

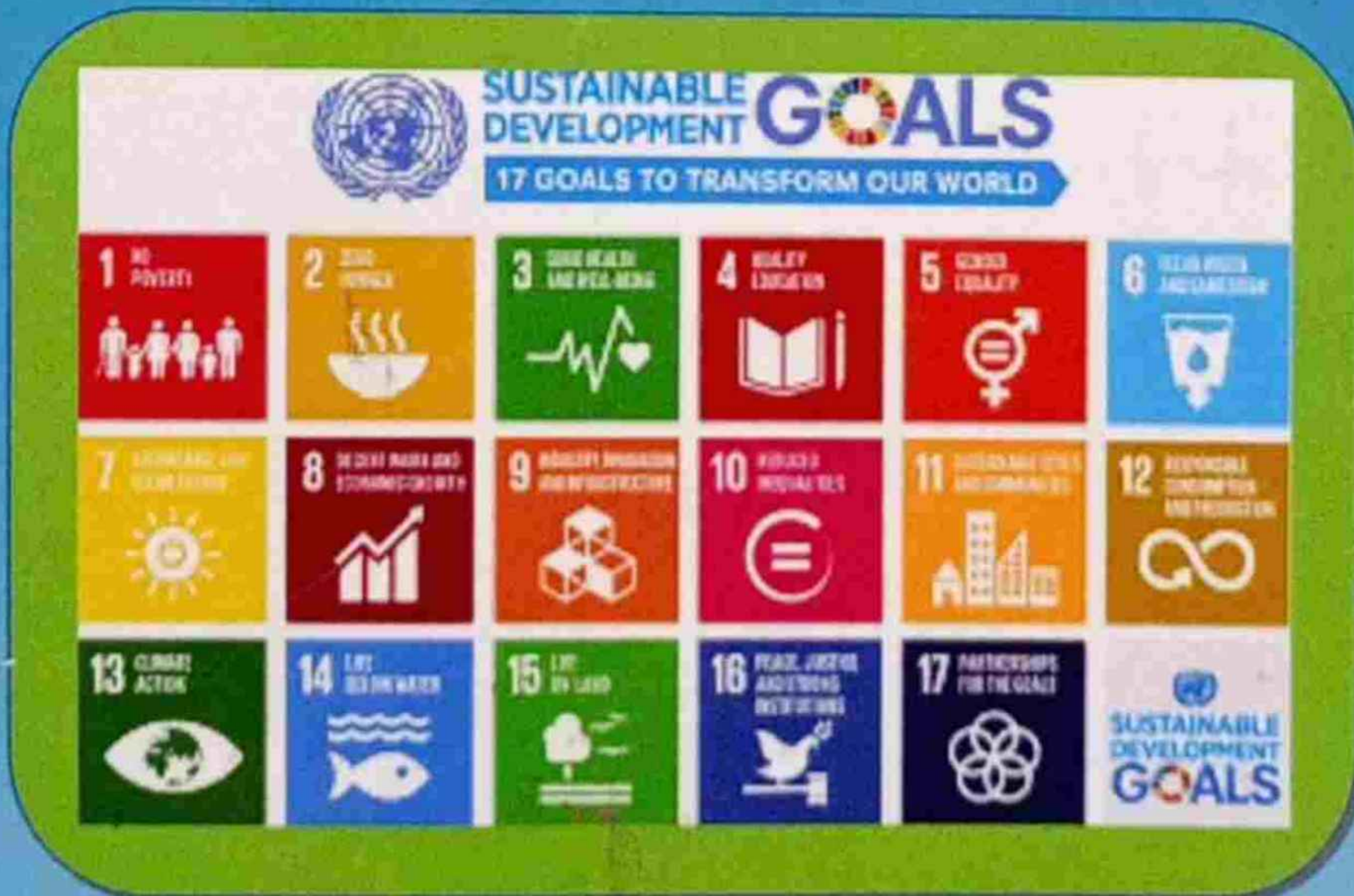
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Sustainable Development for Society, Industrial Development, Material, Energy and Environment: Key Issues, Opportunities and Challenge

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SUSTAINABLE DEVELOPMENT AND ENVIRONMENTAL ISSUES IN INDIA

Dr. Sanjay Raosaheb Sawate

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Abstract

Development cannot stop for the sake of the environment what is needed is to stress the choosing of method that would ensure minimum environmental damage while maximum developmental benefits. The major concern is to redress the situation rather than attribute problems. With the conviction that there is a limit bearing capacity of over development, the damage must happen. In developing countries the damage to the environment has not been very much, and there is still time to undertake some preventive and even curative measures. The nature of the development and environmental impact vary significantly among developing countries but there is so badly impact on whole world. Hence, sustainable development refers to development activities that do not impair environmental resources quality. This includes maintaining ecological processes, preserving biodiversity, and protecting species and ecosystems.

Keywords – *Environmental damage, Conviction, Sustainable Development*

Introduction

"Sustainable Development is the development that meets the needs of the present generation without compromising with the needs of future generations." This definition was put forward by the Brundtland Commission in its report "Our Common Future" in 1987. It calls for a concerted effort to build an inclusive, sustainable, and resilient ecosystem for the people and the planet. The main features of sustainable development include Increase in per capita income, judicious use of natural resources and preserving the resources for future generations.

There are four dimensions to sustainable development – society, environment, culture and economy – which are intertwined, not separate. Sustainability is a paradigm for thinking about the future in which environmental, societal and economic considerations are balanced in the pursuit of an improved quality of life. For example, a prosperous society relies on a healthy environment to provide food and resources, safe drinking water and clean air for its citizens. The report of the World Commission on Environment and Development has also recognized that unlimited growth was neither

feasible nor desirable, that basic needs for all should be the highest priority of development, and that only protected and carefully nurtured environment could sustain human aspirations. It is commendable that the general feeling today is for preserving the environment for sustainable development which has led to common understanding in both developed and developing countries in that the environmental considerations should be linked to development strategies

