous people is reflected in their writing and the Aboriginal experience is evident in the works of Aboriginal writers. Scott asserts further on that "it would appear that there is a consistent experience particular to Indigenous authors that reflects the fact of their being Indigenous regardless of the literary genre they are working in" (Foreword vii). It was not an easy task to introduce the Aboriginal writing to the public. The first writers must have tried hard to attract the attention of readership.

If we concentrate on individual topics of Aboriginal writing, dealing with history of European colonization and its consequences would probably prevail: "Regardless of genre, 'rewriting history' can be an appropriate phrase for much of the work currently being penned by Aboriginal writers in recent years" (Heiss 36). In my view 'rewriting history' means combining the historical facts with personal experience of Aboriginal people. Describing historical events is crucial for most Aboriginal writers. They want to show their views of various historical issues and express their feelings concerning these events. They are inspired by the oral tradition and their own knowledge of Aboriginal history. These writers want the readership to perceive the history of

Aboriginal people, not the biased picture of it created by some non-Indigenous writers. History seems to be omnipresent in most works dealing with Aboriginal people in Australia. Adam Shoemaker supports this fact when he says: "[…] Aboriginal history is presented in almost all Black Australian literature, regardless of the genre of expression" (128). The three analyzed works are just a sample of the books dealing with or at least referring to Aboriginal history. Of course, there are various ways and modes how to portray Aboriginal history.

Another popular topic of Aboriginal writing is searching for identity. As Aboriginal people form quite a distinctive group of people in Australia, it is difficult for them to identify themselves as the members of mainstream, predominantly white, society. Indigenous inhabitants differ so much from the rest of the Australian population that they have to resist assimilating pressure from their surrounding, as they try to retain their identity at all costs. The Aboriginal identity is often being discovered within the work. Adam Shoemaker discusses the role of identity in Aboriginal writing: "The self-reflective examination of Aboriginality is a major, but not the only, theme in black creative writing in English" (10). The topic of searching for identity is evident for example in True Country by Kim Scott.

Widespread prejudices surround Aboriginal writing. Most people think that only Aboriginal people are able to show the "real" picture of Aboriginality in their works and people who do not belong to this community should avoid judging Aboriginal people: "There are strong and original arguments coming from people who believe that white writers should not write about Aboriginal issues, especially sacred matters" (Heiss 10). However, even Aboriginal people are not able to judge themselves objectively. Langton supports this idea when she writes: There is a naïve belief that Aboriginal people will make 'better' representations of us, simply because being Aboriginal gives 'greater' understanding. This belief is based on an ancient and universal feature

of racism: the assumption of the undifferentiated Other. More specifically, the assumption is that all Aborigines are alike and equally understand each other, without regard to cultural variation, history, gender, sexual preference and so on. (27)

As far as the function of Aboriginal writing is concerned, it is quite obvious: to inform, educate, entertain and make readers think about people who want to be heard. Scott summarizes the functions of Aboriginal writing: "Writing for entertainment and education has increasingly become an important aspect of reviving and maintaining Indigenous history and culture, and a logical and necessary move in the development of Indigenous expression" (Foreword vi). The topics of Aboriginal writing are often very serious and they make possible to learn more about Aboriginal life in Australia.

The insight into Aboriginal culture through writing makes it easier to understand the seemingly distant community of people: "Aboriginal literature has revealed more personalized accounts of Indigenous Australian life, instead of readers gaining their perspectives from historians, anthropologists and others from academia" (van den Berg, "Aboriginal Storytelling"). Personal experience of Aboriginal people and the accounts of their life stories bring forward the historical events by means of lively and emotive storytelling, in contrast to the blunt facts described in historical books.

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PECULIARITIES OF THE COMMUNICATIVE APPROACH IN TEACHING ENGLISH

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1. Introduction

The communicative method precisely defines objectives headed by free communication through conversation, reading, listening comprehension and writing. For those aims, the communicative method uses contemporary elements of tele-, radio communication, etc. which are natural in the world of exchanging information. Nevertheless, a book remains the main but not the only tool of language learning at school. A teacher can choose any book which corresponds to his/her purposes and defines his/her methodological approach towards language teaching. But a book should be both interesting and accessible for students. A textbook should help learning the language, but not give interesting or boring facts about it. On the other hand, even the most attractive textbook will not give any results, if its contents (drills, exercises, rules, etc.) are separated from the communicative learning with the help of a teacher as a professional counsellor. An English language teacher must know English as well as his mother tongue. The teacher must be aware of the laws according to which language functions. The teacher must be acquainted with the last methodological points of view, but he is not to be obliged to acquire those if they do not conform to his purposes and aims. The teacher ought to know the difference between general linguistics and pedagogical linguistics in order not to convert lessons at school to linguistic seminars.

Real communication is always informative, unpredictable and unexpected. If the teacher is always informative, interesting and unexpected, then even before the beginning if the lesson students will be disposed for a good lesson. But if the previous lesson is just the same as the next one, students will be bored with it before the lesson start.

Even the most trivial dialogue can be transformed to a communicative one if no one knows a word of what will be said about. If the dialogue starts

A: - How are you?
B: - And you?

then it all can be boring, definite and predictable. This dialogue is not informative, and rather similar to those which the students must learn by heart in terms of a prepared situation recipe. Byy contrast, the dialogue below is unpredictable, interesting and informative:

A: - How are you?
B: - Is it true, that you ... or
A: - What is the result of the match?
B: - Tell me, where I can get repaired my Japanese TV set? It broke down in the middle
of the match.

The answer is unexpected and related to the questions only associatively. During a language lesson, such dialogues can reflect spontaneous situations. Those unexpected dialogues are really communicative and built according to the scheme "stimulus - response". This principle stimulates active thinking process, intuitive thought and use of language in the frame of fixed communicative habits.

Working on their own, students fulfil the task of a communicative intercourse, and the best way of it is a free dialogue

between students but excluding the teacher who is always correcting and evaluating. There are a lot of students who can and know how to speak English but they happen to keep silent facing the criticizing teacher. At free work, however, students are more willing and ready for decision-making and to ask the teacher for his advice.

When a teacher is not a dictator, students try to learn language themselves. In small groups, even the shyest students engage in communication at the same level as a "non timid" students. It never happens, however, if the teacher stands in front of the all class. Work in groups which transform a student into the main person of the language lesson is the kind of work which develops the communicative abilities of students.

Teachers always seek to fill the heads of students with various grammar rules and to transform them to a source of language perfection. This purpose can not be achieved in most cases. At the same time, it is not useful since it is impossible to grasp a lot of. The English teacher should fix flexible aims which could vary in every single case. Communication is a necessity in order to keep contact at a certain level and at a certain communicative frame.

What are the relations between communication and competence and which determines what: whether communication defines competencies or vice versa?

In fact, I used to correct every students mistake. But later on, I understood that not in every case we need to pay attention to wrong usage of language, and if we do it this must be done in the same way which does not disturb the course of communication, Which is better:

How can I find Student street ?
Where is Student street ?

Do you happen to know Student street ?

Every from the three examples above will direct to Studentu street. Thus, norms of language are supposed to assist communication but it is not necessary to use . it in the standard perfection. And if we have to make a choice between perfection and communicative result, we would choose the last one. No doubt, perfect communication preferred but not compulsory. A communicative teacher must pay attention to typical mistakes, those which he often comes across with, to distortion of logical and grammatical forms. Normative language is to remain on example of imitation, but not in all cases it must be the goal of active studies.

Attention must be drawn to one more element of communicative intercourse. It is spontaneity. In many cases normative rules will not allow to evaluate colloquial situation and respond to communicative stimulus. Many times a teacher can spot a student not finding the right word. That happens when the student thinks not about what to say, but how to say.

2.Communicativists, audiolinguists and structuralists. Their attitude towards language teaching

The teacher with a respectful pedagogical experience would say: "We did not teach in vain. There are generations which can speak English". Yes, but how many efforts it took.

In the second half of the XXth century behavioural approach emerged. Behavioural linguists covered methodology with their ideas and defined language teaching methodology as a mechanical reflection of language reality. This automatic and drill-based language learning relied on right understanding of primary language of a growing child who is being brought up in a natural language atmosphere. But it is difficult to compare the perception of English by a child in an English

speaking family and the perception of it in a non-English one. Behaviourists claimed that the only way of language learning was a mechanical repetition of semantic and grammatical forms. And what is true in a natural way of language perception, here becomes senseless. A "behavioural" student cannot achieve natural language usage and he isolates himself by situations which cannot be universal in every case.

Structural linguists claimed that direct language atmosphere is essential for acquiring the studied language. By this statement, oral discourse was the only means of communication. Creation of a language atmosphere was considered as compulsory condition for learning a second language.

Mostly oral discourse is to be the only means of communication or at last the dominating means. But very often foreign language is used in a written form.

3. The relation of communicative exercises to communication in a wider sense

The assortment of communicative exercises is unlimited. But they can be classified. That is done by such researchers of communicative method of language teaching as Penny, Rivers, Widowson and others. Classifications are a kind of methodological care of communicative experience in teaching foreign languages. But teachers themselves can classify a system of exercises according to their aims, level of the class, etc. Relative classification of communicative exercises can be presented in following way:

1. The beginning and the development of relations.

This type of exercises can be adopted for beginners. It is known that these exercises tune up students to words communication. Axis of this type includes greetings, requests, simple dialogues for acquaintance, permissions or refusals. Such exercises can be carried out

by one person but only in communicative intercourse.
2. Purposive search of information and report.

Such search works do not reacquire oral communication or focus on communication "a book - a person". It means comprehension of what is read. For many students understanding the plot of the book will be a significant element in communicating with the English speaking world in universities, correspondence, reading magazines, newspapers.

A report can be suggested as a topic for a month. During this time, students must prepare not only a report but also a plan according to a topic, which is handed to everyone student. It enables them to follow what is said in a report by a speaker, ask questions or supplement. The same topic can be suggested for two students. That can provoke a discussion in the class where all students are judges

3. Work at practical projects.

That is reading and discussions of instructions. Model of discussion can be "Find the treasure", reading instructions how to make medicine, how to deal with deodorants, domestic appliance, type-recorders, etc.

4. Theater situations.

These can be scenes from fiction reading.

5. Reactions and intentions.

Free dialogues with unexpected ends, games with an alternative answers "yes" and "no", clearing up the real intentions, solving current problems, participating in the social life, charts on the telephone.

Definitions, common phrases, bureaucratic aphorisms and other language elements of everyday life cannot be learnt from the

textbooks. In language terms rapprochement with real life is understanding of the communication. Students can fill in the form:

1. Name.....
2. Surname.....
3. Address.....
4. Telephone number.....
5. Date of birth.....
6. Place of birth.....
7. School.....
8. Average mark.....
9. Favorite subject at school.....
10. Foreign languages.....

Such and similar forms can be required to fill in in real life. Teachers can construct forms themselves for various reasons: Kristian Anderson

1. Name and surname.....
2. Date of birth.....
3. Place of birth.....
4. Date of death.....
5. Place of death.....
6. Childhood.....
7. The most famous work.....
8. Etc.

These forms can embrace famous persons of English history, literature and arts, and enrich simultaneously knowledge of students. Such forms have perception character. They can be of the following forms:

1. Name and surname.....
2. Your favourite art.....
3. Your favourite actor.....
4. Your favourite actress.....

5. Your favourite writer.....
6. Your favourite painter.....
7. Your hobby.....

Work according to these forms can be done in groups. Students can ask each other and help each other with answers.

Forms are to spot various facts of the world. Forms and questionnaires can assist teacher not only to gather information but use it in oral form, as well. In foreign schools, universities, governmental institutions which carry out psychological examination for determinations of IQ cannot avoid a multiple choice test. This does not mean checking the writing abilities. This means checking the ability to find the right answer or logical decision. Answers to such questions take less time than written answers. Extent of mater is deeper and vaster.

4. Conclusions

Communicative system must take account of the following features:

1. Social interaction.
2. Unexpected moments in forms of perception and addressing.
3. Creativity in forms of perception and addressing.
4. Reasons for perception and addressing.
5. Personal and social elements of speech production including both emotion and information.
6. Success in communication.

The communicative characteristics of a language are directly connected with the forms, and such language norms reflect amount of people for whom such norms are standard norms.

Standard norms of English denote such language which we hear on TV, in the street, but not the language which was used by great writes for example in the XIXth century. The first language type can be called strategic language and it is the aim of studies. Languages studies must always be defined by the strategic communicative aims. Thus, communicative methodology is to pay attention to the strategic language, active and affective. This does not mean that communicative methodology restricts language to the minimum of necessary phrases and does not pay attention to the aesthetic beauty of the language, its peculiarities and variety of forms. On the contrary, expending the strategic language, a person acquires not only the minimal colloquial categories, but picturesque elements, as well. The sociolinguistic language aspect is more powerful than the academic aspect because those who use language for communication improve themselves in language forms.

Mutual relations between the teacher and students have always been in the spotlight. The communicative system revises the role of the teacher in class and the main principles of mutual relations between the teacher and students. The teacher is to be a counselor, a professional adviser to whom students can appeal with questions.

Even in the most democratic countries, a school still remains, to put it harshly, the microcosm of a totalitarian system. In a communicative class, discipline and order is not achieved by instructions which are posted in a hall. It is done by understanding that studying is an aim worth of pursuit and perseverance in itself.

Disturbance of discipline most frequently occurs in classes where teaching is carried out only by the frontal method when the student's personality has no significance in the whole mass, and this mass must comply with the criteria of the given materials. Students

cannot identify themselves in this mass and loose any interest in studying. The communicative system gives a chance to a student to express himself in a group which is composed of students with similar background. In a communicative class there are also examinations and tests, including the explanation of material by a teacher, calling the parents, or bad mark to students. However, everything is based on new pedagogical principles.

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WATER BALANCE AND GROUND WATER RESOURCES ASSESSMENT OF THE RAYALASEEMA REGION, ANDHRA PRADESH, INDIA.