Objective

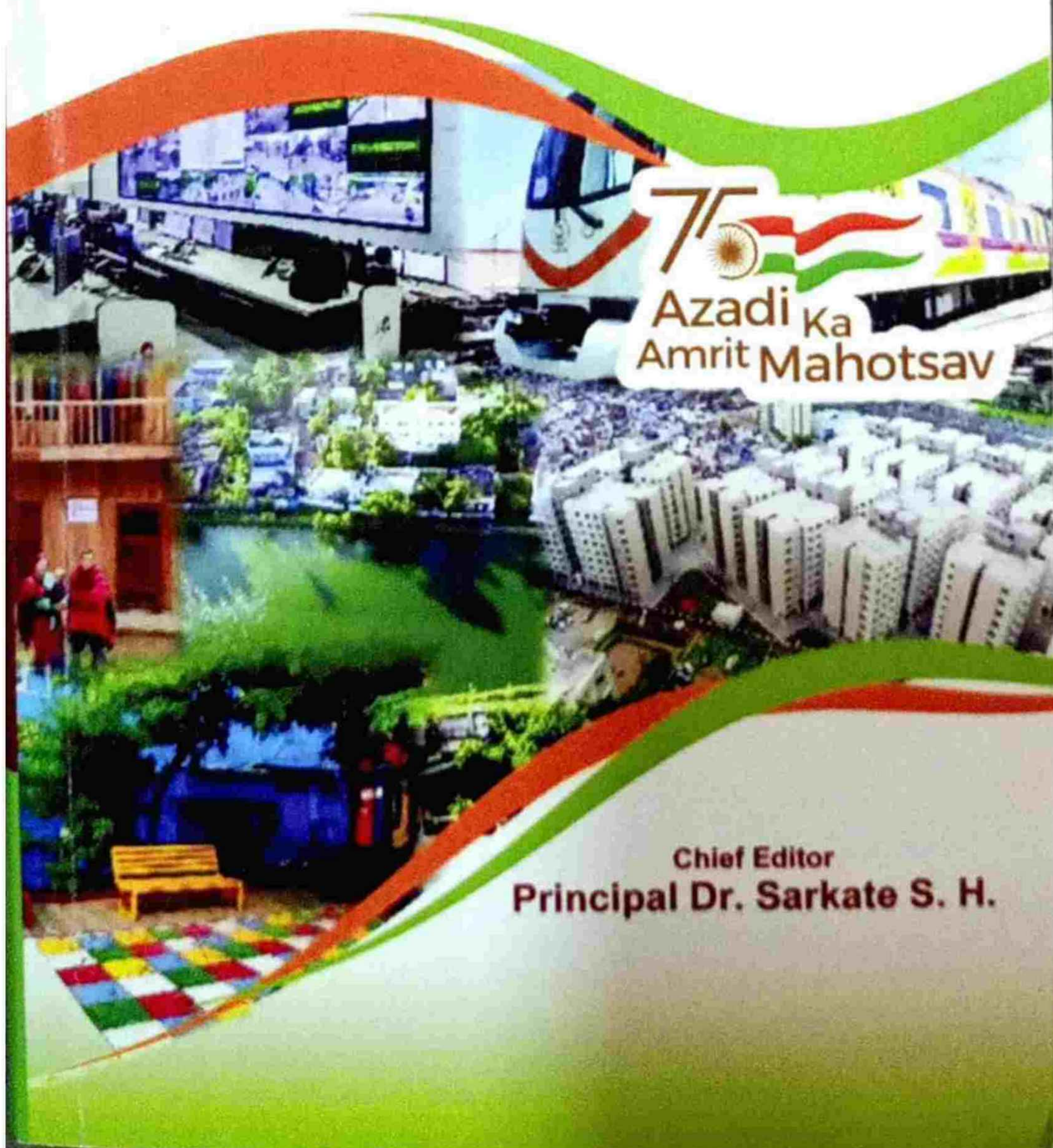
1. To understand what is sustainable development
2. To know the sustainable development goal
3. To identify the environmental issues and how to overcome on it

Goals of Sustainable Development

As an affirmative action towards tackling the global environmental crisis that involves global warming, climate change, and ozone layer depletion, the United Nations adopted 17 Sustainable Development Goals (SDG) and 169 targets as part of the United Nations 2030 Agenda.

The 17 Sustainable Development Goals are: 1. End poverty in all its forms everywhere 2. End hunger, achieve food security and improved nutrition, and

75 Years of Independence of India Opportunities and Challenges



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Relation Between Settlements And Physical Elements: Critical Review In Beed

Dr. Sanjay Raosaheb Sawate

Associate Professor & Head Dept. of Geography, Kalikadevi
Arts, Commerce & Science College, Shirur Kasar Tq. Shirur
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Abstract:

Settlement is an abode, a shelter or dwelling where man retires from his days work to sojourn or sleep. It is an establishment that relates to and results form an established way of life. Settlement is a fixed point in space and has definite location and identify. Thus the term settlement means the characteristic grouping of population into occupational unites together with the facilities in the form of houses and streets which serve the inhabitants. According to Singh settlement as occupancies unit represents, thus an organized colony of human being, including the buildings in which they live or work or store or use them otherwise and the tracks or streets over which their movements take place. In the earlier stages settlements totally depend upon the surrounding conditions. Settlements then gradually change due to advancement of knowledge and civilization. Rural settlements are also studied by sociologists, economists and historians but their approaches are different. Geographers study the problem as manmade habitat on the earth's surface in relation to the environment.

Keywords: Settlement, Dwelling, Civilization Rural Settlements etc.

75 Years of Independence of India Opportunities and Challenges



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Use Of Remote Sensing Techniques In Land Use Planning In Latur District

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Abstract

This era is technological era every aspect or field is used technology at various level. Remote sensing has been of vital importance in landform studies as it has been used as data collection and analytical tool that provides synoptic views of a terrain, which is not possible to obtain in field and from conventional tools. The study of landforms analysis around Latur will be carried out in laboratory by using land sat falls colour composite and black and white band 4, 5 and 7 imagery on 1: 250,000 scale supplemented with toposheets. The delineation of landforms will substantiated by using morphometric techniques viz. Serial profile, superimposed profiles and composite profiles across the study area. In subsequent phase, the interpreted and delineated landforms were verified and confirmed in field during the period of field work. In third stage, the imagery will be reexamined in laboratory and the information will revised. The map and plans were redrawn. Land sat imagery and toposheets were chief tools used in present study of landuse.

Key Words – Remote Sensing, data collection, landforms etc.

Introduction

Land use means use of land in different sector in that agriculture is one of the oldest economic activities

of man. Generally, it is understood to mean both, cultivation of food and fiber crops and the raising of livestock. It has remained an important source of livelihood even today over the years in spite of growing industrialization and urbanization in the world and nearly 50% working population is still engaged in agriculture. In the developing countries, agriculture sector has been a principal source of employment and largest portion of income. However, it provides raw material to industry and much of export items. Agriculture in India is a major source of economy. It contributes 50% to national income and gives direct employment to about 68% of total population and nearly 90% population to rural area and provides nearly 35% of country's export, besides, supplying of wage goods required the non-agricultural section in industry. Hence it is not surprising that agriculture in India has been receiving much attention in the sectoral allocation of inputs in the five year plans in India and therefore top priority has been assigned to develop agriculture sector in our country.

Study Area :

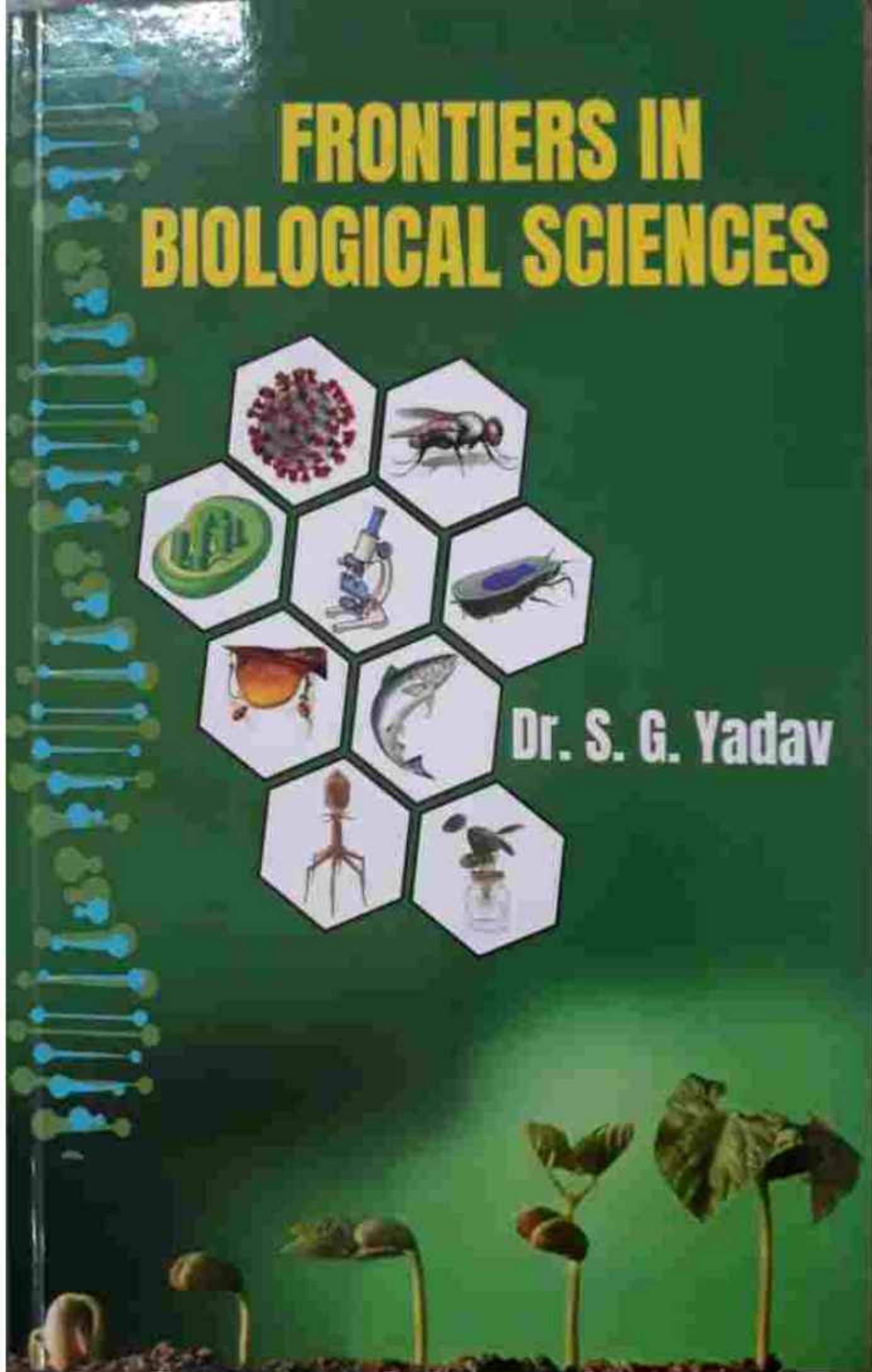
Latur district is selected as a study region. The District of Latur lies between 17⁰12' to 18⁰50' North latitudes and 76⁰12' to 77⁰18' East longitudes. It is surrounded by Beed and Parbhani district in the north, Nanded district in the North-East, Karnataka State in the South-East and Osmanabad district in the West and North-West.

The Latur district has an area of 7372 (7371.9) sq. km. and population 2454196 as per 2011 census. Out of the total population of the district male and female population were 1273140 and 1181056 respectively.

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Dr. S. G. Yadav



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CHANGES IN THE PROTEIN CONTENT IN FRESHWATER BIVALVE AFTER ACUTE TOXICITY TO CADMIUM DURING SUMMER SEASON.

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ABSTRACT - The present study has been undertaken to investigate, the effect of acute toxicity effect of cadmium chloride on protein content in different body parts of a freshwater Bivalve Mollusks, *Lamellidens marginalis* for 96 hours. The disturbance in the protein is one of the outstanding biochemical lesions due to the action of Cadmium. There is significant decrease in protein in different body parts after exposed to lethal concentration of cadmium under stress condition. Thus, the changes in protein contents can be used for early diagnosis of stress or as a probable biomarker for assessment of cadmium metal pollution in aquatic ecosystem.

Key words: Lethal concentration, Cadmium Chloride, protein, *Lamellidens marginalis*.

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Pathology.

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DR. T. S. PATHAN

PROFESSOR (DR.) YASMEEN SHAIKH
DR. ATULKUMAR R. CHOURPAGAR

: Sustainable Development for Future:

**“Insights from agriculture, Health,
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Time line of India 1994

Honorable Pamulaparthi Venkata Narasimha Rao was an Indian lawyer and politician who served as the 9th Prime Minister of India. He had taken a lot of decisions for the welfare of the Nation. As a part of this, in 1994 his government has made the 76th amendment in constitution. It relates to the reservation of seats in educational institutes and of appointments of posts in the services under a state, for backward classes, scheduled castes and scheduled tribes. As per the decision of hon. Supreme Court on 16th November 1992, total reservations under Article 16(4) of the Constitution should not exceed 50 percent.

There have been 105 amendments in the Constitution of India up to October 2021. The first amendment was done in 1950. After that, the Constitution has been amended 104 times. This is the beauty of the Indian Constitution.

Education

After the independence of India in 1947, the government of India established different educational institutes to face the various educational challenges and recommended comprehensive policies to improve the educational policies in India.

For this the Indian government had established the commissions and reforms, mainly University education commission, Murlidhar Commission (1952 – 53), Kothari Commission (1966 – 66) to apply the various education policies like national education policy (1968), National Policy of education (1986), Teachers education Scheme (1987), Operation Blackboard (1994) etc The government has taken great efforts for the improvement of the education system, the infrastructure and the enrolment of the rural peoples in the Primary educational flow as a result the government had invented the District Primary Educational Program (1994).

In India government launched the centrally sponsored scheme of the District Primary Educational Program (DPEP) as a measure initiative to revitalize and achieve the goal of **Universalization of Primary Education**.

In this project, 85% of the project cost was shared by the government of India while 15% by the concerned State. The central share was funded by several external agencies including the World Bank, UNICEP and Department of International Development.

National Immunization Days (NIDs) for poliomyelitis eradication in India were conducted on 9th December 1995 and 20th January 1996

Some Important events

On 26th January 1994, India rolls out the short-range Prithvi missile at Republic Day Parade in New Delhi.

On 20th May 1994, Sushmita Sen was crowned Miss Universe in Manila, Philippines.

On 19th November 1994, Aishwarya Rai was crowned Miss World in Sun City, South Africa.

Sports

India participated in the 1994 Asian Games held in Hiroshima, Japan from 2nd to 16th October, 1994. India ranked 8th with 4 gold medals, 3 silver medals and 15 bronze medals with a total of 22 over all medals.

Now a days India has make drastic improvement in the performance of all the sectors. It is really proud fill moment for Indians. Progress is a continuous, everlasting and life long process which is to be achieved by Research.



Author of this article, Dr. Sanjay K. Tupe has worked as a Jr. Lecturer of Physics in Kalikadevi Junior College for 13 years 26 days. Now he is working as an assistant Prof. and head department of Physics since 2011 in Kalikadevi senior College, Shirur (K.), Dist. Beed. Maharashtra, India. He is also working as Research guide for research Scholars in Dr. BAMU, Aurangabad. M.S. India. He worked as an in charge principal for more than three years. He has also worked as a Vice Principal for five years.

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Buddhist Cultural Studies and Literature in Modern India

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Abstract

Buddhism is a great philosophy and it is the third-largest religion in the world. Approximately 600 million followers and 8% of the global population are known as Buddhists. Buddhist ideology and teaching are based on originality it is traditions, beliefs, and spirituality totally based on Buddha's teaching. It originated in ancient India as a Sarmans tradition sometime between the 6th and 4th centuries BCE, spreading through much of Asia. Buddhism has two main branches that are generally recognized. Buddhism is a non-theistic religion that is not believed in God. It is just believing in reality and originality and also consider moral disciple. It is originated in India in the 5th and 6 centuries BCE. It was founded by the sage Siddhartha Gautama who, according to legend, had been a Hindu prince before abandoning his position and wealth to become a spiritual ascetic and, finally, an enlightened being who taught others the means by which they could escape samara, the cycle of suffering, rebirth, and death. Gautama Buddha has developed Buddhism and he taught Buddhism to all over the world. It was very much flourished in the period of king Ashoka. Buddhism was thought in many schools during the period of Budhha. It was only one religion that could become the world's no one religion. It is a very great religion in the world it is not a killer but a savior. It remained a relatively minor school until the reign of Ashoka the Great (268-232 BCE) of the Mauryan Empire (322-185 BCE) who embraced and spread the belief, not only throughout India, but through Southern, Eastern, and Central Asia.

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The Role of Language in Education

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Abstract: It is obvious that languages play an important role in various aspects of our daily lives. Their role is not only limited to communication, rather it extends into the vast branches of knowledge and human sciences. Languages are capable of developing human knowledge and extending it for the benefit of human kind this research aims to identify a scientific methodology in the field of linguistics (living languages) which will assist researchers in determining the most expressive language in delivering knowledge and scientific facts - a language that is powerful, expressive, and influential. Despite the recognition of the importance of languages and their role in education, not much research has been done to investigate the various issues pertaining to this matter. True, studies on the relationship between languages and knowledge exist, but there are few that elaborate upon the effects of languages on education. The following research attempts to present a foundational presentation of the effects of languages in educational development and how the positive effects may be incorporated towards the development of human resources.