K. Somanna

ABSTRACT

The seasonal and annual water balance elements of Rayalaseema region covering an area of about 67,293 km^2 have been studied using Thornthwaite and Mather (1955) water balance technique. From the seasonal analysis it is found that the mean rainfall is high (403.70mm) during southwest monsoon followed by northeast monsoon (246.48mm), summer (73.66mm) and winter (9.33mm). The mean annual rainfall of the Rayalaseema region is 728.28mm. The average potential evapotranspiration is high (602.78mm) in southwest monsoon followed by summer, northeast monsoon and winter periods. The average annual potential evapotranspiration is 1654.42mm. The average actual evapotranspiration is high (394.32mm) in southwest monsoon followed by northeast monsoon, summer and winter periods. The average annual actual evapotranspiration is 899.23mm. The water deficit is highest (395.78mm) in summer period followed by southwest monsoon, winter and northeast monsoon periods. The average annual water deficit is 755.19mm. There is no water surplus in the Rayalaseema region. The average moisture adequacy is high (91%) in northeast monsoon period followed by southwest monsoon (65%), winter (46%) and summer (25%) the annual moisture adequacy is 54%. The average annual recharge is 119.417mm. The ground water resources of Rayalaseema region is estimated through rainfall recharge method. The total ground water potential is estimated to be 8,032 million m^3. The total surface water resource of the Rayalaseema region is estimated to be 49,335 million m^3. Out of this 10% is stored in the ponds, lakes, tanks and reservoirs, 16.28% is recharged to ground water, 20% is lost in the form of surface

run-off and 53.72% is lost in the form of evaporation and evapotranspiration.

INTRODUCTION:

Water balance is a basic concept in applied climatology and has been gaining importance in various fields of Agriculture and water management. With increasing population and decreasing per capita availability of water, optimum utilization and conservation of water has become a problem of vital importance in which water balance plays a major role. It is well established that water supply to a region is primarily through precipitation and the water loss is almost entirely due to evapotranspiration. The wetness and dryness of a place is determined by the relative magnitudes of precipitation and potential evapotranspiration. The water balance elements are precipitation, potential evapotranspiration, actual evapotranspiration, water deficit, water surplus, moisture adequacy, Aridity Index, Humidity Index and Moisture Index. Thornthwaite and Mather (1955), Penman (1956), Van Bavel (1956) and Christinan (1970) have developed formula for estimation of potential evapotranspiration. In India the formula devised by Thornthwaite and Mather (1955) has been intensively used for evaluation of water balance studies at national, state, regional, basin, district and micro level by Subrahmanyam (1956,1957,1958,1963,1967,1982 and 1983) Subrahmanyam and Murthy (1968)) Subrahmanyam and Sastri (1969 a and b 1971) Subrahmanyam and Sharma (1974) Subrahmanyam et . al (1964 and 1970) Subrahmanyam and Subramaniam (1964 and 1965) Subramaniam (1961) Sastri (1969) Ramasastri (1973) Sharma (1974) Bora (1976) Ram mohan (1978), Hema malini (1979), Viswanadham (1981) Sambasiva Rao (1983 and 1986) Sambasiva Rao and Kalavathi (1983) Subrahmanyam and Venkatesh (1983), Sambasiva Rao and Rajeswari (1985), Kalavathi (1985), Vasthala (1987), Sambasiva Rao et al. (1987), Rajeswari (1990), Krishna Reddy (1990), Madhuramma

(1992). The above said researchers have carried out extensive studies on water balance application in agriculture, water resources development and drought climatology.

STUDY AREA:-

The Rayalaseema region covers in an area about 67,293sq.km. The region covers Anantapuramu, Chittoor, Kadapa and Kurnool districts. Geographically the districts is located in between $12^0 – 37^1$ to $16^0 – 18^1$ northern latitudes, and $76^0 -50^1$ to $79^0 – 59^1$ eastern longitudes. There are about 234 revenue mandals and 4395 revenue villages in Rayalaseema region. The total population of the Rayalaseema region 1, 55, 04,738 (2O11 census). The density of population is 230 persons per sq.km.

OBJECTIVES:

The main objectives of the study are

1. to study the distribution of seasonal and annual water balance elements like potential evapotranspiration (PE), actual evapotranspiration (AE), water deficit (WD), water surplus (WS), moisture adequacy (Ima), Aridity Index (Ia), and Moisture Index (Im).
2. to describe the Climatic Classification of the Rayalaseema region based on the values of Moisture Index and Aridity Index,
3. to study the surface water resources of the Rayalaseema region and to assess the sub-surface water resources based on rainfall recharge method at mandal level of the region and
4. to suggest appropriate measures for optimum utilization of surface and sub-surface water resources.

METHODOLOGY:

1. The data pertaining to monthly rainfall period of 100 years has been collected for about 47 stations of the Rayalaseema region. The rainfall data is analyzed to describe the seasonal and annual rainfall distribution in the Rayalaseema region,
2. The temperature data over a period of 50 years has been collected for the Rayalaseema region for available stations. The data is analyzed to study the thermal efficiency. Based on book keeping procedure of Thornthwaite and Mather (1955) method the monthly potential evapotranspiration, actual evapotranspiration, water deficit and water surplus are worked out,
3. Based on the values of PE, AE and WD the moisture adequacy, Aridity Index and Moisture Index are worked out and mapped on seasonal, annual basis of the Rayalaseema region. The water balance of region is worked out,
4. The surface water resources of the Rayalaseema region is worked out basing on average annual rainfall and total geographical area of the Rayalaseema region. The annual recharge of the Rayalaseema region is worked out using U.S. Geological methods (1985) Seghal method (1970), Krishna Rao method (1970) and Radhakrishna method (1974). The average of the four methods is taken as annual recharge of the Rayalaseema region. The ground water potential is worked out at mandal level taking average annual recharge and geographical area of each mandal.

RESULTS AND DISCUSSIONS:

During the months of winter the mean rainfall varies from 4mm in Gooty station to a maximum 22mm in G.Bramheswaram station

(Table-1). The average rainfall of the Rayalaseema region is 9.23mm. The potential evapotranspiration value varies from 150mm in Bangarupalem station to a maximum of 287mm in Badvel, Kadapa, Rajampet and Sidhavatam stations. The average potential evapotranspiration value of the Rayalaseema region is 212.08mm. The potential evapotranspiration values are more than 200mm in Allagadda, Anantapuramu, Atmakur, Badvel, Chandragiri, Chittoor, Kadapa, Dharmavaram, Jammalamadugu, Kalahasti, Kamalapuram, Kurnool, Nandikotkur, Nandyal, Proddutur, Pulivendula, Puttur, Rajampet, Rayachoti, Satyavedu, Sidhavatam, Tadipatri, Vayalpadu and Yadiki stations. In other stations the potential evapotranspiration is less than 200mm.

The actual evapotranspiration value varies from 36mm in Dharmavaram station to a maximum of 158mm in Satyavedu station. The average actual evapotranspiration value of the Rayalaseema region is 96.89mm. The actual evapotranspiration values are more than 100mm in Badvel, Bangarupalem, Chandragiri, Chittoor, Kadapa, G.Bramheswaram, Kalahasti, Kamalapuram, Kuppam, Madanapalli, P. Ahobilam, Palamaneru, Pulivendula, Punganuru, Puttur, Rajampet, Satyavedu, Sidhavatam, Srisailam and Vayalpadu stations. In other stations the actual evapotranspiration value is less than 100mm.

The water deficit ranges from 41mm in Srisailam station to a maximum of 193mm in Jammalamadugu station. The average water deficit of the Rayalaseema region is 115.19mm. The water deficit values are less than 100mm in Aluru, Bangarupalem, G.Bramheswaram, Gooty, Kalahasti, Kuppam, Madakasira, Madanapalli, P. Ahobilam, Palamaneru, Penukonda, Punganuru, Puttur, Satyavedu and Srisailam stations. In other stations it exceeds in 100mm. There is no water surplus in any station during winter period in the Rayalaseema region.

The moisture adequacy values range from 17% in Dharmavaram station to a maximum 76% in Srisailam station. The average moisture adequacy of the Rayalaseema region is 46%. The moisture adequacy values are more than 50% in Bangarupalem, Chandragiri, Chittoor, Yemmiganur, Kalahasti, Kuppam, Madanapalli, P. Ahobilam, Palamaneru, Punganuru, Satyavedu, Sidhavatam, Srisailam, and Vayalpadu stations. In other stations it is less than 50%.

The Aridity Index value varies from 24% in Srisailam station to a maximum of 83% in Dharmavaram station. The average of the Rayalaseema region is 54%. In Adoni**,** Allagadda, Anantapuramu, Atmakur, Badvel, Bukkapatnam, Kadapa, Dharmavaram, Dhone, Yemmiganur, Gooty, Hindupur, Jammalamadugu, Kadiri, Kalyanadurgam, Kamalapuram, Koilakuntla, Kurnool, Madakasira, Nandikotkur, Nandyal, Pathikonda, Penukonda, Proddutur, Pulivendula, Rayachoti, Rayadurgam, Tadipatri, Uravakonda, and Yadiki stations the Aridity Index value is more than 50%. In other stations it is less than 50%.

The Moisture Index values show dry sub humid type of climate in Aluru, Badvel, Bangarupalem, Chandragiri, Chittoor, Yemmiganur, G. Bramheswaram, Hindupur, Kalahasti, Kuppam, Madakasira, Madanapalli, P. Ahobilam, Palamaneru, Penukonda, Punganuru, Puttur, Rajampet, Satyavedu Sidhavatam, Srisailam, and Vayalpadu stations. In other stations the semi-arid type of climate is found. (Table-1 and Fig.2)

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DR.Y.S.RAJASEKHAR REDDY AS CHIEF MINISTER OF ANDHRA PRADESH, INDIA

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Hon'ble Chief Minister of Andhra Pradesh

Dr. Reddy sworn in as Chief Minister of Andhra Pradesh in May, 2004 after a whirlwind tour (known as Paada Yatra) of rural villages across the entire state, a year before the scheduled elections which were later preponed to an earlier date along with general elections to parliament. Many critics and followers acclaim his Paada Yatra played a crucial role in bringing Indian National Congress back to power in Andhra Pradesh after 9 years. Dr. Reddy has been named as the most popular chief minister in the country. Mood of the Nation 2006 poll conducted nationwide. Sworn in as Chief Minister of Andhra Pradesh on 14.05.2004, Dr. Y.S.Rajasekhara Reddy efficiently serving the interests of the people at large Hailing from a drought hit region - the Rayala Seema - he knows the real value of every drop of water. This is the very reason for his taking up the cause of farmers as a young legislator. A curious 'pastime' of Dr Reddy is to feel the pulse of people in rural areas on Sundays through the Rajiv Palle Batta.

- Minister of state for rural development (1980–82)
- Excise minister (1982)
- Education minister (1982–83)
- Leader of Opposition, Andhra Pradesh State Assembly (1999–2004)
- Chief Minister of Andhra Pradesh (2004–2009)
- Chief Minister of Andhra Pradesh (20-May-2009 To 02-Sep-2009)

PROGRAMMES IMPLEMENTED

During his tenure as CM, the government of Andhra Pradesh under took the following projects :

- Providing free electricity as promised for farmers was initiated on the very first day of his tenure as CM in 2004.
- Rajiv Arogya Shree – A health insurance program for rural population below poverty line (white card holders). This insurance program pays the entire cost of any necessary surgery to a maximum of Rs.200,000[16]
- Emergency service- Free public ambulance service. This service was originally started by Satyam and later adopted by government of A.P[17]
- Pavala Vaddi — a program that provides loans at 3% per anum interest rate, designed to encourage small scale businesses and entrepreneurship primarily targeted at rural women.
- Indiramma illu — a program for construction of heavily subsidized housing for the rural poor.
- Rs 2/KG of rice scheme[18]

- Increase in the minimum support price for rice.
- Reimbursement of full college fees for backward sections. Reservations for minorities.
- The main emphasis during his tenure was on social welfare with a majority of his projects targeted at reducing rural poverty.[19] Apart from these schemes, his government stood as the role model in implementing the central governments flagship program – the NREGA.[20] The BBC has called him a champion of social welfare schemes.[3]
- His tenure also saw significant weakening of the violent extremist left-wing Naxalite movement that was rampant in the state when he assumed office in 2004.[21][22]
- During his era Andhra Pradesh achieved a growth rate of more than 6% every year. Poverty levels reduced to 16% in Andhra Pradesh while the national average was 23%.[23]

As the Chief Minister of Andhra Pradesh, Dr. Y.S.Rajasekhara Reddy stands as an example for the down-to-earth administrative capacities while efficiently serving the interests of the people at large.

JalaYagnam

A large-scale program to construct more than 70 pending irrigation projects in the state to improve irrigation facilities to the farmers, with a targeted irrigation to 1.2 Crore acres of land.

Free Power Supply

He assured and implemented free power supply for farmers for 7 hours a day.

Rajiv Arogya Shree

A health insurance and emergency services scheme for rural masses where the government pays the entire price of any surgery up to 200,000 rupee and does not require people to pay any premium

Pavala Vaddi

A program that provides loans to people at 3% per year so as to encourage them to take up small scale businesses and entrepreneurship primarily targeted at rural women

Indiramma illu

A program for construction of houses for the rural masses by charging a small amount and the government the remaining amount Rs 2/KG of rice scheme
Increase in the minimum support price for rice. Reimbursement of full college fees for backward sections, reservations for minorities

Apart from these schemes, his government stood as the role model in implementing the central governments **flagship program** " the NREGA". The main thrust of his tenure was on social welfare with a majority of his schemes targeting at improving the lively hood of the rural masses. The BBC has called him a champion of social welfare schemes. His tenure also saw significant weakening of the violent extremist left-wing Naxalite movement that was rampant in the state when he assumed office in 2004. The movement was so intense that the former chief minister Chandrababu Naidu's car was blasted by them in October 2003. A major reason for the weakening for the Naxalite movement is the emphasis given by Reddy's government improving the livelihood of rural masses, which resulted rural youth not showing interest in joining the Naxalite movement.

FIRST TIME IN THE WORLD

Dr.YSR implemented several developmental programmes and majority of them have received worldwide impression.