Key words: Education, Role, Importance Effects

Introduction

Developing strong reading skills is essential to children's academic success and later life outcomes. Learning to read in a language that they use and understand—whether it's spoken or sign language—is one of the most critical factors in determining whether children develop the strong literacy skills that are foundational for all later learning. Even the most carefully designed reading lessons won't help children learn to read if they can't understand the language their teacher uses in the classroom. This is why language of instruction policies and practices are critical to learning and improving children's reading outcomes—and why we're sharing two useful resources for addressing language issues in literacy programs and policies. (1)

In discussions of language and education, language is usually defined as a shared set of verbal codes, such as English, Spanish, Mandarin, French, and Swahili. But language can also be defined as a generic, communicative phenomenon, especially in descriptions of instruction. Teachers and students use spoken and written language to communicate with each other—to present tasks, engage in learning processes, present academic content, assess learning, display knowledge and skill, and build classroom life. In addition, much of what students learn is language. They learn to read and write (academic written language), and they learn the discourse of academic disciplines (sometimes called academic languages and literacy's). Both definitions of language are important to understanding the relationship between language and education.

As suggested by M. A. K. Halliday, the relationship between language and education can be divided into three heuristic categories (2)

Learning Language:

In their early years, children are learning both spoken and written language. They are developing use of complex grammatical structures and vocabulary, communicative competence (rules for the appropriate and effective use of language in a variety of social situations), comprehension of spoken and written language, and ways to express them. Educational programs for young children often emphasize curriculum and instruction to facilitate language learning. With regard to spoken language, instructional programs may emphasize opportunities to comprehend a variety of genres from directions to narratives and opportunities to experiment with modes of expression. With regard to written language, classrooms for young children provide opportunities to learn alphabetic symbols, grapho-phonemic relationships (letter-sound relationships), basic sight vocabulary, and comprehension strategies; and also feature the reading of stories designed for young children. Young children may also have opportunities to learn how to express themselves through written language, including opportunities to form letters, words, sentences, and text structures, and opportunities to learn how to put together a written story.

There is debate about the extent to which classrooms for young children's language learning should provide didactic, teacher-centered instruction or student-centered instruction. Those who support a didactic approach argue that children whose language performance is below that of their peers need explicit instruction to catch up. These advocates argue that the home and community environments do not provide all children with the experiences needed to be proficient and effective users of language and that direct instruction with grammatical forms, vocabulary, and pronunciation can help certain students catch

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Study of Astable Multivibrator Using Pspice Spice and Top Spice Software's

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Beed, Maharashtra, India

ABSTRACT

This paper addresses the performance of Astable Multivibrator using PSpice Spice & Top Spice electronic circuit simulation software's. Traditionally electronic circuit design was verified by building prototypes, subjecting the circuit to the various stimuli and then measuring its response using appropriate laboratory equipment's. Prototype building is somewhat time consuming. But produces practical experience from which we judge the manufacturability of the design. Computer programs that simulate the performance of an electronic circuit provide a simple cost-effective means of confirming the intended operation prior to circuit construction and verifying new ideas that could lead to improve the circuit performance.

Keywords: - Astable Multivibrator, Amplification, Transient Analysis Simulation.

I. INTRODUCTION

The evolution of electronics technology almost in to every facet because of low cost, reliability and ease of interface [1]. The electronic industry is getting progressively more and more efficiently more at new products in wide range and variety of circuits in service of human being. We also saw the more and more products coming in to the market in shorter time [2]. Hence low-cost circuit design, with an accurate, linear and faster testing techniques are addressed. A variety of electronic components PSpice commercially available which plays an important role in design development of accurate circuit design performance and optimum reliability [3].

II. SIMULATION

Electronic simulation of circuit function is now a common practice in the design of individual circuit and the complete systems. The most of the circuit designer can simulate, and design the circuit and develop it as early as they can and hence in market [4]. Spice software models for common circuit elements, active as well as passive, and it is capable of simulating most electronic circuits. It is versatile programmed and is widely used both in Industries and Universities. [5]. The circuit performance and its reliability in any circuits for to minimize the failure can be tested. To meet the required standard of the circuits and hence quality

instruments, the circuit analysis is performed. In case of any failure or problem one can easily redesign it by modifying the very same circuit in a few minutes using highly sophisticated simulation tools [6].

The role of spice software's is very vital in all fields of engineering and industries for the design and built the electronic circuits. Today many groups around the world are investigating advanced software capable of responding a wide variety of components. Recent years have witnessed the excellent progress in the field of spice software. These improve the ability of users to integrate different types of electronic circuits in to their systems or applications. The spice software would have more capability to design and built electronic circuits in wider range of applications.

In case of classroom / laboratories study teaching the spice, experiments will be tried for example in the design of AstableMultivibrator. Here various software's can be come to our reuse and the effect can be easily demonstrated by changing various capacitors so also can be done in case of other circuits of amplifiers and oscillators even for modulation studies.

III. ASTABLE MULTIVIBRATOR

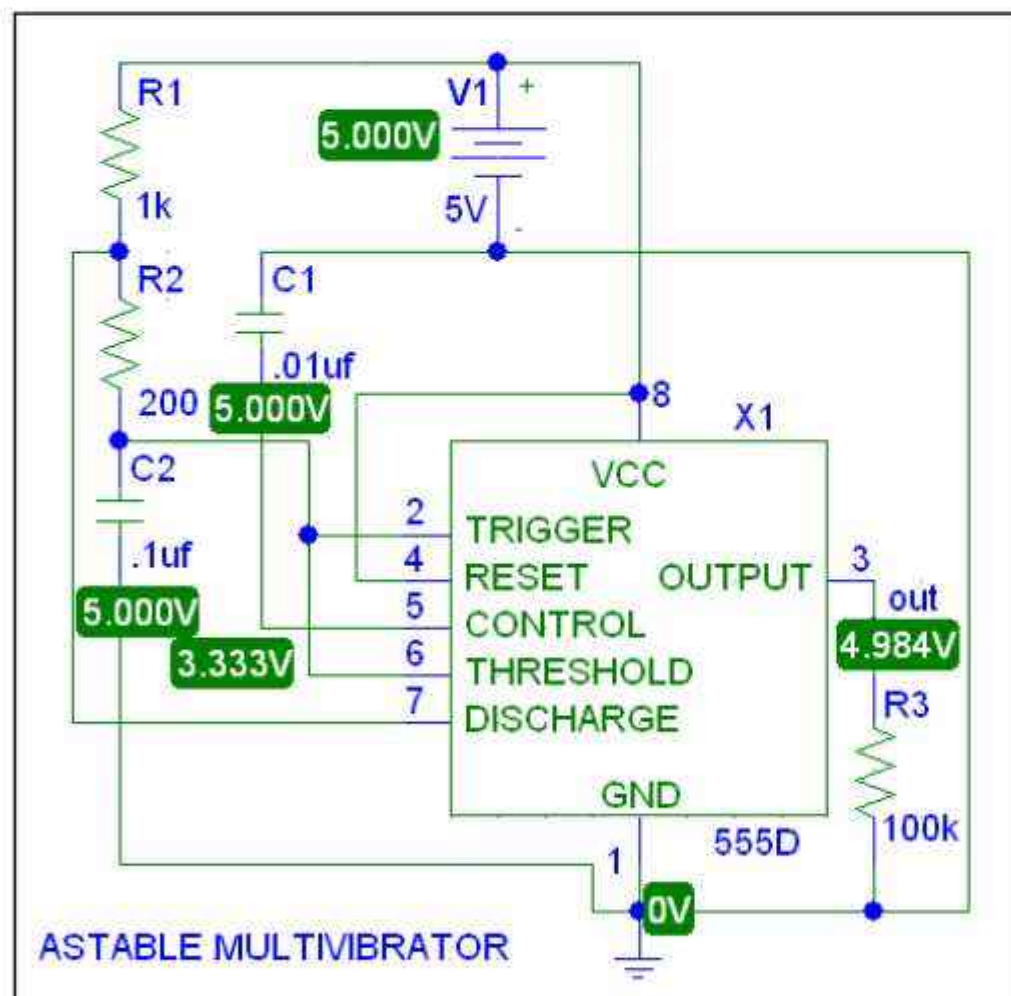


Fig 1 Circuit diagram for AstableMultivibrator

The 555 connection as an astable multivibrator is shown in figure 1. Assume that the capacitor is initially discharged and Q is high. The capacitor C will charge through R1 and R2 and the voltage Vc across it will rise exponentially towards Vcc. However as soon as this voltage reaches $V_{UT} = (2/3)V_{cc}$, the comparator output goes HIGH, resetting the flip flop. Q' becomes HIGH and the transistor conducts and the capacitor discharges through R2 lowering the voltage Vc. When the capacitor voltage becomes $V_{LT} = (1/3)V_{cc}$, the output of the comparator C2 becomes HIGH and the flip flop is again SET making the transistor OFF and again charging the capacitor through R1 and R2. The cycle repeats continuously and the pulse waveform is obtained at the output.

Assuming that $t = 0$ is the instant when charging of C begins, we can write the voltage across the capacitor during charging as

$$V_c(t) = V_{cc} - (V_{cc} - V_{LT})e^{-t/(R1+R2)C}$$

And at $t = T_H$

$$V_c(t) = (2/3)V_{cc} = V_{UT} \text{ and } V_{LT} = (1/3)V_{cc}$$

Therefore

$$\frac{2}{3} V_{cc} = V_{cc} - (V_{cc} - \frac{1}{3}V_{cc}) e^{T_H/(R1+R2)C}$$

$$T_H = (R1 + R2)C \ln 2 = 0.69(R1 + R2)C$$

We see from the figure that Vo is low during T_L therefore, the discharge voltages across the capacitor can be written as

$$V_c(t) = V_{LT} e^{-t/R2C}$$

($t = 0$ is beginning of discharging of C)

At $t = T_L$

$$V_c(t) = \frac{1}{3}V_{cc} = V_{LT}$$

Hence

$$\frac{1}{3}V_{cc} = \frac{2}{3}V_{cc} e^{-T_L/R2C}$$

Or

$$T_L = R2C \ln 2 = 0.69R2C$$

The total time period,

$$T = T_H + T_L$$

$$T = 0.69(R1 + 2R2)C$$

$$f = \frac{1}{T} = \frac{1.443}{(R1+2R2)C}$$

The duty cycle is

$$\% \text{ duty cycle} = \frac{T_H}{T} \times 100$$

In this circuit the duty cycle is always be greater than 50%. If $R1 \ll R2$, it approaches 50%.

The Following Graphs Shows the Output of AstableMultivibrator in Different Software:

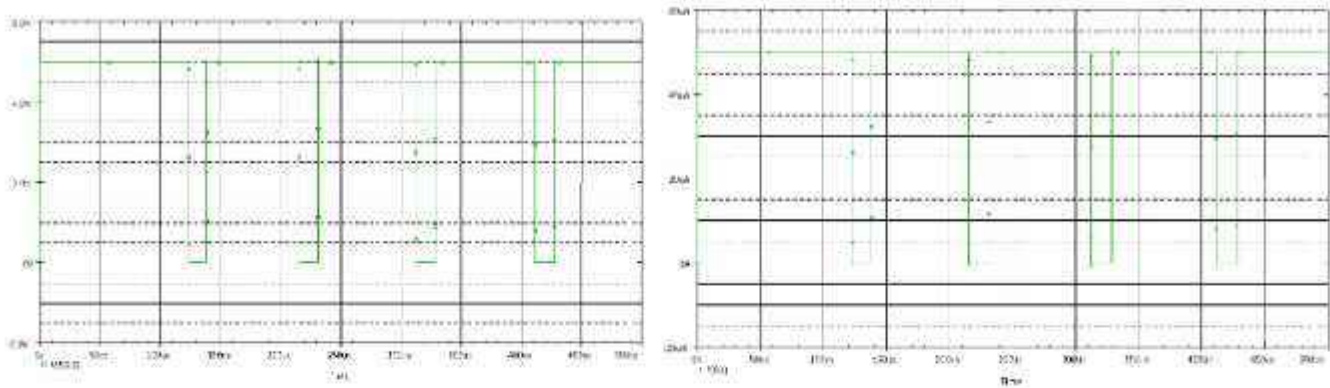


Fig 2 graph of square wave generator by PSPICE SPICE

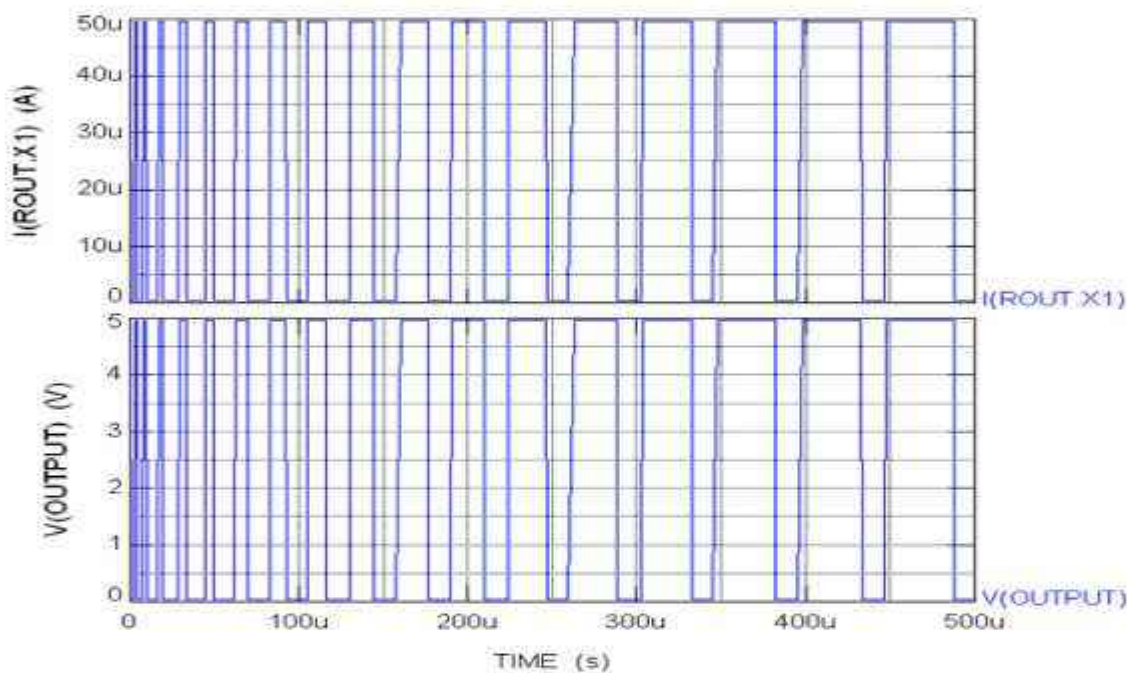


Fig 3 graph of square wave generator by TOP SPICE

IV. OBSERVATIONS

- A. In Pspice Software: - 1. Output starts $3.8364\mu\text{V}$ to 4.9836 V . 2. Rise time and fall time in this software is exactly equal to $598\mu\text{s}$. 3. The pulse width depends upon the values of $R1$ and $R2$. Except first all the pulses are equally spaced. 4. Current and potential are in phase. 5. We get the maximum current up to $49.936\mu\text{A}$.
- B. In Top Spice Software: - 1. Output starts $-38.976\mu\text{V}$ to 4.962 V . 2. We observe rise time and the fall time are exactly equal to zero second. 3. We cannot get the perfect pulse; pulse width goes on increasing as the

time increases.4. Current and potential are in phase.5.We get the maximum current up to $49.62\mu\text{A}$.6. Rise time and fall time, initially it is less but as the time increases it also increases.