ITEM/SCHEME	Achievement
Aarogyasri Insurance	Medical treatment costingRs.2 lakh to Seven and half crore including middle class people. 2 lakh surgeries as of now. A rare record in the world history. Treatment, Operations covering 942 diseases. March forward towards Total Health Andhra Pradesh.
104 Rural Mobile Health Units	Fixed Day Health Scheme through 104 mobile units to every village. 475 mobile health units availability to every village on a fixed day in a month. Free health checkups, free medicines for entire month, quality healthcare at the doorsteps of 4 crore rural people.
Pavala Vaddi	For the first time in the world, differential interest rates to women. Interest is 3% only. Applicable to farmers and weavers also.
Abhayahastham (IKP Life Insurance Scheme)	Monthly pension ranging from Rs.500 to Rs.2,200 to all women over 60 years of age. Life Insurance, Scholarships to their children. Only one rupee per day to be paid by the SHG members. Large scale benefit to One Crore 25 lakh women.
Projects	The life-line projects of Telangana region, “Pranahitha-Chevella” and “Devadula” are the world’s second highest level water pumping Lift Irrigation Schemes.

FIRST TIME IN THE COUNTRY

Current charges, Taxes	Not single Paisa enhanced in current charges since the last five years. Oath taken in the Assembly, not to enhance for the next five years. No other tax was enhanced.
Additional power purhcases	Rs.6,500 crore expenditure during the past two and half years. The 40% growth in power demand is the indication of the tremendous progress made in Agriculture, Industry and Service sectors.
Rajiv Udyogasri. Jobs (Government and non-Government)	No Vacancy boards disappeared. Wanted Boards reappeared. 10 lakh jobs created in the past 5 years in Government and private sectors. Another 10 lakh jobs through Rajiv Udyogsri in the coming two years. 55,000 jobs in SEZs as of now. Ultimate aim is to create 25 lakh jobs. 11,000 vehicles utilised in one Jalayagnam programme alone. Direct and indirect jobs and employment to more than one lakh persons. 50,000 teachers as of now. 17,000 Police recruitment completed. Efforts are on for recruitment of 20,000 more police. 53,000 teachers recruitment would be completed in the coming 3 months. Training in Mason jobs to 38,000 unemployed as part of INDIRAMMA housing programme.
Jalayagnam (Irrigation)	Irrigated water provided to 19 lakh acres additionally as of now. 81 projects launched. 12 projects completed. Another 13 projects under completion. Remaining projects in fast progress by working day and night.

Free Power	Uninterrupted free power supply to 30 lakh pump sets (families) since four and half years on record scale. 1500 crore units' free power to Agriculture sector every year.
Agricultural Loans	Loans worth Rs.22,650 crore distributed in 2007-08. Rs.26,000 crore targeted for 2008-09. The interest rate is only 3%.
Farmers' loans waiver	Rs.11,100 crore loans waived to 64 lakh farmers, highest in the country. Rs.1,800 crore distributed by State Government @ Rs.5,000 as incentive to each of 36 lakh farmers who were not covered under loan waiver scheme announced by the Centre.
Land distribution	6.04 lakh acres distributed to poor… Rs.500 crore for land development. Six lakh acres Land ownership rights to Tribal's.
Agricultural Laborers	All round benefit to more than one crore persons. Full stop to migrations. Daily wage enhanced from Rs.20 to Rs.82.3… Likely to be raised Rs.100. Top rank at national level in the implementation of National Rural Employment Guarantee Programme by using Social Audit, Smart Card and e-governance.
Pashu Kranthy	Purchase of 1,50,000 cattle at 3% interest and Rs.30,000 subsidy. White Revolution in villages.
Sheep Insurance	This scheme is being implemented in the State for the first time in the entire country.
Aarogyasri, 108 Ambulances	108 Ambulances are made available to all at all times. Ambulances were made to reach to any place in the State within 18 minutes. Every day, 802 Ambulances with 6,000 emergency trips is a new

	record. Total Health safety to seven and half crore people through Aarogyasri.
104 Help Line	50,000 calls per day. Tele-medicine. Free Health information. Time to time counseling.
Houses	39 lakh houses were built since the past four and half years. 28 lakh houses under construction. Indiramma target is 80 lakh houses. With the construction of the remaining houses, Andhra Pradesh would emerge as the only State without huts in the coming two years. The housing budget rose 10 times from Rs.500 crore to Rs.5,000 crores since the last four years. Check to irregularities through 24 hour help line, quick response teams and social audit. House sites were distributed to more than 20 lakh poor.
Self Help Groups	More than One crore women Self Help Groups joined as of now.
Loans	Rs.16,535 crore since the past four and half years (By December 2008). This year target is Rs.11,000 crore. By March, 2009 the total loan distribution would be Rs.23,000 crore in five years period. The Government aims at making one crore women as lakhiers in the coming four years.
Micro loans-Total percentage in the country.	42 %. The lion's share out of the country's micro loans is enjoyed by our State women only.
Cooking Gas	Ours is the only State that has bore the entire burden of Rs.50 on Gas enhanced by the Centre.

Ration Cards	An additional 50 lakh new white ration cards sanctioned as of now. Ration cards to all the eligible. White cards to around 2 crore families including the middle class.
Loan waiver	Rs.2,000 crore waived to beneficiaries who have taken loans through S.C., S.T., B.C., Minorities' Corporations.
Handloom Sector – Weavers	Rs.327 crore loans of handloom weavers waived. 3 lakh families benefited by loan waiver. Pensions to 1.5 lakh weavers. Budget rose to more than Rs.150 crore.

Pensions	Since the last five years, new pensions to 55 lakh. By 1st of every month, 71 lakh pensions regularly @Rs.200 each.
Education	University in every district. 17 new Universities established apart from specialized Universities. Several new Universities like IIT, IIIT, BITS established.
Fees Reimbursement for Students	For the first time in the country, 100% fee reimbursement to B.C., Minority, Poor among Upper castes (E.B.C) students including S.C. & S.Ts. Free Higher Education. Rs.2,500 crore allocation made towards fee reimbursement during 2009-10. 26 lakh students benefited as of now. 7 lakh EBC students would benefit additionally. With this Govt. will be bearing the burden of providing higher education to 85% of the students. (11 lakh B.Cs., 5 lakh S.Cs, 1.8 lakh S.Ts, 7.4 lakh

	minorities and 25,000 disabled…in total around 33 lakh students would benefit under the scheme.
Welfare Budget	In 2008-09, budget was allocated to welfare sector on a large scale at Rs,30,000 crore.
B.C.Budget	Rs.1,600 crore was allocated in 2008-09.
Minority Budget	Rs.200 crore allocated in 2008-09.
Mass Marriages	Mass marriages were conducted through T.T.D's Kalyanamasthu and to Minorities through Minority Department.
Development, Plan, Welfare sector, Capital Expenditures.	As per the latest R.B.I. Report, the State ranks 1st either in absolute terms or on per capita basis in development, plan, social, capital expenditures. Agriculture registered two digit growth rates in 2007-08 as nowhere else in the country.
sector, Capital Expenditures.	expenditures. Agriculture registered two digit growth rate in 2007-08 as nowhere else in the country.

FIRST TIME IN THE STATE

I.T. & I.T. Jobs.	New I.T. Policy formulated in 2005 for speedy progress and to reach top position in the country. Steps initiated for I.T. development in the cities like Visakhapatnam, Vijayawada, Tirupati, Warangal. 1,584 I.T. companies established as of now. 1.53 lakh jobs newly in I.T.sector. Rs.26,122 crore I.T.Exports in 2007-08
I.T.exports	Andhra Pradesh achieved 15% of the National exports. National growth rate is 32% and the State's

Percentage	growth rated recorded as 41%.
Industries	Fast industrialization in every district. Industrial development at cities like Visakhapatnam, Vijayawada, Tirupati and Warangal. According to R.B.I. report, our State ranked 2nd in the country in attracting investments in 2007-08.
Employment in Industries	Rs.16,700 crore investments from 2004 to 2008. 2.14 lakh jobs created. Some more industries being established and fast completing at a total investment of Rs.38,600 crore aimed at creating 1.3 lakhs jobs.
Subsidy Rice	Rice made available to 2 crore families @Rs.2 per kilo only. Government is bearing more than Rs.3,000 crore towards Rice subsidy.
Essential Commodities	Rice, Red gram and palm oil monthly essential commodities being supplied at Rs.103 only.
Local Bodies Duties-Funds	Janma Bhoomi-Nodal Agency cancelled. Rs.6,110 crore spent in the last four years itself.
Production	Agricultural production with 199 lakh M.Ts is a major achievement. The State regained its lost glory as Annapoorna. Farmers are well off and brimming with confidence.
Minimum Support Price Percentage	Price rise and percentage in MSP in the last five years- Paddy-Rs.350 (64% raise), Cotton-Rs.1075 (56% raise), Jowar, Sajja, Maize Rs.355 (66% raise), Pulses Rs.1150 (84% raise), Ground Nut Rs.700 (50% raise) and Sunflower Rs.965 (77% raise).

Universities	Government took a policy decision to establish one University in each district. 18 new Universities established including Veterinary, Horticulture universities as of now.
Educational Institutions	New educational institutions like I.I.T, IIIT, BITS Pilani established. I.T.education being imparted in 1,000 schools and computers supplied to Madras's.
Rural Education	World-class education being imparted in the Rajiv Gandhi Triple ITs to 6,000 rural students in I.T, Bio-technology, Nano-technology sectors. Free education to majority students. 11 Polytechnic colleges, 9 Junior Colleges, 31 Degree Colleges opened. As part of SUCCESS School education scheme, English Medium education with CBSE syllabus imparted besides computer training.
Jawahar Knowledge Centres	Training is being imparted to students of more than 1,000 vocational colleges as per the industrial needs, with the aim of creating employment to 5 lakh persons. Already training/placement provided to 60,000 students. Rural and backward class students are getting jobs employment in multi-national companies.
Community Colleges	Evening classes in Government Colleges/Universities...Diploma and Degree awards to working persons. Evening Polytechnic courses in the existing Engineering Colleges. Diploma seats in the State doubled. One I.T.I established in each of the constituency.
Education	Rs.35,000 crore spent in the past five years.

Budget	
Higher Education Budget	Rs.1,500 crore in 2008-09 and Rs.2,383 crore allocated for 2009-10.
Co-operative Sugar, Spinning Mills	5 closed Sugar Mills and 2 Cement plants were re-opened. The package of the State Government for merging BHPV in BHEL won accolades from employees and labour associations nationwide. Government jobs provided to 1,486 employees due to the closure of Allwyn based on their efficiency and utility. Pension facility to Allwyn employees on par with Government employees. Several Public Undertakings like APGENCO, RTC, Singareni company etc. are running in profit path with the support of the Government.
Rajiv Yuva Sakthi	80,000 youth trained in various sectors at a cost of Rs.21 crore. Rs.20 crore financial help extended to 4,540 weavers.
S.C.,S.T entrepreneurs	20% additional subsidy. Additional reimbursement at 0.25 paisa on power unit. 25% additional reimbursement on Sales Tax. Separate Trust established through which the entrepreneurs would be provided guarantee.
Rains	For the first time in the history ...Full rains in five years. All dams full of water continuously for five years. Water flows to tanks what were not full in twenty five years and heavy flows to Singur project that has not witnessed full waters for eight years. Plenty of Agricultural production and

	hydroelectricity generation.

Apart from these schemes, his government stood as the role model in implementing the central governments flagship program – the **NREGA**. The main thrust of his tenure was on social welfare with a majority of his schemes targeting at improving the lively hood of the rural masses. **BBC** has called him a champion of social welfare schemes.

Other projects

Jala Yagnam-To irrigate 1,00,00,000 acres of land through construction of major, medium and minor irrigation projects.[24] The program helped Andhra Pradesh make significant progress in areas of Sustainable Agriculture by making wastelands cultivable.

Election 2009

Reddy's major campaign slogan for the 2009 election was "Development and Credibility". He sought a mandate based on his past performance. He made no new election promises but vowed to continue and extend various ongoing schemes. The opposition parties had formed a 'Grand alliance' (mahakootami) comprising all the major opposition parties including, Telugu Desam Party (TDP), Telangana Rashtra Samithi (TRS) and the communist parties. The TDP promised numerous inducements including free color televisions and the unique cash transfer scheme (CTS). There was also a new party Praja Rajyam Party (PRP) floated by a popular film star Chiranjeevi. Congress under the leadership of Reddy won the contest and came to power for a second time, winning 156 seats in the assembly while requiring 148 for a simple majority. Reddy's party also won 33 seats in parliament out of a total of 42 seats. This feat was seen as a very big victory for Reddy since he was able to come back to power for the second consecutive term against the odds of anti-incumbency.[25] He became the Congress party's first incumbent chief minister since 1969 to win based on his

performance.[26] Reddy was sworn in as the chief minister for the term of 2009–2014 on 20 May 2009. The ceremony was held in Hyderabad's Lal Bahadur Shastri Stadium and was attended by a crowd of around 20,000 people.[27]

Even as the election campaign by key leaders is yet to gather steam, political parties may find it tough to match the pace of Chief Minister Y.S. Rajasekhara Reddy. Leaders of the other political parties including the main Opposition Telugu Desam and Praja Rajyam are still to get into full-fledged election mode owing to issues like candidate selection that remain unresolved so far. Given the acute shortage of time before the polling day, they may not be able to match Dr. Reddy in the number of tours he has undertaken even before they hit the road.

In the strict sense, Dr. Reddy's were not party tours, but he managed to reach out to voters in the districts to launch and publicise various schemes of his government. On an average, the Chief Minister visited each district 33 times from the time he assumed office in May 2004 till announcement of the poll schedule on March 2.

Dr. Reddy toured the districts 726 times! In effect, he spent a full two years of his five-year-long tenure in one district or the other, maybe not for the full day. His native district, Kadapa, accounts, perhaps understandably, for the maximum number of 52 visits. Ranga Reddy and Mahbubnagar districts, which provided platforms for launch of a host of welfare schemes, came next with 42 visits each. Visits to faraway Vizianagaram district were lowest at 22 while Dr. Reddy visited 15 districts spread over the three regions at least 30 times each.