V. CONCLUSION

In both software's we observed simultaneously the potential & current curves. In Pspice we observe up to 500 μs the output frequency is stable but in case of Top spice to 500 μs it decreases.

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Study of Astable Multivibrator Using B2 Spice, TINA and Circuit Maker Software's

Dr. Sanjay K. Tupe

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ABSTRACT

This paper addresses the performance of Astable Multivibrator using B2 Spice, TINA and Circuit Maker electronic circuit simulation software's. Traditionally electronic circuit design was verified by building prototypes, subjecting the circuit to the various stimuli and then measuring its response using appropriate laboratory equipment's. Prototype building is somewhat time consuming. But produces practical experience from which we judge the manufacturability of the design. Computer programs that simulate the performance of an electronic circuit provide a simple cost-effective means of confirming the intended operation prior to circuit construction and verifying new ideas that could lead to improve the circuit performance.

Key Words: - RC Coupled amplifier, Amplification, Transient Analysis, Smoke Analysis Simulation.

I. INTRODUCTION

The evolution of electronics technology almost in to every facet because of low cost, reliability and ease of interface [1]. The electronic industry is getting progressively more and more efficiently more at new products in wide range and verity of circuits in service of human being. We also saw the more and more products coming in to the market in shorter time [2]. Hence low-cost circuit design, with an accurate, linear and faster testing techniques are addressed. A verity of electronic components PSpice commercially available which plays an important role in design development of accurate circuit design performance and optimum reliability [3].

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Electronic simulation of circuit function is now a common practice in the design of individual circuit and the complete systems. The most of the circuit designer can simulate, and design the circuit and develop it as early as they can and hence in market [4]. Spice software models for common circuit elements, active as well as passive, and it is capable of simulating most electronic circuits. It is versatile programmed and is widely used both in Industries and Universities. [5]. The circuit performance and its reliability in any circuits for to

minimize the failure can be tested. To meet the required standard of the circuits and hence quality instruments, the circuit analysis is performed. In case of any failure or problem on can easily redesign it by modifying the very same circuit in a few minutes using highly sophisticated simulation tools [6].

The role of spice software's is very vital in all fields of engineering and industries for the design and built the electronic circuits. Today many groups around the world are investigating advanced software capable of responding a wide verity of components. Recent years have witnessed the excellent progress in the field of spice software. These improve the ability of users to integrate different types of electronic circuits in to their systems or applications. The spice software would have more capability to design and built electronic circuits in wider range of applications.

III. ASTABLE MULTIVIBRATOR

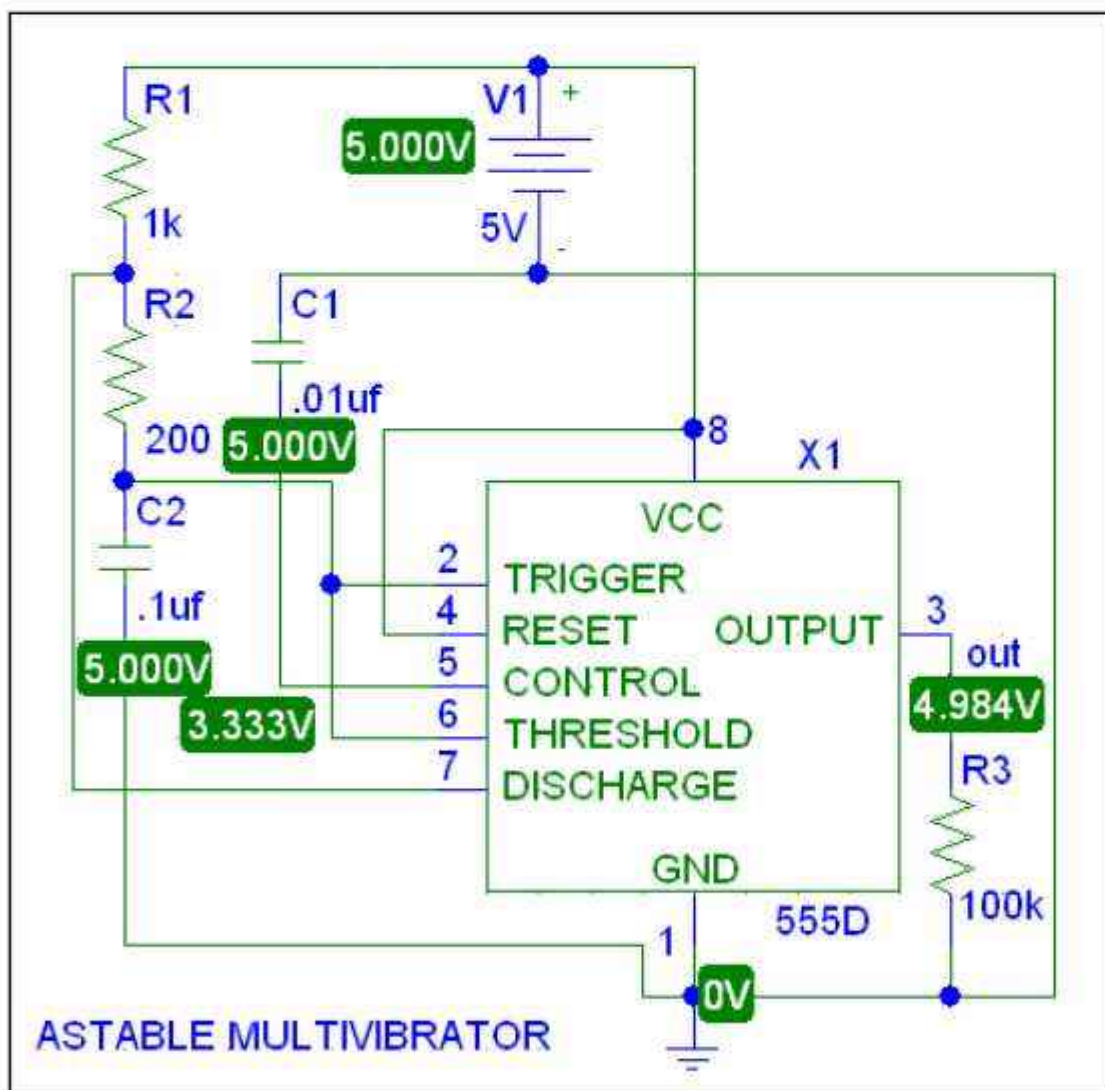


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Assuming that $t = 0$ is the instant when charging of C begins, we can write the voltage across the capacitor during charging as

$$V_c(t) = V_{cc} - (V_{cc} - V_{LT})e^{-t/(R1+R2)C}$$

And at $t = T_H$

$$V_c(t) = (2/3)V_{cc} = V_{LT} \text{ and } V_{LT} = (1/3)V_{cc}$$

Therefore

$$\frac{2}{3} V_{cc} = V_{cc} - (V_{cc} - \frac{1}{3}V_{cc}) e^{T_H/(R1+R2)C}$$

$$T_H = (R1 + R2)C \ln 2 = 0.69(R1 + R2)C$$

We see from the figure that Vo is low during T_L therefore, the discharge voltages across the capacitor can be written as

$$V_c(t) = V_{LT} e^{-t/R2C}$$

($t = 0$ is beginning of discharging of C)

At $t = T_L$

$$V_c(t) = \frac{1}{3}V_{cc} = V_{LT}$$

Hence

$$\frac{1}{3}V_{cc} = \frac{2}{3} V_{cc} e^{-T_L/R2C}$$

Or

$$T_L = R2C \ln 2 = 0.69R2C$$

The total time period,

$$T = T_H + T_L$$

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$$f = \frac{1}{T} = \frac{1.443}{(R1+2R2)C}$$