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BHARATA KOKILAA KAVITA GANA MADHURYAM

('భారతకోకిలా' కవితాగాన మాధుర్యం)

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"పసిడి కలలూ పచ్చని ఆశలు
సరోజిని కవితల కావిళ్ళుమోసిన రవల మూటలు
కదిలి పోతుపుంటాయి శిల్ప కల్పన శిఖరాలవైపు
కవితావ్రతుల కమనీయ రసధ్యేయ హృదయాలవైపు"

అని అద్దం పట్టినట్లు "భారత కోకిల" సరోజిని నాయుడి హృదయా విష్కరణ చేశారు పై పంక్తుల్లో ఆచార్య ని. నారాయణరెడ్డి గారు. సరోజినినాయుడి ఆంగ్ల కవితల్ని ఆంధ్రంలోనికనువదించి అచ్చమైన స్వతంత్ర రచనలా అన్నట్లు రూపొందించారు. నారాయణరెడ్డి గారు ఆ కవితా సంపుటి "ముత్యాల కోకిలా" అన్న అన్వర్థ నామకరణం చేశారు. ఇలాంటి "ముత్యాల కోకిల" కవితా సంపుటిలోని కవితా గాన మాధుర్యాన్ని ఆస్వాదించడానికి యత్నిద్దాం.

1. కవితకు ఆవేశం ప్రాణం :

ఆవేశ రంగితమైన కవిత కవితలా ఉండదు. సహృదయ హృదయ రంజకం గాదు. రసనిష్యంది కాజాలదు. కాని సరోజిని నాయుడి కవితలో మస్తుగా వుంది ఈ ఆవేశం కాబట్టే అవి ప్రాణవంతమై మన మనసుల్ని రంజింపచేస్తుంది. 'ఐహామతి' అనే ఖండికలో

"కోనకు చేనికి అమనిసిరులు! కొంగకు డేగకు రెక్కల పొగరు
చిరుత పులికే తన దర్పం! చిరుగువ్వకు తనవర్ణం
ప్రభూ ప్రభూ! మరినాకో ప్రణయావేశం

అని తరువాత రెండు భాగాల చివర 'ప్రభూ ప్రభూ! మరినాకో సత్యావేశం' 'ప్రభూ! ప్రభూ! మరినాకో కవితావేశం' అనివాచ్యం చేయబడింది.

2. వినర్థ మనోజ్ఞ కవిత :

కవితకు ప్రాణవంతమైన ఆవేశం ఉండటం చేతనే శ్రీమతి నాయుడు కవిత వినర్థ మనోజ్ఞమై మన మనసుల్ని మురిపిస్తుంది. ఆవిడను ఉత్తమ కవియిత్రిగా నిరూపిస్తూంది.

"పాట పైరగాలిలోన ఊగెనామె పువ్వులా
ఏటినురగచాలు లోన తేలినామె గువ్వలా
విరబూసిందామె కలల పెదవుల చిరునవ్వులో"
"పాట మంచు బిందువులో వాలెనామె చుక్కలా
తరగ అంచుపైనా ఆమె మెరిసె వెలుగు రేకలా"

ఇందులోని కవిత ఎంత సుందరమై ఉన్నదో తెలుస్తూంది ఏ విధమైనా వాఖ్యానం లేకుండానే పై పంక్తులలోని భావుకత కవయిత్రిని ఉన్నత స్థాయికి తీసుకుని పోతూందనడం సముచితం.

3. భావ కవిత : సరోజిని నాయుడు కవితలో చక్కటి ప్రకృత్యారాధన, సౌందర్యోపాసన, పరిపూర్ణ ప్రణయంతో కూడిన ఆత్మార్పణ మొదలైన గుణాలు గోచరిస్తాయి. 'నీవే మరణిస్తే' అన్న ఖండికలో ప్రియులకు కలయిక లేని విరహ వ్యధా భరిత మనస్సుతో వేగే తూగే జీవితాలే ఆనందాయక మన్న విషయం స్పష్టం.

"నీవే మరణిస్తే మరి మనక నిదురలోన మృత్యు
నేనో విలపించలేను మౌన రంజినిలో ముడిపడి :
ఎంత తీయగా మన యెద కోప మెరిగి పోగా పరి
లేక మౌను చెలిపోనీ తాపం గతియించె తుదకు" - అని వివరించారు.

4. వీరి కవితలో ప్రకృత్యారాధన, సౌందర్యోపాసన స్పష్టంగా గోచరించాలని రవగ్రహణ పాఠకుల హృదయాల్ని అలరిస్తూంది.

"తరళ మధురమ్ము కొబ్బరిచెట్లనీడ: మరి అత్యంత మధురమ్ము అనుగు సోదరులార
మధుర మధురమ్ము ఎలమావి గుబురుల తావి అలల చుంబనము నురగల హర్షతాండవము
మధురమ్ము హృదయ రమ్యకలధ్వనులలోన నడపండి పరువమును కడలి గుండెలపైన
నిండు వెన్నెలలు స్పందించు సైకతసీమ వాలిన నభమ్ము నీలాల అంచులదాక"

ఎంతో సహజసుందరమై, సరోజినీనాయుడులోని వినర్గ మనోజ్ఞ ప్రకృత్యారాధన, అందులోని సౌందర్యోపాసనమనకవగత మవుతుంది.

5. ఎలిజీ కవిత : స్మృతి ఖండికలు సైతం రచించారు శ్రీమతి నాయుడు. లోకమాన్య బాలగంగాధర తిలక్‌ను గురించి రాస్తూ

"జాతికే స్వేచ్ఛ వనిత గాయత్రి నే
ర్చిన వీరవైనికా! ఋషి వర! జోహారు
పటు విమోచన శిఖల ప్రజ్వరిల్లెడు నీచి
తాభన్మ మౌన మాతరమునకు వరముగా" అని జోహారు లర్పించింది.

ముగింపు : సరోజిని నాయుడు ఆంగ్ల కవితకు చక్కటి తెలుగు సేత ఆచార్య నారాయణ రెడ్డి గారు చేసి తెలుగులోనే నాయుడు కవిత చెప్పారా! అన్నట్లు అనువదించారడం అత్యుక్తికాదు. అందుకు కారణం వుంది. ముత్యాల కోకిలా ప్రశంసలో -

'నీగీతి చదివి నీ ప్రతిభ నవ్యం
నిన్నందుకు పొదిగి నీ ప్రతిభ భవ్యం
పలికితిని నీవాణి నీ కవితా ముత్యం
తెలుగులా ఎదిగి, లోకిలా శ్రావ్యం
అని ఆచార్య నారాయణరెడ్డి గారు అనడం నిదర్శనం.

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THE ORIGIN OF INDIAN DRAMA DURING THE VEDIC PERIOD

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India has a rich tradition of Drama from immemorial times. India is a land of several types of dramas in several languages. Drama in India begins its journey with the Sanskrit plays. A.L. Basham, a prominent historian, viewed that 'the origin of Indian theatre is still obscure'. Genius has its own alchemy to transmute everyday life experiences into artistic creation and conceals the potential to reconstruct life beyond its apparent realistic fabric of human conditions. Indian Drama having found its roots in Classical Sanskrit models, in post-modern era has emerged as a potent force to fill the gap of 'page and stage' and bring theatre close to life. It is certain, however that even in the Vedic period dramatic performances of some kind were given, and passing references in early resources point to the inaction at festivals of religious legends, perhaps only in dance and mime" Indian traditions are preserved in the *Natyasastra* the oldest of the texts of the theory of the drama. This play claims for the drama divine origin and a close connection with the sacred Vedas themselves. Origin of Indian English drama can be traced to the ancient rules and seasonal festivities of the Vedic Aryans. The dramatic performances of those times mainly included such events like depiction of events of daily life accompanied by music. Some members of the tribe acted as if they were wild animals and some others were the hunters. Those who acted as animals like goats, buffaloes, reindeers and monkeys were chased by those, playing the roles of hunters and a mock hunt was enacted. In such crude and simple ways drama was performed during the age of the Vedic Aryans. Later, different episodes from *The Ramayana (Ram*

Leela), The Mahabharata and *The Bhagvadgita* were chosen and dramatized in front of the people. This kind of performance is still very popular in India especially during the time of Dussehra, when the episode of the killing of Ravana is enacted out in different parts of country.

There are references to drama in Patanjali's *Vyakarna Mahabhashya,* as well as Vatsyayan's *Kamastura,* Kautilya's *Arthasastra* and Panini's *Ashtabhyam.* Thus the origin of Sanskrit drama dates back to 1000 BC. All the literature in Sanskrit is classified into Drishya (that can be seen or exhibited) and the Sravya (that can be heard or recited). While poetry in all forms can be said to fall under the latter, drama falls under the former. Drama in Sanskrit literature is covered under the broad umbrella of '*rupaka'* which is depiction of life in its numerous aspects represented in forms by actors who take various roles. A '*rupaka'* has ten classifications of which '*Nataka'* (drama), the most important one, has come to mean all dramatic presentations. The Sanskrit drama grows around three primary constituents namely *Vastu* (Plot), *Neta* (hero) and *Rasa* (sentiment). The plot could be either *Principal* (adhikarika) or *accessory* (prasangika). The former concerns the primary characters of the theme and pervades the entire play. The latter serves to further and supplement the main topic and relates to subordinate characters other than the chief ones. This is again divided into *banner* (pataka) and *incident* (parkari). The former is a small episode that presents, describes, improves or even hinders the primary plot to create added excitement. The latter has minor characters. The *Neta* or the hero, according to the definition prescribed by the *Natyashastra,* is always depicted as *modest* (Vineeta*), sweet tempered* (Madhura) *sacrificing* (Tyagi), *capable* (daksha), *civil in talks* (priyamvada), belonging to a *noble family* (taptaloka), *pure* (suchi) *articulate* (vagmi), *consistent* (Sthera*), young* (yuva) endowed with *intellect* (buddhi) *enthusiasm*

(utsaha), good *memory* (Smrthi) *aesthetics* (Kola), *pride* (maana) and is *brave* (Shura), *strong* (dridha), *energetic* (tejaswi), *learned* (pandita) and *pious* (dharmika). The main category in which the hero of Sanskrit drama normally falls is the '*Dheerodatta*' that is he who is brave and sublime at the same time.

Bharat's *Natyashastra,* is the most significant work on Indian poetics and drama. In it there is description in detail about composition, production and enjoyment of ancient drama, a wealth of information of types of drama, stage equipment, production and music. According to the legend, when the world passed from the golden age to the silver age and people became addicted to sensual pleasures and jealousy, anger, desire and greed filled their hearts. The world was then inhabited by gods, demons, yakshas, rakshasas, nagas and gandharvas. It was the gods among them who were led by Lord Indra, approached God-the Brahma and requested him thus, 'Please give us something which would not only teach us but be pleasing both to eyes and ears'.

Bharata ascribed a divine origin to drama and considered it as the fifth Veda. Its origin seems to be from religious dancing. According to Bharata, poetry (kavya) dance (nritra), and mime (nritya) in life is play (lila) produce emotion (bhava) but only *drama* (natya) produces flavor (rasa). The drama uses the eight basic emotions of love, joy, humour, anger, sadness, pride, fear, aversion and wonder attempting to resolve them in the ninth holistic feeling of peace. Thus, when the dramatic art was well comprehended, the natyaveda was performed on the occasion of the celebration of Lord Indra's victory over the Asuras and danavas. In the *Natyashastra,* there is a verse in its sixth chapter which can be quoted as Bharat Muni's own summary of his dramatic theory. This kind of combination in natya sastra is called 'a mixture of rasa, bhavas, vrittis, pravrittis, siddhi, svaros, abhinayas, dharmis, instruments, song and theatre-house'.

The most celebrated dramatists of the ancient era are Ashwaghosh, Bhasa, Shudraka, Kalidas, Harsha, Bhavabhuti, Visakhadatta, Bhattranarayana, Murari and Rajeshkhara, who enriched Indian theatre with their words like Madhya-Mavyaayoda, Urubhangam, Karnabharan, Mrichkarikam, Abhigyana Shakuntalam, Malankagnimitram, Uttar Ramacharitam, Mudrarak, Shasa, Bhagavadajjukam, Mattavilasa and so on. The supreme achievement of Indian drama undoubtedly lies in Kalidasa who is often called the Shakespeare of India, the Sanskrit drama flourished in its glory till the 12th century in India when the Mohammedan intrusion shifted the Sanskrit stage. But till the 15th century, plays of Sanskrit tradition were performed on stage in Tamilnadu, Kerala, Karanataka, Andhra Pradesh, Uttra Pradesh and Gujarat but thereafter, Indian dramatic activity almost ceased due to foreign invasions on India. The beginnings of *Loknatya* (people's theatre) are noticed in every state of India from the 17th century onwards. We see in Bengal '*Yatrakirtaniya" 'Paol'* and *'Gaan'* in Madhya Pradesh *'Mach'* in Kashmir *'bhandya thar'*and in Gujarat the forms were '*Bhavai'* and *'Ramleela'* in Northern India. There were *'Nautanki, Bhand, Ramleela* and *Rasleela'* in Maharashtra '*Tamasha'* in Rajasthan *'Raas'* and '*Jhoomer'* in Punjab *'Bhangra'* and *'Song'* while in Assam it was *'Ahiyanat'* and *'Ankinatya'* in Bihar it was *'Videshiya'* and '*Chhari*' in West Bengal and Bihar.

The rise of the modern drama dates back to the 18th century when the British Empire strengthened its power in India. As Krishna Kriplani points out, the modern Indian drama 'Owed its first flowering to the foreign grafting. With the impact of western civilization on Indian life, a new renaissance dawned on Indian arts including drama. Furthermore, English education gave an impetus and a momentum to the critical study of not only Western drama, but classical Indian drama. English and Italian dramatic troupes toured India and

performed many English plays, mainly Shakespeare's in cities like Bombay and Madras. The Portuguese brought a form of dance drama to the west coast. A Russian music director, Rebedoff, is said to have produced the first modern drama in Calcutta towards the end of the 18th century. Thus, the western impact awakened "the dormant, critical impulse in the country to bring Indians face to face with new forms of life and literature, and to open the ways for a fruitful cross-fertilization of ideas and forms of expression". In 1765 one Russian drama lover Horasin Lebdef and Bengali drama lover Qulokhnath had staged two English comedies *Disgaig* and *Love Is the Best Doctor*. But the real beginning was in 1831 when Prasanna Kumar Thakur established '*Hindu Rangmanch'* at Calcutta and staged Wilson's English translation of Bhavabhuti's Sanskrit drama *Uttara Ramacharitam*. Social drama of Girish, Chanda Chosh, historical dramas of D.L.Roy and artistic dramas of Rabindranath Tagore (Muktadhara, Chandalika) continued to reach up to the stage of realistic dramas during the period of the worst- ever famines of Bengal and the second World War. In 1852-1853, the famous Parsi Theatre was launched in Bombay which influenced the whole country in no time. Postagi Pharmji was the pioneer in establishing the Parsi Theatre company in India. Many new theatre experiences were brought up on stage during Parsi Theater' evolution in India. On the other hand, the amateur theater also developed with the works of Bharatendu Harishchandra, acclaimed as the father Hindi drama.