The duty cycle is

$$\% \text{ duty cycle} = \frac{T_H}{T} \times 100$$

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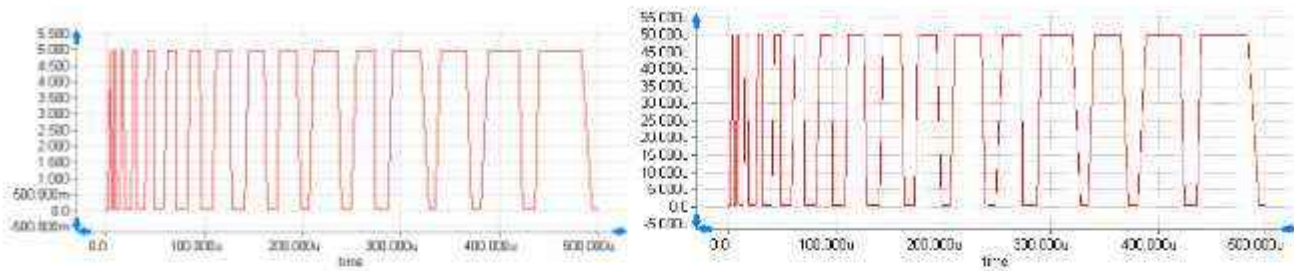


Fig 2 graph of square wave generator by B2 SPICE

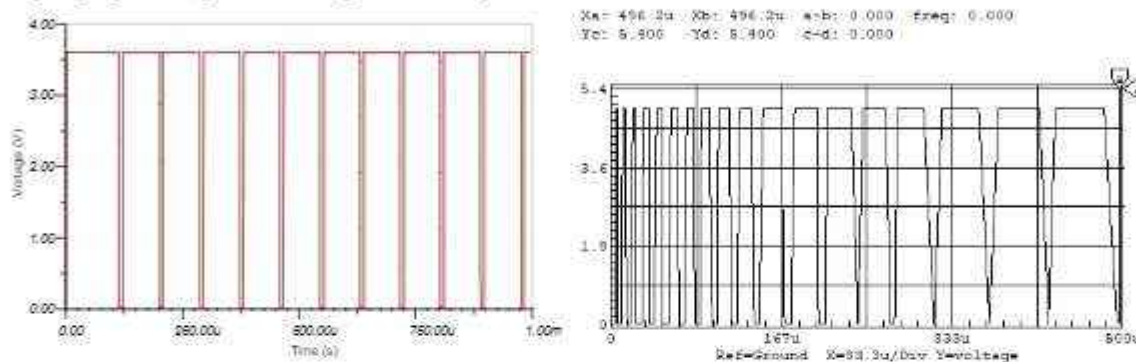


Fig 3 graph of square wave generator by TINA& Circuit Maker

IV. OBSERVATIONS

- A. **In B2spice Software:** - 1. Lower level of the output is 0.045V to 0.049V. 2. Higher level of the output is 4.962 V. 3. Rise time and fall time initially it is less but as the time increases it also increases. 4. Initially the output frequency is maximum and decreases as the time increases. 5. We cannot get the perfect pulse; pulse width goes on increasing as the time increases. 6. Current and potential are in phase. 7. We get the maximum current up to 50 μ A. 8. We get the minimum current up to .05 μ A.
- B. **In TINAspice Software:** - 1. Output voltage is 0 V to 3.6 V. 2. In this software rise time and the fall time are exactly equal to zero second. 3. We get expected output but output that changes with the change as the values of resistor R1 and R2 changes. 4. First maxima take more time. 5. In this software, we cannot get the current response simultaneously in the graph window in transient analysis but in AC table analysis, we get the current the current as well as the potential value of any point of the circuit.
- C. **In Circuit Maker Software:** - 1. The maximum output voltage at the peak is 4.950V. 2. In this software rise time and the fall time are increases as the time increase. 3. Initially the output frequency is maximum and decreases as the time increases. 4. We cannot get expected output. However, output which changes with the change with the values of resistor R1 and R2. 5. First peak take less time. 6. In this software, we cannot get the current response simultaneously in the graph window in transient analysis. However, in multimeter we get the current as well as the potential value of any point of the circuit. 7. The pulse starts from 0 V.

V. CONCLUSION

In above software's only in B2 Spice we observed simultaneously the potential & current curves. In Top spice we observe up to 500 μ s the output frequency is stable from start to end but in case of B2 spice & Circuit Maker it decreases 500 μ s.

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Residual Effect of Non-Leguminous Organic Weed Manures on Growth of Crop *Vigna unguiculata*

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Head Dept. of Botany, Kalikadevi Arts, Comm. & Sci., College, Shirur (Ka.), Tal. Shirur (Ka.), Dist. Beed- 413 249, Dr. B.A.M. Uni. Aurangabad. (MS) India.

ABSTRACT

The experiment was conducted on the farm located at V-P High-tech Research farm, Dist. Beed. The experiment design was a randomized block design [RBD] with ten treatments and three replicates. Previous work in this laboratory and field shows that input, data for the organic manure treatments in form of Non-leguminous weed manures as green manure of *Achyranthes aspera* (AGM), green manure of *Parthenium hysterophorus* (PGM), mixed green manure of both (A&PGM), Dry manure of *Achyranthes aspera* (ADM), dry manure of *Parthenium hysterophorus* (PDM), compost of *Achyranthes aspera* (ACo) and compost of *Parthenium hysterophorus* (PCo), were applied to field for maize crop cultivation compared with treatment of chemical fertilizers PK, NPK and Control. First maize crop was harvested and after 42 days of interval *Vigna unguiculata* was sown in the same treatment plots of bed, having a previous residual effect of organic manures. The growth analysis of the plant was recorded after 29 and 55 days and Chlorophyll analysis of the plant was recorded after 30 and 56 days. Result shows that all organic manures showed good residual effect on growth of *Vigna unguiculata* crops plants. Green manure and compost manure of Non-leguminous weeds gives long term residual effect on crop *Vigna unguiculata* and improves the soil quality.

Keywords: Treatment, green, compost, dry manures, chlorophyll, analysis

I. INTRODUCTION

The cowpea (*Vigna unguiculata*) is a species of bean in the family Fabaceae. It is cultivated throughout the tropics for food. It is a very important annual herbaceous legume from the genus *Vigna*. Due to its tolerance for sandy soil and low rainfall, it is an important crop in the semiarid regions across Africa and Asia. It requires very few inputs, as the plant's root nodules are able to fix atmospheric nitrogen, making it a valuable crop for resource-poor farmers and well-suited to intercropping with other crops. The whole plant is used as forage for animals, with its use as cattle feed likely responsible for its name. The crop is mainly grown for its

seeds, which are high in protein, although the leaves and immature seed pods can also be consumed. The seeds are usually cooked and made into stews and curries, or ground into flour or paste.

Parthenium hysterophorus is a species of flowering plant in the aster family, Asteraceae. In India, it is locally known as carrot grass, congress grass or Gajar Ghas. It is an annual herb that aggressively colonizes disturbed sites. It grows on any type of soil and in a wide range of habitats. It affects the production of crops, animals, human and animal health, and biodiversity. *Achyranthes aspera* is a species of plant in the family Amaranthaceae. It is distributed throughout the tropical world. It can be found in many places growing as an introduced species and a common weed.

An application of manure usually shows a favorable influence on crop yields for several years. These beneficial effects are distributed over a longer time than those of chemical fertilizers. Present investigation state that the residual effect of Non-leguminous (*Parthenium hysterophorus* and *Achyranthes aspera*) weeds organic manures as compost, green and dry leaf manure effect was studied on growth of *Vigna unguiculata* crops plants.

The residual effects of organic matter in soil following manure or compost application on crop yield and soil properties can last for several years. Four years after application, residual effects of one-time application of beef feed lot manure at rates varying from 123 to 590 Mg dry weight ha⁻¹ (1280–6140 kg N ha⁻¹) resulted in a quadratic increase in corn grain yield but also in increased leaching of NO₃-N and Na to a depth of at least 1m Wallingford, G. W. et al (1975). The residual effects of organic materials on soil properties can contribute to improvement in soil quality for several years after application ceases Ginting, D. et al (2003).