Indian English drama was inaugurated when Krishna Mohan Banerji penned ***The Persecuted*** in 1837. The real odyssey of Indian English Drama begins with Michael Madhusudan Dutt's 'Is this called civilisation' which appeared on the literary scene in 1871. Rabindranath Tagore and Sri Aurobindo, the two great sage-poets of India, are regarded the pioneer Indian dramatists in English. Rabindranath Tagore wrote mainly in Bengali but almost all his

Bengali plays are available to the readers in English translation. His prominent plays are *Chitra*, *The Post Office, Sacrifice, Red Olenders, Chandalika, Muktadhara, Natir Puja, The King of the Dark Chamber, The Cycle of Spring, Sanyasi and The Mother's Prayer* and so on. These plays are firmly rooted in the Indian culture in their themes, characters and treatment. R.K.Ramaswamy appreciates his plays for depth and gravity of purpose and appreciates his dramatic art for more than anything else. He has shown the way both in respect of ideas as well as of methods, by which the soul of India could be realized and revealed in the realm of dramatic creation and representation. Then, Sri Aurobindo is the second prominent dramatist in Indian English drama. He contributed five complete black verse plays besides his six incomplete plays. His complete plays are *Perseus the Deliverer, Vasavadutta, Radoguna, The Viziers of Bassora and Eric* and each of these plays is written in five acts. His incomplete plays are The *Witch of Ilni, Achab and Esarhaddon, The Maid and the Mill, The House of Brut, The Birth of Sin and Prince of Edur.*

Sri Aurobindo's plays present different cultures and countries in different eras, with a variety of characters, moods and sentiments. This is in fact, one of the notable features of Sri Aurobindo's plays. For instance, *Perseus the Deliverer* is based on the ancient Greek myth of *Persues*, *Vasavadutta* is a romantic tale of ancient India, *Rodogun*a is a Syrian romance of Scandinavia, a story of love and war between the children of Odin and Thor. In Aurobindo's dramas the readers can make out all dramatic shades and varieties and fundamental concepts like romance, heroic play, tragedy, comedy, farce which we can expect from Indian English dramas. As Dr.K.R.S Iyengaer observes, "But all five plays are steeped in poetry romance, recalling the spirit and flavor of the distinctive dramatic type exemplified in different ways by Bhasa, Kalidas and Bhavabhuti. Though, of course all have Aurobindonian undertones"(89). Harindranath Chattopadhay also made significant

contribution to Indian drama. He started his career as playwright with his play *Abu Hassan (1918).* He has written seven verse plays to his credit published under the title of *Poems and Plays (1927)* and all the seven plays are based on the lives of Indian saints. His Five Plays are prosaic. *The Window and The Parrot* deal with the lives of the poor, where as the *Sentry's Lantern* is a symbolic display of the expectation of the arrival of a new age for the downtrodden people. Sidhartha's *Man of Peace* is an adventurous effort to dramatize Lord Buddha's life. Another great dramatist who has become significant in Indian literary map is A.S.P Ayyar with his praise worthy six plays. *The Clutch of The Devil (1926*) is his first play and the last one is *The Trial of Science* for the Murder of Humanity.

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PERFORMANCE AND CFD ANALYSIS OF DOUBLE PIPE HEAT EXCHANGER WITH PARALLEL FLOW

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Abstract- **Double Pipe heat exchangers are a fairly common apparatus employed throughout many industrial processes. Industries utilizing the waste heat by using waste heat treatment process. In addition to that those heat exchangers are used in many industries to improve the heat transfer and effectiveness of the heat exchanger with different type of flow direction. A part from that we are analyzing the parallel type of flow for recover the waste heat from many applications. In this project we are analyzing the double pipe heat exchanger with parallel flow for improve the heat transfer, LMTD and effectiveness of the heat exchanger. Finally same type of flow is analyzed with computational fluid dynamics and compares the results with experimental value of the heat exchanger.**

Index Term — **H e a t exchanger, parallel flow, cfd.**

1. INTRODUCTION

A heat exchanger is a piece of equipment built for efficient heat transfer from one medium to another the media may be separated by a solid wall to prevent mixing or they may be direct contact. They are widely used in refrigeration ,air conditioning, power plants , sewage treatments etc. The classic example of a heat exchanger is found in an internal combustion engine in which circulating fluid known as coolant flows through radiator coils which heats the coolant. There are two primary classification of heat exchangers according to their flow arrangement., They are parallel flow and counter flow.

In parallel flow heat exchanger two fluids enter the exchanger at the same end, and travel in parallel to one another, In counter flow heat exchanger two fluids enters the Heat exchanger from opposite ends and travel in different direction. In the present Double pipe heat exchanger only two tubes are inserted on one another, in which the mass flow rate takes place at faster rate. Also the heat transfer from hot water to cold water is very low. And also the effectiveness is low .A heat exchanger typically involves two flowing fluids separated by a solid wall. Heat is first transferred from the hot fluid to the wall by *convection*, through the wall by *conduction*, and from the wall to the cold fluid again by *convection*. Any radiation effects are usually included in the convection heat transfer coefficients.

2. COMPUTATIONAL FLUID DYNAMICS

Computational fluid dynamics (CFD) is one of the branches of fluid mechanics that uses numerical methods and algorithms to solve and analyze problems that involve fluid flows. The fundamental bases of any CFD problem are the Navier-Stokes equations, which define any single-phase fluid flow. These equations can be simplified by removing terms describing viscosity to yield the Euler equations. These equations can be simplified by removing terms describing viscosity to yield the Euler equations. Further simplification, by removing terms describing vorticity yields the full potential equations. Finally, these equations can be linearized to yield the linearized potential equations. The stability of the chosen discretization is generally established numerically rather than analytically as with simple linear problems. The Euler equations and Navier-Stokes equations both admit shocks, and contact surfaces. The governing equations are solved on discrete control volumes. FVM recasts the PDE's of the N-S equation in the conservative form and then discretize this equation. Moreover this method is sensitive to distorted elements which can prevent convergence if such elements are in critical flow regions. This integration approach yields a method that is inherently conservative (i.e. quantities such as density remain physically meaningful),After modeling the air duct given co-ordinates the model is meshed using Gambit Mapped mesh. Quadrilateral cells were used for this simple geometry because they can be stretched easily to account for different size gradients in different directions. The coupled solver is recommended when dealing with applications involving high speed flows. The Spalart-Allmaras model was designed specially for aerospace applications involving wall-bounded has been shown to give good results for boundary layers subjected to adverse pressure gradients.

3. Experimental Setup

A double pipe heat exchanger is utilized as the main heat transfer test section which is insulated using asbestos to minimize heat loss to the surrounding.

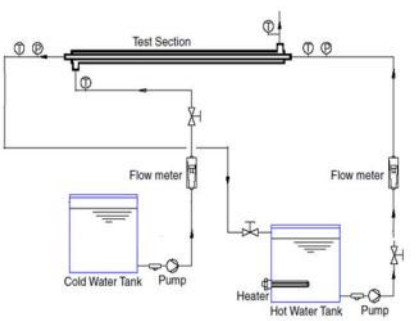


Fig 1.Experimental setup for double pipe heat exchanger.

It consists of two concentric tubes in which hot water flows through the inner tube and cold water flows in counter flow through annulus. The outer tube is made of a cast iron having inside and outside diameters of 28 mm and 32mm respectively. The inner tube made of a Aluminium having inside and outside diameters of 20 mm and18 mm respectively. Temperature data was recorded using data acquisition/switch unit.

Fig 2. Photography of double pipe heat exchanger.

Fig 3. Photography of double pipe Front view.

4. EXPERIMENTAL CALCULATION

Heat transfer:

$Q_h = m_h * cp_h * (T1 - T2)$

$Q_c = m_c * Cp_c * (t2 - t1)$

Over all heat transfer rate:

$Q = Q_h + Qc/2$

LMTD (ΔTm):

$(\Delta Tm) = \Delta T1 - \Delta T0 / \ln (\Delta T1 - \Delta T0)$

Effectiveness:

Cold water:

$m_c * cp_c =$ **£c**

Hot water:

$m_h * cp_h =$ **£n**

Overall Heat transfer co – efficient (u)

$Q = U * A * (\Delta Tm)$

Heat transfer rate

Hot water:

$Q_h = m_h * cph * (T1 - T2)$

Cold water:

$Qc = mc * Cp_c * (t2 - t1)$

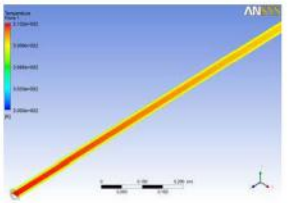
S.NO	MASS FLOW RATE	HOT WATER INLET	HOT WATER OUTLET	E	Q	U
1	18.16	313	303	0.9988	4.162	0.2490
2	10.34	323	310	1.25	10.34	0.5514
3	9.50	328	312	1.26	14.106	0.746
4	9.15	331	305	1.28	23.73	1.26

Table 1. Experimental reading for parallel flow

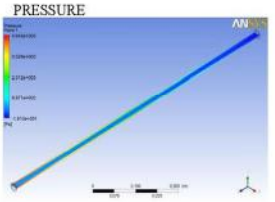
5. CFD analysis of parallel flow with different temperature:

FIG 4: SHOWS THE CFD ANALYSIS FOR THE INLET TEMPERATURE OF 313k,PRESSURE AND VELOCITY

TEMPERATURE



PRESSURE



VELOCITY

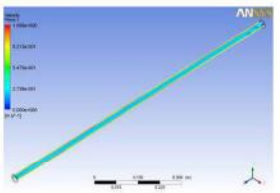
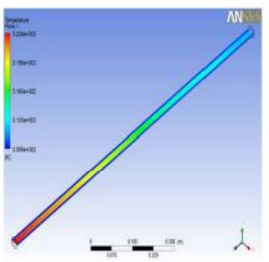
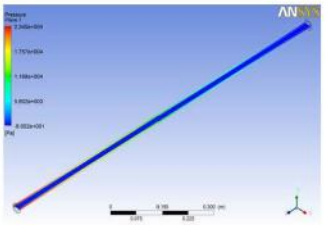


FIG 5: SHOWS THE CFD ANALYSIS FOR THE INLET TEMPERATURE OF 323k,PRESSURE AND VELOCITY

TEMPERATURE



PRESSURE



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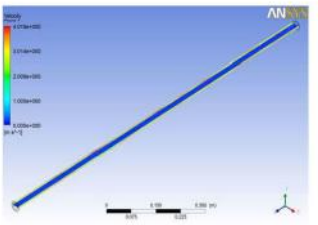
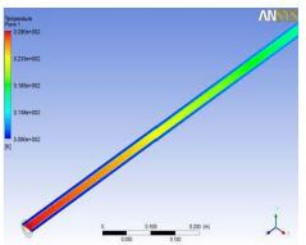
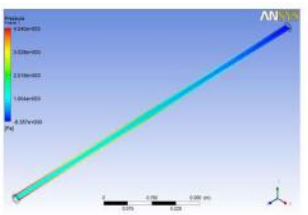


FIG 6: SHOWS THE CFD ANALYSIS FOR THE INLET TEMPERATURE OF 328k,PRESSURE AND VELOCITY

TEMPERATURE



PRESSURE



VELOCITY

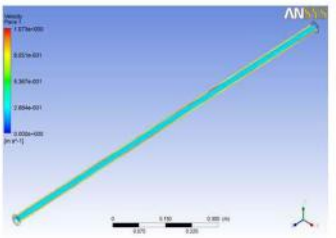
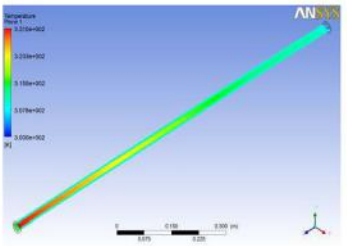
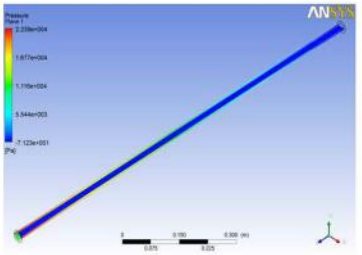


FIG 7: SHOWS THE CFD ANALYSIS FOR THE INLET TEMPERATURE OF 331k,PRESSURE AND VELOCITY

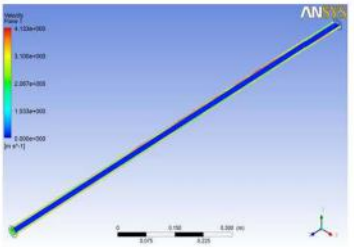
TEMPERATURE



PRESSURE

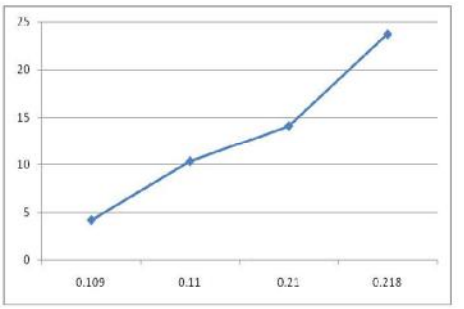


VELOCITY



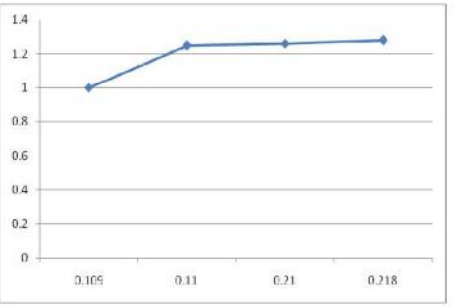
6. Results and graphs:

Graph for heat transfer and mass flow rate



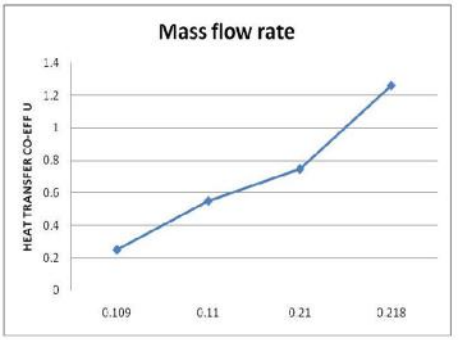
MASS FLOW RATE

Graph for effectiveness and mass flow rate



MASS FLOW RATE

Graph for heat transfer co-efficient and mass flow rate



7. CONCLUSION

we are analyzed the parallel type of flow for recover the waste heat from many applications. In this project we are analyzing the double pipe heat exchanger with parallel flow for improve the heat transfer. Finally same type of flow is analyzed with computational fluid dynamics and compares the results with experimental value of the heat exchanger. The comparison of experimental value is coincide with CFD analyzed value of outlet temperature and heat transfer also varied with different mass flow rate of the fluid

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GRAMAPANCHAYATS IN IMPLIMENTING MGNREGS-A PERSPECTIVE

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INTRODUCTON

The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) guidelines are elaborate and stress on implementation and fundingmodalities from national level to the Gram Panchayat level. They stop short ofoperational detailing beyond the Gram Panchayat. However, in reality, theimplementation 'operations' actually start from the Gram Panchayat and are moreintense at lower levels of the village and habitation - the "field where the action reallylies". Understandably, the MGNREGS guidelines are at the National level and therespective state governments are expected to compliment this by contextual fine tuningfor Gram Panchayat and below. Also, overlapping elements detailed in thePanchayati Raj Act like Gram Sabha, social audits, etc. also come into play. Hence, successful MGNREGS implementation is also dependent on the successfulimplementation of processes mentioned in the Panchayati Raj Act. The converse isalso true- the successful implementation of MGNREGS can contribute to strengtheningthe Panchayati Raj Act.

Panchayati Raj Act

Panchayats have been the backbone of the Indian villages since the beginning of Srecorded history. Gandhiji, the father of the nation, in 1946 had aptly remarked that the Indian Independence must begin at the bottom and every village ought to be a Republic or Panchayat having powers. Gandhi dream has been translated into reality with

theintroduction of the three-tier Panchayati Raj system to ensure people's participation in rural reconstruction.

73rd Amendment Act, 1992

The passage of the Constitution (73rd Amendment) Act, 1992 marks a new era in the federal democratic set up of the country and provides constitutional status to the Panchayati Raj Institutions (PRIs). Consequent upon the enactment of the Act, almost all the States/UTs, As per the Constitution (73rd Amendment) Act, the Panchayati Raj Institutions have been endowed with such powers and authority as may benecessary to function as institutions of self-government and contains provisions of devolution of powers and responsibilities upon Panchayats at the appropriate level with reference to (a) the preparation of plans for economic development and social justice; and (b) the implementation of such schemes for economic development and social justice as may be entrusted to them.

Thelowest unit of elected local Government in rural India that is, mandated toimplement the MGNREGS. In the State of Andhra Pradesh, a Gram Panchayat usually covers a population of5000 to 6000. The Government of India enacted Panchayati Raj Act through the 73rd Amendment to the IndianConstitution in 1992. It is a landmark act that strengthened decentralization by providing aconstitutional status to the Panchayat Raj Institutions in India. The Act contains provision for devolutionof powers and responsibilities to the panchayats to both for preparation of plans for economicdevelopment and social justice and for implementation in relation to twenty-nine subjects listed in theeleventh schedule of the constitution. PRI- Panchayat Raj institutions,Panchayati Raj are a three- tier system of local governance at thevillage, block and district levels. At the village level, it is called a Gram Panchayat. The block-levelinstitution is called the

talukapanchayat/panchayatsamiti. The district-level institution is called the zillapanchayat/zillaparishad

Village level panchayat

It is called a Panchayat at the village level. It is a local body working for the good of the village. The number of members usually ranges from 7 to 31; occasionally, Groups are larger, but they never have fewer than 7 members.

Intermediate level panchayat:

Panchayatsamiti is a local government body at the tehsil or Taluka level in India.It works for the villages of the Tehsil or Taluka that together are called aDevelopment Block. The PanchayatSamiti is the link between the GramPanchayat and the district administration. There are a number of variations of this institution in various states. It is known as MandalPrajaParishad in AndhraPradesh, Talukapanchayat in Gujarat, MandalPanchayat in Karnataka, etc.Ingeneral it's a kind of Panchayati raj at higher level. Constitution it is composed of ex-officio members (all sarpanches of the panchayatsamiti area, the MPs and MLAs of the area and the SDO of the subdivision), coopted members (representatives of SC/ST and women), associate members (a farmer of the area, a representative of the cooperative societies and one of the marketing services) and some elected members. The samiti is elected for 5 years and is headed by the chairman and the deputy chairman. Departments

District level panchayat:

In the district level of the panchayati raj system you have the "zillaparishad". It looks after the administration of the rural area of the district and its office is located at the district headquarters. The Hindi word Parishad means Council and ZillaParishad translates to District Council. It is headed by the "District Collector" or the "District

Magistrate" or the "Deputy Commissioner". It is the link between the state government and the panchayatsamiti (local self-government at the block Level)

History of MGNREGS

Salient Features of the Mahatma Gandhi National Rural EmploymentGuarantee Scheme (MGNREGS)

National Rural Employment Guarantee Act was enacted on 5th September, 2005 andcame into force i.e. 2nd February, 2006. On 31st December, 2009, the Act wasrenamed by an Amendment as the Mahatma Gandhi National Rural EmploymentGuarantee Act, 2005. It is now commonly referred to as Mahatma GandhiNREGA.In its first year 200 districts were covered. This was followed by extension to 130districts in the following year. Finally, in the 3rd year of its operation i.e. 2008-09, itwas extended to 285 districts. In the meantime several new districts were created bydivision of older districts. Thus the coverage of districts under Mahatma GandhiNREGA currently stands at 619. The Act made supplementary livelihood in rural areas through unskilled manual worka legal right. Any rural household seeking unskilled manual work could register itsfamily in the Gram Panchayat and obtain a job card. With the possession of a jobcard, the registered rural household could apply for work for at least 100 days in theGram Panchayat. Gram Panchayat was entrusted with the legal duty of providingwork to such applicant within 15 days of the receipt of the application, failing whichunemployment allowance would become payable to the rural household. The lawprescribes payment of wages every week and not later than a fortnight of the work done. In the event of delay in payment of wages, workers were entitled tocompensation under Payment of Wages Act, 1938. The regime of right to livelihoodwas to be financially supported by the Central and State Governments. StateGovernments were made responsible for

ensuring the guarantee of livelihood andtimely payment of wages. State would provide the necessary technical andadministrative support through the Districts and the Blocks to ensure properimplementation of the Act. Separate provisions have been made for incurringAdministrative expenses by empowering the Central Government to fix a proportionof total cost of the scheme to be used for administration of the Act.The Act permits certain categories of work to be taken up for providing employmentto the job seeking rural households. These categories are generic in nature such aswater conservation, drought proofing, irrigation, land development, rejuvenation oftraditional water bodies, flood control and drainage work, rural connectivity and workon the land of SC/ST/BPL/IAY beneficiaries/land reform beneficiaries/ individualsmall and marginal farmers.

Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS) was launched on February 2, 2006 from Anantapur in Andhra Pradesh.The project was implemented in phased manner covering 130 districts by year 2007-08.With its spread over 625 districts across the country, the premier flagship program of the UPA Government has raised the productivity, increased the purchasing power, reduced distress migration and helped in creation of durable assets in rural India. This project has a formidable impact on rural India by providing employment to 41 million households in year 2010-11.Also, It has strengthen the social and gender equality dimensions as 23% workers under the scheme are Scheduled Castes,17% Scheduled Tribes and 50% women

Provisions under MGNREGS

- Adult members of a rural household, willing to do unskilled manual work, may apply for registration in writing or orally to the local Gram Panchayat

- The Gram Panchayat after due verification will issue a Job Card. The Job Card will bear the photograph of all adult members of the household willing to work under NREGA and is free of cost.
- The Job Card should be issued within 15 days of application.
- A Job Card holder may submit a written application for employment to the Gram Panchayat, stating the time and duration for which work is sought. The minimum days of employment have to be at least fourteen.
- The Gram Panchayat will issue a dated receipt of the written application for employment, against which the guarantee of providing employment within 15 days operates
- Employment will be given within 15 days of application for work, if it is not then daily unemployment allowance as per the Act, has to be paid liability of payment of unemployment allowance is of the States.
- Work should ordinarily be provided within 5 km radius of the village. In case work is provided beyond 5 km, extra wages of 10% are payable to meet additional transportation and living expenses
- Wages are to be paid according to the Minimum Wages Act 1948 for agricultural labourers in the State, unless the Centre notices a wage rate which will not be less than ₹60 (US$1.33) per day. Equal wages will be provided to both men and women.

Note: The original version of the Act was passed with Rs 60/ day as the minimum wage that needs to be paid under NREGA. However, a lot of states in India already have wage regulations with minimum wages set at more than ₹100 (US$2.22) per day. NREGA's minimum wage has since been changed to ₹120 (US$2.66) per day.

- Wages are to be paid according to piece rate or daily rate. Disbursement of wages has to be done on weekly basis and not beyond a fortnight in any case
- At least one-third beneficiaries shall be women who have registered and requested work under the scheme.
- Work site facilities such as crèche, drinking water, shade have to be provided
- The shelf of projects for a village will be recommended by the gram sabha and approved by the zillapanchayat.
- At least 50% of works will be allotted to Gram Panchayats for execution
- Permissible works predominantly include water and soil conservation, afforestation and land development works
- A 60:40 wage and material ratio has to be maintained. No contractors and machinery is allowed
- The Central Government bears the 100 percent wage cost of unskilled manual labour and 75 percent of the material cost including the wages of skilled and semi-skilled workers
- Social Audit has to be done by the Gram Sabha
- Grievance redressal mechanisms have to be put in place for ensuring a responsive implementation process
- All accounts and records relating to the Scheme should be available for public scrutiny

How MGNREGS is implementing: The following image shows the key processes in the implementation of MGNREGS.

- Cost sharing: Central Government 3/4th, State Government1/4th Adult members of rural households submit their name, age and address with photo to the Gram Panchayat.
- The Gram panchayat registers households after making enquiry and issues a job card. The job card contains the details of adult member enrolled and his /her photo.
- Registered person can submit an application for work in writing (for at least fourteen days of continuous work) either to panchayat or to Programme Officer.
- The panchayat/programme officer will accept the valid application and issue dated receipt of application, letter providing work will be sent to the applicant and alsodisplayed at panchayat office.
- The employment will be provided within a radius of 5 km: if it is above 5 km extra wage will be paid.
- If employment under the scheme is not provided within fifteen days of receipt of the application daily unemployment allowance will be paid to the applicant

Gram Panchayat and MGNREGS

Legal Provisions

MGNREGA assigns PRIs the most critical role in its implementation. Some of the salient provisions illustrating this point are summed up below:

1) Section 12(1) mandates the inclusion of representatives of the PRIs in the State Employment Guarantee Council which is the paramount institution at the State level in implementing the Act, with wide ranging powers and functions.

2) Section 13 declares the three tier PRIs as the "principal authorities" for planning and implementation and outlines the functions of intermediate and district level Panchayats in planning and supervision of implementation. The District Programme Coordinator, who, in most part of the country, is the District Collector, is given an obligation by this Section to assist the District Panchayat.

3) Section 15 speaks of the Programme Officer at the intermediate Panchayat level (and not at the CD Block level). It further states that all or any of the functions of the Programme Officer can be discharged by the GramaPanchayat or any other local authority.

4) Section 16 explains the role of the GramaPanchayat and mandates that at least 50% of the work in terms of cost has to be implemented through the GramaPanchayat. Further it has given the responsibility of allocating employment opportunities among the applicants to the GramaPanchayat.

5) Section 17 endows the GramaSabha with the authority to conduct social audit and monitor execution of works.

Records etc.

6) Schedule II explains the duties of the GramaPanchayat in registering the household, issue of job cards, assigning of work, maintenance of records etc.

Gram panchayat ensure the following activities:

a) Convening of Gram Sabha for recommendation of a shelf of works with priority by2nd Octoberofeachyear**.**

b) In the Gram Sabha meeting so convened, the Gram Panchayat will estimate thelabour demand likely to be raised in the next financial year. The Sarpanch/Panchayat Secretary/ Gram RozgarSahayak will ensure that this meeting isattended by households holding job cards and who have worked under NREGA.

c) Gram Panchayat will indicate the works that it will execute to meet the estimateddemand and also recommend executing agencies for each work. The priority inwhich works have to be taken up must also be mentioned.

d) Approval and consolidation of all Gram Panchayat recommendations into thevillage development plan and its submission to Intermediate Panchayat by theGramPanchayat shall be completed within fifteen days of receiving all the GramSabharecommendations.

c) Receipt of all Gram Panchayat Development Plans including copy of resolutionrecommending the works to be taken up in the following financial year and their Priority bytheProgramme Officer in the 3rd week of October.

d) The Gram Panchayat will have the power to open work be started based on theOrder of priority. If the executing agency is other than the Gram Panchayat, thenThe Gram Panchayatworks.May request the concerned executing agency to open workWithin 15 days of demand received. Incase, the executing agency fails to do sowithin the designated timeframe, the Programme Officer will be responsible forInitiating action and opening of the next prioritized

Conclusion

The most important lesson from the Andhra Pradesh experience is that, just as People's Plan was the motive force which pushed decentralization in the State, NREGA could be used forstrengthening Panchayati Raj in the country. In that sense NREGA could be called "mother of all local development schemes". The possible ways in which the NREGA cancontribute to Panchayat empowerment if properly planned, include the following.

- Providing much needed staff to PRIs
- Introduction of improved administrative systems

- Making available modern office equipment especially computers.
- Strengthening the planning and implementation capacity
- Improving governance functions
- Enhancing accountability
- Vesting Panchayats with status and credibility vis-à-visthe poor people and vis-à-vis other departments byenabling them to play an important role in local leveldevelopment.

To realize this potential it is necessary to move on to a concertedcapacity building exercise with focus onPanchayatempowerment in the context of NREGA. Probably a policy shiftis needed to make NREGA as much an instrument for PanchayatiRaj empowerment as an instrument for poverty reduction. Agreat opportunity already exists in the BRGF districts. Once itcan be proved that NREGA could strengthen PRIs then it couldemerge as a nucleus around which other major programmes likeSSA, NRHM, ICDS, Mid-Day Meals, PDS, SGSY, HealthInsurance, RSBY etc. could converge into a viable anti-povertyinitiative – to achieve inclusive growth through participatorydevelopment led by democratic institutions.

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मयूरकवेः सूर्यशतकप्राभवम्

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संस्कृतवाङ्मये एकेनैव लघुकाव्येन महाकविभिः समं यशः कैश्चित् लब्धम्। एवं विधेषु अमरुकशतकस्य कर्ता , सूर्यशतकस्य कर्ता मयूरः गीतगोविन्दस्य कर्ता जयदेवः , कृष्णलीलातरङ्गिण्याः कर्ता नारायणतीर्थः इत्यादयः गणनीयाः । एतेषां श्लोकेषु एकैकोऽपि श्लोकः प्रबन्धशतायमानः इति आलङ्कारिकैः श्लाघितः । महाकाव्य निर्माणेनापि अलब्धं यशः तैरेव लब्धमित्यत्र तेषां कवितागुणस्यैव महिमा कारणम्। एवं विधेषु अग्रगण्यः मयूरः ।

मयूरः श्रीहर्ष चक्रवर्तिनः समकालिकः । हर्षास्थानवर्तिना बाणभट्टेन अयं बहुधा स्तुतः ।

अहो प्रभावः वाग्देव्याः यन्मातङ्गः दिवाकरः ।
श्रीहर्षस्याभवत्यज्यः यमं बाण मयूरयोः ॥

---सूर्यशतकम् – भूमिका – ४

इति श्लोकः प्रसिद्ध एव।

भट्टबाणस्य मित्रं मयूर नामकः एकः हर्षचरिते प्रथमाध्याये प्रस्तुतः । बाणस्य मित्रेषु प्रीतिकूटाग्रहारे जाङ्गलकः मयूरकः परिगणितः जाङ्गलको नाम विषवैद्यः । मयूरः विषवैद्यं जानातीति निरूपकः कश्चन श्लोकः सूर्यशतके वर्तते। कालनामकेन महासर्पेण दष्टः मनुष्यः मृतः इव पतितः । निद्रागतः सः सूर्यतापेन प्रबोधितो भवति। विशवैद्योऽपि तापकर्मणा विषमूर्छितं प्रबोधयतीति तत्र श्लोके वर्णितः ।

शीलञ्चक्षुर्विजिह्मश्रुति जडरसनं निह्रितघ्राणवृत्ति
स्वव्यापाररक्षमन्वज्ञपरिमुषितमनः श्वासमात्रावशेषम्।
विस्रस्ताङ्गं पतित्वा स्वपदपहरतादश्रियं वोऽर्कजन्मा
कालव्यालावलीढं जगदगद इवोऽत्थापयन्प्राक्प्रतापः॥

मयूरः सूर्यशतकं किमर्थं रचितवनिति निरूपयितुं एका कथा प्रसिद्धा। बाणभट्टः मयूरस्य भगिनीं परिणीतवान्। एकदा प्रातः काले मयूरः बाणं द्रष्टुं स्वभगिनी गृहं ययौ। तदानीं बाणः स्वप्रियां प्रसादयति स्म। तदानीं बहुकान्ता सङ्गमः न दोषः आसीत्। मयूरोऽपि अन्यां कामपि बाणभट्टः अनुनयतीति बभ्राम। अनुनीयमाना तस्यैव भगिनी आसीत्। मयुरस्य अनुचितवाज्यैः कुपिता सा कुष्ट रोगपीडितो भव इति मयूरं शशाप। तन्निरूपकः श्लोकोऽपि कश्चन श्रूयते --

गतप्राया रात्रिः कृततनु शशी शीर्यत इव
प्रदीपोयं निद्रावशमुपगतो घूर्णत इव।
प्राङ्गणमान्ते मानं त्यजसि न यथा त्वं क्रुधमहो--

एवं पादत्रयं पूरयित्वा चतुर्थं पादं पूरयितुं बाणः चिन्तामग्नः आसीत्। मयूरोऽपि गृहं प्रविशन् चतुर्थं पादं पूरयामास।

कुचप्रत्यासत्या हृदयमपि ते चण्डि! कठिनम्॥

वेश्योसमागमः तासां धनिनां गृहे स्थितिश्च तदा साधारणमासीत्। ताश्च रतिविषये समयपालनमपि न कुर्वन्ति एव। कुलस्त्रियः प्रायशः प्रभाते भर्तुः दूराः भवन्ति। अतः भ्रान्तः मयूरः भगिन्या शप्तः। एवं शप्तः मयूरः गङ्गातीरे लज्बमानस्य वृक्षस्य शाखायां शतग्रन्थियुक्ते शिज्ये बध्वा एकैके श्लोकं आशुरूपेण पठन्, एकं ग्रन्थिं चिच्छेदा पूर्णे शते सूर्यः स्वयं आगत्य तं हस्ताज्यां धृत्वा पतनात् ररक्ष। रोगविमुक्तञ्च अकरोदिति कज्ञथा अनुबन्धरूपापि श्रूयते। मयूरः स्वयं कुष्ठस्य लक्षणं स्वानुभवेन जानात् ज्ञइति निरूपयितुं तत् रोग वर्णनात्मकः एकः श्लोकः शतकस्य आदामेव वर्तते।

शीर्णघ्राणङ्घ्रिपाणीन्व्रणिभिरपघनैर्धर्धराव्यक्तघोषान्

दीर्घाघ्रातानघौघैःपुनरपि घटयत्येक उल्लाघयन् यः।

धर्मांशोस्तस्य वोऽन्तर्द्विगुणघनघृणानिघ्ननिर्विघ्नवृत्तो

र्दज्ञार्घाः सिद्धसंघैर्विदधतु घृणयः शीघ्रमेहोविघातम्॥

कुष्ठरोगे पाणिपादस्य अङ्गुलीणां क्षीणता क्रमेण भवति। नासिका च मध्ये खण्डिता दीर्घतरा भवति। नासिका नशेन अक्षरोच्चारणस्य नाशः , तेन स्पष्टा वाक् न भवति। अपघनः अङ्गम्। अङ्गे शरीरावयवः। घ्राणं घ्रातः इति तुन्यार्थकौ नासिका पर्यायौ। आरोग्यं भास्करादिच्छेत् इति लोकोक्तिः प्रसिद्धा एव। विशेषतः अद्यापि चर्मरोगस्य चिकित्सा सूर्यकिरणैः क्रियते। अल्लोपति वैद्याः अपि कुष्ठस्वित्रादि चर्मरोग निवारणार्थं तज्ज्ञद् रोगपीडितान् कश्चित् कालं सूर्यातपे स्थातव्यमिति चिकित्सां वहन्त्येव। एवं आधुनिक वैद्य दृशाऽपि पयूरकथा सत्यरूपा प्रतिभाति। भगिनी शापः एव दन्तकथा स्यात्।

शतानां श्लोकानां समूहः शतकम्। मयूराऽपि शतं श्लोकान् एव निर्मितवान्। प्रायशः दिज्पालकानां इतरेषां देवान् वा नामानि संज्ञा मात्रकानि भवन्ति। तेषां तज्ज्ञनाम सार्धज्यं अस्ति न वेति कोऽपि न जानाति। सूर्यस्य नाम पुनः सार्धकम्। सरति आकाशे सूर्यः। सुवति = कर्मणि लोके प्रेरयतीति '' ज्यपः रुट् '' ज्यप् प्रत्ययः रुडागमः पूर्वपदस्य दीर्घश्च राजसूयसूर्यमृषोद्यरुत्यकुप्यकृष्टपच्याव्यथ्याः (प-क-क्क) सूर्योदयानन्तरमेव सर्वेषां प्राणिनां स्व स्व कर्मसु प्रवृज्रिः भवति। अतः सूर्यः सर्मसाक्षी। कुबेरादयः देवाः इदानीं केनापि जनेन न दृष्टाः। तेषां नाम सार्धज्यमपि न विद्यते। जात्या , गुणेन , क्रियया च रहितः शज्दः यदृच्छा शज्दः। कुबेरादीनां नामानि यदृच्छारूपाण्येव। किन्तु कर्मसाक्षी सूर्यःइत्यादीनां नामानि भास्करे एव सार्धकानीति लोकानुभवं कविः अस्मिन् शलोकैः व्याज्यातवान्।

योनिः साम्रां विधाता मधुरिपुरजितो धूर्जटिः शंकरोऽसौ

मृत्युः कालोऽलकायाः पतिरपि धनदः पावको जातवेदाः।

इत्थं संज्ञा इवित्थादिवदमृतभुजां या यदृच्छाप्रवृत्ता -

स्तासामेकोऽभिधेयस्तदनुगुणगुणैर्यः स सूर्योऽवताद्वः॥

न केवलं भक्तिदृशा किन्तु , साहित्यदृशाऽपि सूर्यशतकं रमणीयतरम्। आनन्दवर्धनादयः आलङ्कारिकाग्रेसराः सूर्यशतकात् बहून् श्लोकान् उदाहृतवन्तः। अनुप्रासादयः शब्दालङ्काराः, श्लेषः , उपमा , रूपकम् , उत्प्रेक्षा , तुल्ययोगिता , दीपकम् , व्यतिरेकः इत्यादयः अर्थालङ्काराश्च बहवः सूर्यशतके वर्तन्ते। सूर्यकिरणानां वर्णनम् , अश्ववर्णनम् , रथवर्णनम्, नेमि वर्णनम् इत्यादि विभागोऽपि शतके स्पष्टतया दृश्यते। सूर्यः कदापि न अस्तं गच्छति। भूमिः सूर्यं परितः भवति। अतः एकस्मिन् देशे प्रातः , अन्यत्र सायं भवतीति आधुनिक वैज्ञानिक मतमपि ज्योतिश्शास्त्रानुकूलं कविः स्पष्टं शतकान्ते निरूपितवान्।

द्वीपे योऽस्ताचलोऽस्मिन्भवति खलु स एवापरत्रोदयाद्रि-

र्या यामिन्युज्ज्वलेन्दुद्युतिरिह दिवसोऽन्यत्र तीव्रातपः सः।

यद्वश्यौ देशकालाविति नियमयतो नो तु यं देशकाला-

वव्यात्स स्वप्रभुत्वाहित भुवनहितो हेतुरह्नाभिनो वः॥

कवेः कवितागुणनिरूपकाः बहवः श्लोकाः शतके वर्तन्ते। आनन्दवर्धनेन उपमालङ्कारध्वनेः लक्ष्यभूततया उदाहृतः। एष श्लोकः सर्वेज्यः रमणीयः -

दज्ञनन्दाः प्रजानां समुचितसमयाकृष्टसृष्टैः पयोभिः

पूर्वाह्णे विप्रकीर्णा दिशि विरमत्यह्नि संहारभाजः।

दीप्तांशोर्दीर्घदुःखप्रभवभवभयोदन्वनुज्जारनावो

गावो वःपावनानां परमपरिमितां प्रीतिमुत्पादयन्तु॥

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ACCEPTANCE OF INTERNET BY RURAL WOMEN: A TAM ANALYSIS

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Abstract

Knowledge has nonetheless become the basic source of all fiscal as well as other developments in the society of which women share an equivalent fraction. ICTs are generally used for development, or for poverty reduction, or gender equality, or social justice. The field of science and technology are often categorized as 'hard' and therefore 'masculine', it is a field traditionally considered more suited for men than women. The study is reviewed and discussed in relation to the Technology Acceptance Model (TAM). The ultimate objective of the study is to find out the acceptance of internet by the women of rural Pondicherry.

A Triangulation methodology is adopted for the study. A purposive sampling method is adopted, wherein women users of three villages Embalam, Thirukanchipet and Veerampattinam are chosen. 302 interview schedules are taken into consideration. Women above 15 years are taken as samples. The data was coded and entered in Microsoft Excel and analyzed in SPSS statistics Ver. 14.0. Different statistical tools were used for data analysis.

The results show that the perceived usefulness, perceived ease of use and actual use of computer and internet are significantly associated with each other. The socio-cultural set up, education level, job relevance and facilitating conditions play a major role in determining the actual use of computer and internet by women.

Introduction:

The knowledge revolution in the world, with the adjunct of the new-fangled communication technologies has changed the living style.

'..... the capacity to acquire and generate knowledge in all its forms, including the recovery and upgrading of traditional knowledge, is perhaps the most important factor in the improvement of human condition.' (Bezanson and Sagasti 1995:5-6)

The interactive procedure of making the correct information accessible to people at the correct point of time in a lucid mode to facilitate people to proceed sensibly, elevating awareness and understanding is known as knowledge sharing.

Developments in the field of Information and Communication Technologies have provided a varied range of hi-tech tools and resources to generate, spread, accumulate, add significance and manage information. Knowledge has nonetheless become the basic source of all fiscal as well as other developments in the society of which women share an equivalent fraction. ICTs are generally used for development, or for poverty reduction, or gender equality, or social justice.

The "Voices of Poor" forum organised by World Bank got feedback from 60,000 people in 60 countries, concluded that people wanted access to knowledge and opportunities instead of charity to fight conditions leading to poverty (V Nath, 2001). Knowledge is not a scarce resource; it can be markedly expanded and it flourishes with use.

Internet:

Statistical and other evidence prove that ICTs do make a difference to the competitive and comparative advantage of nations, organizations, communities and people. ICT adoption is considered as a prime factor in the rapid development of countries. A study claims that ICT diffusion accounts for up to 90 percent of the increase in the

Human Development Index (HDI), observed in some nations (Xayluxa INSISENGMAY).

The greatest advantage of ICT is the reach and the low-cost of technology and data transmission. Technically, every individual can have a private or public access to a data terminal, which connects him to each and every individual in the world.

It is generally recognized that the nature and direction of the information society's development is not grounded in the realities of women, particularly women who experience poverty as well as gender discrimination, and who do not hold positions of power in the public realm (Hafkin and Huyer 2006; Huyer et al. 2005). Currently, the limited documentation of gender issues in relation to the impact of ICTs 'makes it difficult, if not impossible, to make the case to policymakers for the inclusion of gender issues in ICT policies, plans and strategies. As the UNDP puts it, "without data, there is no visibility; without visibility, there is no priority".

Traditionally, women have been secluded from the mainstream economy and the societal, cultural and market constraints imposed on them acted as a barrier to their information access. This has out-laid them from the global pool of information and knowledge.

Theoretically, ICT has the ability to digitally connect each and every woman in the world, which unwraps indefinable opportunities for information exchange. This facility could be used by women in ingenious ways, to know information and to communicate with other people who are online, and also to circulate information to people who are not online by exploiting the convergence and hybrid technologies such as community emails, community radio broadcasts, telecentres, newsletters, videos, etc. This proviso forms the focal route through which women communities could surmount the limitations of seclusion, activate resources and support, get out to new markets, and open up

opportunities for undying learning process.

Research problem:

The typical characteristics assigned to women and men are discriminatory that limit and even damage individual lives. Historically, it is woman who has lost in the relations of the sexes. The field of science and technology are often categorized as 'hard' and therefore 'masculine', it is a field traditionally considered more suited for men than women. For example, the perception that women fare poorly in science and technology relative to men is often attributed to biological limitations of women, rather than to gender stereotypes in educational materials, teaching approaches, study opportunities, technological design and media portrayal that contribute to a gender gap in ICT use.

"The so-called digital divide is actually several gaps in one. There is a technological divide—great gaps in infrastructure. There is a content divide. A lot of web-based information is simply not relevant to the real needs of people. And nearly 70 per cent of the world's websites are in English, at times crowding out local voices and views. There is a gender divide, with women and girls enjoying less access to information technology than men and boys. This can be true of rich and poor countries alike" (Kofi Annan, (Ex) UN Secretary General, 2003.)

Focus of the study:

ICTs can form an integral component of development projects. There are many ICT initiatives going on in Tamil Nadu and India. This study in particular has chosen Information Village project of the M. S. Swaminathan Research Foundation (MSSRF). The small knowledge centre programme initiated in a few villages of Pondicherry grew to the level of having a knowledge centre in every village in 2007. A busy commercial area Villianur is the head quarters of the project, otherwise called the VRC, the Village Resource centre. It is also the block

development headquarters and the hub of the information network. There are 14 VKCs in different villages of Pondicherry. These villages can be generally categorized into three areas – agricultural villages, coastal and dalit villages. In which, the chosen research area is Embalam, Veerampattinam and Thirukanchipet, each of which fall under the abovementioned categories.

Conceptual framework:

The study is reviewed and discussed in relation to the **Technology Acceptance Model** (TAM).

Technology Acceptance Model (TAM)

While the technology acceptance model (TAM), introduced in 1986, continues to be the most widely applied theoretical model in the IS field, the prolific stream of research on information systems use takes a variety of theoretical perspectives. Of all the theories, the Technology Acceptance Model (TAM) is considered the most influential and commonly employed theory for describing an individual's acceptance of information systems.

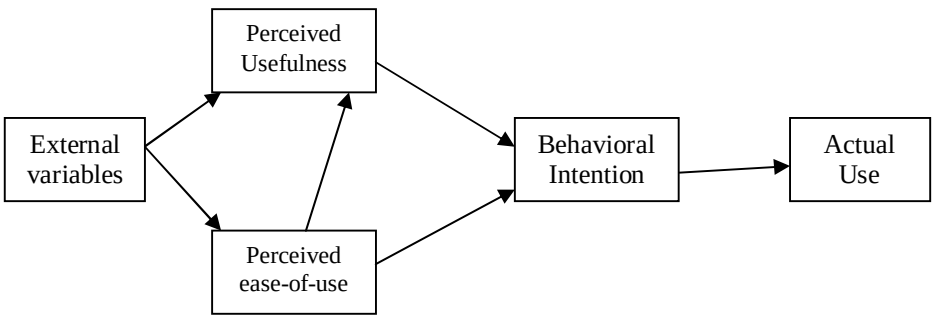

Fig – 1.Technology Acceptance Model (Venkatesh and Davis, 1996, p.453)

New communication technologies are complex and an element of uncertainty exists in the minds of decision makers with respect to the

successful adoption of them, people form attitudes and intentions toward trying to learn to use the new technology prior to initiating efforts directed at using them.

The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably the perceived usefulness and perceived ease of use. Research in psychology and TAM itself suggest that user's intention to use is the single best predictor of actual system usage. The intention to use is Behavioural Intention (BI) is determined by one's attitude towards using Information System. This attitude in turn is determined by two specific beliefs perceived usefulness (PU), the user's perception of the degree to which using a particular system will improve his/her performance, and perceived ease of use (PEOU), the user's perception of the extent to which using a particular system will be free of effort (Davis, 1989; Davis et al. 1989), the original conceptualisation of the TAM and subsequent research have shown that effect of perceived usefulness on intention is only partially mediated by attitude towards using. This is explained by Davis eta al (1989) as being attributable to the fact that in work settings, people may use a technology even if they do not have a positive attitude (affect) towards using the same because it may provide productivity enhancement (i.e., be useful). In keeping with this, the original theoretical conceptualization of TAM included the attitude construct. However, based on the empirical evidence, the final TAM model excluded the attitude construct because attitude did not fully mediate the effect of perceived usefulness on intention.

Research Objectives:

1. To find out the relationship between the external variables and perceived usefulness of internet.
2. To find out the relationship between the external variables and

perceived easiness of using the internet.

3. To measure the relationship between Perceived Ease of Use and Perceived Usefulness on Actual Use of internet.

Variable groups chosen for the study:

Core TAM variables:

Perceived usefulness of computer and internet (PU) – This was defined by Fred Davis as "the degree to which a person believes that using a particular system would enhance his or her job performance".

Perceived Ease of Use of computer and internet (PEOU) – Davis defined this as "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989).

Actual use: It is the amount of range of the particular system. The actual usage of a system as described by TAM is a dependent variable.

External variables:

The proposed research will study the impact of the following external factors on the rural women user's perceptions of usage, ease-of-use and actual usage: 1) Self-efficacy 2) Subjective Norms 3) Job Relevance 4) Facilitating Conditions.

Operational definitions:

1) Self-efficacy: The belief that one has the capability to perform a particular behavior. (Bandura, 1977)

2) Subjective norms: Person's perception that most people who are important to him think he should or should not perform the behavior in question. (Fishbein & Ajzen, 1975)

3) Job relevance: The capabilities of a system to enhance an individual's job performance. (Thompson et al., 1991)

4) Facilitating conditions: The control beliefs relating to resource factors such as time and money and IT compatibility issues that may constrain usage. (Taylor and Todd, 1995)

Research Design:

The ultimate objective of the study is to find out the acceptance of internet by the women of rural Pondicherry.

Methodology:

A Triangulation methodology is adopted for the study. Triangulation indicates more than two methods used in a study with a view to double (or triple) check the results. This is also called "cross examination". Data were collected both qualitatively and quantitatively.

Sampling method:

A purposive sampling method is adopted, wherein women users of three villages Embalam, Thirukanchipet and Veerampattinam are chosen. 315 interview schedules were filled. But thirteen partially filled interview schedules were discarded and 302 interview schedules are taken into consideration. Women above 15 years are taken as samples. Based on the analysis of the educational level of the chosen villages, it is understood that almost all the girls go to school at least till 10^{th} standard. These school going girls use the VKCs to learn their school portions, to prepare their assignments and to check their exam results. Though, they are using the VKCs widely, their usage is limited to education alone. So, women above this age limit are taken in to consideration to study the varied uses of VKCs.

Data analysis and presentation:

The data was coded and entered in Microsoft Excel and analyzed in SPSS statistics Ver. 14.0. Different statistical tools were used for data analysis.

Results:

The external variable self-efficacy has a major role to play in the perception of usage and actual use of technology. Women who are educated at least up to secondary level and undergraduate level, gain confidence easily that they can work on computers and Internet. While the people with educational level below that are capable of managing, when given a proper, formal training like the Microsoft Unlimited Potential Programme (MUPP). Illiteracy is a stumbling block in using computer and Internet. As far as women with primary education are concerned, the natural cognitive process motivates them to learn a particular behaviour, then that particular behavior would be learnt through clear observations. The three villages chosen for study have a high literacy rate. So, the problem of illiteracy being a problem is not so intense.

Table 1- **Linear Regression Analysis of the External, Independent and Dependent variables of the Technology Acceptance Model**

The results of linear regression analysis show that distance from VKC is the only parameter for facilitating conditions, which significantly affects the perceived usefulness and perceived ease-of-use.

The results of the regression analysis also show that 'opinion of the family members, neighbours and relatives' are the 'subjective norms' parameters, which has a significant (P-value = .000) association with the variables 'perceived usefulness' and 'Actual Use'. This indicates the socio-cultural behaviour of a society. Generally women are not allowed to go out to far off places or to be away from house for longer hours in a typical rural society. The cultural constraints are so high that it restricts the mobility, both horizontal and vertical of women. Women's general perception on worldly affairs or issues is based on the socio-

cultural environment they live in. Their thought process is restrained by the rules that limit them.

Table 1 - **Bivariate Correlation matrix of major TAM variables Perceived Usefulness, Perceived Ease-of-use and Actual Use of Computer and Internet**

The major TAM variables 'Perceived Usefulness, Perceived Ease of Use and Actual Use of Computer and Internet', when fitted on a Bivariate correlation model, shows that all the three variables are significantly associated with each other with their P-value <.05.

The job relevance is a significant predictor of Perceived usefulness and Actual Use with their P-value < 0.05. The association between the variables Actual use and Perceived Ease-of-Use is found to be significant.

Key Findings, Discussions and Conclusion:

Acceptance and adoption of computer and Internet:

1. The women who are in to small-scale business, computer related jobs and knowledge workers' use of computer and Internet is more when compared to housewives and women in other jobs.
2. 'Self-efficacy' of the women, 'Job relevance' of the facilitated information and 'subjective norms' of the society in which the women live, significantly affects the perceived Usefulness of computer and Internet.
3. 'Self-efficacy' and 'Job relevance' are greatly linked with the respondents' perceived ease-of-use also.
4. Self-efficacy again is a significant predictor of Actual use of computer and Internet

5. The variable 'perceived ease-of-use' is an important factor, which determines the actual usage of computer and Internet.
6. There is a significant relationship between 'perceived ease-of-use' and 'perceived usefulness'.
7. Both perceived ease-of-use and perceived usefulness which are affected by other external factors, in turn affect the actual use of computer and Internet.

Women's lower literacy rate is a setback for their acceptance of new technologies. Again, the prevalent social stance and general life patterns (esp. the reproductive and productive roles of women) curtail their steps forward. The need of the hour is change in the perception of the people is general, on women in a family and in public life. Let alone the women's organization's work to protect women's rights, gender equality through the use of progressive technologies would always remain a dream.

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STRESS AMONG TEACHERS : SOME COPING STRATEGIES

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Stress is an everyday event, an integral part of natural fabric of life. No aspect of human life is untouched by it and no field unaffected . While stress may have positive as well as negative effects, the negative effects generally attract most attention . Daily hassles ,perfectionist expectation, change and conflict and pressure –all take their toll on the health be it physical or mental. Some stress is healthful and necessary to keep us alert and functioning effectively , but overtax our capacity to adjust, dampen our mood and impair our ability to experience pleasure.

Originally stress was defined in neutral terms as human bodies non specific physiological response to any demand (Selye 1956) . However ,stress has increasingly acquired negative overtones implying excessive pressure, perceived threat or overload and inability to cope . The definition given by Lazarus (1990,1993) is more widely accepted now. According to him stress is the anxious or threatening feeling that comes when we interpret or appraise a situation as being more than our psychological resources can adequately handle. The study of stress is very much the study of how the mind and body interact.

Though there are wide ranging assumptions about teaching profession being devoid of stress ,on perusal of international research, it emerges that teachers stress is a real phenomenon . Like wise any other occupation the field of teaching has also been eroded with the phenomenon of stress. The teaching profession is one of the interactive human service professions and also has its own of strains and pulls and pushes. Kyriacou (2001) has defined teacher stress as 'the experience by teacher of unpleasant ,negative ,emotions, such as anger .anxiety,

tension, frustration ,depression, resulting from some aspect of their work as teacher.'

There is a difference of opinion regarding the aetiology of teacher stress. Stress always involves a transaction between the individual and their environment .For heuristic purposes, we can divide casual factors of teachers stress into three board areas intrinsic to teaching ; cognitive factors affecting the individual vulnerability of teachers; and systematic factors operating at the institutional and political level.

In order to gain insight into teachers stress the very nature of job needs to be explored . Though from a distance it appears to be a less demanding and exacting profession, on closer observation the nature of work of a teacher appears to be delicate . It involves not only information processing , mental elaboration ,creative linking of theoretical constructs with utilitarian daily life, but also effective expression and comprehensive communication and this process is not an on and off process but a continuous one. High workloads, diminishing social respect for teaching and poor pay are some of the other factors intrinsic to teaching .

Another factor related to workload is role overload. Now what do we mean by this ROLE OVERLOAD ? there are plenty of roles all encompassed in a teachers role . A teacher has to be an effective instructor , a productive researcher a co –curricular enhancer , a disciplinarian as well as executive.

HOW SHOULD TEACHERS COPE ?

A number of initiatives could be aimed at helping teachers cope with job related pressure . Coping refers to effort taken to master , reduce or tolerate the demands created by stress. Each individual has their unique way of dealing with stress Appraisal of stress is important in determining the coping strategy to be adopted . Attempts could be made to address stress directly by removing or mitigating its perceived

causes or indirectly by applying palliative measures which could help teachers deal more effectively with potentially stressful situations.

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