Ayoola O. T. and Makinde E. A. (2007): Studied that complementary Organic and Inorganic Fertilizer Application: Influence on Growth and Yield of Cassava/maize/melon Intercrop with a Relayed Cowpea and concluded that complementary application reduces the dependence of the farmer on inorganic fertilizer use. It also reduces the exposure of the soil to the consequences of inorganic fertilizer application. Organic amendments play a residual role in their ongoing maintenance. Residual amendment effects on total nitrogen (N) and phosphorus (P) were apparent 11.5 yr after application Larney F. J. et al (2011). Green manure and compost manure of Non- leguminous weeds gives long term residual effect on crop *Lablab purpureus* plant and its improves the soil quality Gholap P. N. (2021).

II. Materials and methods

Field site and experimental design - The experiment was conducted on the farm located at V-P High-tech Research farm, Dist. Beed. The experiment design was a randomized block design [RBD] with ten treatments and three replicates.

Treatments, Seeds variety and plot size - The present work related to treatments of plots depends on the basis of the previous work of the field. First maize crop was harvested then on bed of previous residual effect of organic manure plots like comparative residual effect of compost, green manure and dry leaf manure. Previous work in this field shows that input, data for the organic manure in form of chemical fertilizers PK and NPK at the rate of 120N, 80P and 40K and Control (CON) compared with Non leguminous weeds organic manures as green manure of *Achyranthes aspera* (AGM), green manure of *Parthenium hysterophorus* (PGM), mixed green manure of both *A.aspera* & *P.hysterophorus* (A&PGM), dry manure of *Achyranthes aspera* (ADM), Dry manure of *Parthenium hysterophorus* (PDM), compost of *Achyranthes aspera* (ACo) and compost of *Parthenium hysterophorus* (PCo). After 41 days of interval the Variety *Vigna unguiculata* was sown. It was produced by a Patel Seeds Corporation, old Mandi P.O. Padra (Baroda, Gujrat). 36gm/plots of size 3m x 3m i.e. at the rate of 40 kg/ha each.

Plant sampling - After 56 days of age finally the total crop *Vigna unguiculata* was harvested, before it during the early hours of the day, growth and chlorophyll analysis of green foliage of *Vigna unguiculata* per plot was recorded on the field itself [100 gm plot⁻¹] samples of each treatment along with control they were oven dried at 90 ° C for 2 Days till it gives constant weight for the determination of dry matter (DM), this dried sample was grinded to fine powder and stored in sealed polythene bags for further analysis.

Analysis:

Chemical Analysis – Using Arnon's method (1949) chlorophyll analysis of green foliage of *Vigna unguiculata* per plot was recorded on the field itself [100 gm plot⁻¹] samples of each treatment along with control they were oven dried for further chemical analysis. Jackson, M. L. (1973).

Statistical Analysis - All the results were statistically analyzed by using analysis of variance [ANOVA] test and treatments means were compared using the least significant difference [CD,P_0.05] which allowed determination of significance between different applications. Mungikar A. M. (1997)

III. Results and Discussion

Fig. 1 : Show that graph of residual effect of non-leguminous organic weed manures on *Vigna unguiculata* plant growth analysis. Plant height in cm was highest in the treatment of *Achyranthes* green manure 61.7cm followed by PK as 47.33cm then *Parthenium* green manure as 45.7cm and very short recorded in the treatment of control as 21.33cm followed by *Achyranthes* dry manure as 31.0cm then NPK as 33.0cm.

Total plant weight was highest in the treatment of PK as 20.3gm followed by *Achyranthes* green manure as 19.7gm then *Parthenium* green manure as 17.7gm. Total plant weight was lowest in the treatment of Control as 8.3gm.

Fig. 2 : Show that graph of residual effect of non-leguminous organic weed manures on *Vigna unguiculata* plant morphological growth analysis, The stem diameter was minimum in the treatment of control as 0.63cm as well as maximum in the treatment of *Achyranthes* green manure as 1.4cm then on PK as 1.27cm.

The root weight in gms was maximum in the treatment of PK as 1.30gm followed by the treatment of *Achyranthes* green manure as 1.27gm then *Parthenium* green manure as 1.20gm, as well as Minimum in the treatment of control as 0.70gm followed by *Achyranthes* dry manure as 0.93gm then *Parthenium* dry & compost manure as 0.97gm

In a weight of the fourth leaf was highest in the treatment of PK as 1.40gm then followed in order as *Achyranthes* Green manure 1.37gm, *Parthenium* green manure as 1.30gm and minimum weight of the fourth leaf was observed in treatment of control as 0.73gm then in *Achyranthes* dry manure as 0.87gm.

Fig. 3 : Show that graph of residual effect of non-leguminous organic weeds manure on *Vigna unguiculata* 4th leaf growth analysis. The plant was highest 4th Leaf length was on the treatment of *Achyranthes* green manure as 14.0cm followed by *Parthenium* Green manure and PK as 13.8cm and lowest 4th leaf length found on the treatment of Control as 8.8cm.

Likewise the plant was highest 4th Leaf width found on the treatment of *Achyranthes* green manure as 11.0cm followed by *Parthenium* green manure as 10.5cm and lowest 4th leaf width found on the treatment of Control as 7.0cm.

Fig. 4 : Show that graph of residual effect of non-leguminous organic weeds manure on *Vigna unguiculata* Fresh and dry leaves analysis. The plant fresh leaves number was highest on the treatment of *Achyranthes* green manure, *Parthenium* green manure and PK as 09 and lowest fresh leaves number found on the treatment of Control as 5.

Likewise the plant dry leaves number was highest on the treatment of *Parthenium* dry manure, *Parthenium* green manure and PK as 03 and lowest dry leaves number found on the treatment of *Achyranthes* green manure, NPK and Control as 02.

Fig. 5 : Show that graph of residual effect of non-leguminous organic weeds manure on *Vigna unguiculata* leaf area analysis. The plant was highest 4th Leaf Area on the treatment of *Achyranthes* green manure 20.40cm² followed by the treatment of PK as 15.66cm², then *Parthenium* Green manure as 15.11cm² and the lowest leaf area found on treatment of Control as 7.06cm² then followed up *Achyranthes* dry manure as 10.25cm² then NPK as 10.92cm².

Fig.6. Show that graph of residual effect of non-leguminous organic weeds manure on *Vigna unguiculata* analysis of estimation of Chl.a, Chl.b & Total chlorophyll, (Mg/gm), Chl.a highest in the treatment of

Achyranthes green manure & *Parthenium* green manure residual plots as 1.26mg/gm followed by *Parthenium* dry manure as 1.11mg/gm as well as lowest in the treatment of control 0.53mg/gm followed by the treatment of *Achyranthes* dry manure as 1.02mg/gm .

Likewise Chl.b (Mg/gm) highest in the treatment of PK as 0.80 mg/gm followed by *Parthenium* dry manure as 0.78mg/gm followed by the treatment of *Achyranthes* green manure & *Parthenium* green manure as 0.70mg/gm as well as lowest in the treatment of control 0.37mg/gm then *Achyranthes* dry manure as 0.58mg/gm.

Total chlorophyll highest in *Achyranthes* green manure & *Parthenium* green manure as 1.97mg/gm as followed by the treatment of PK as 1.85mg/gm as well as lowest in control 0.90mg/gm followed by *Achyranthes* dry manure as 1.59mg/gm.

IV. Conclusion

On the basis of the result obtained, it can be concluded that an application of the residual effect of Non-leguminous (*Parthenium hysterophorus* and *Achyranthes aspera*) weeds organic manures as compost, green and dry leaf manure, shows a favorable influence on *Vigna unguiculata* crop yields. These beneficial effects are distributed over a longer time for several years than those of chemical fertilizers.

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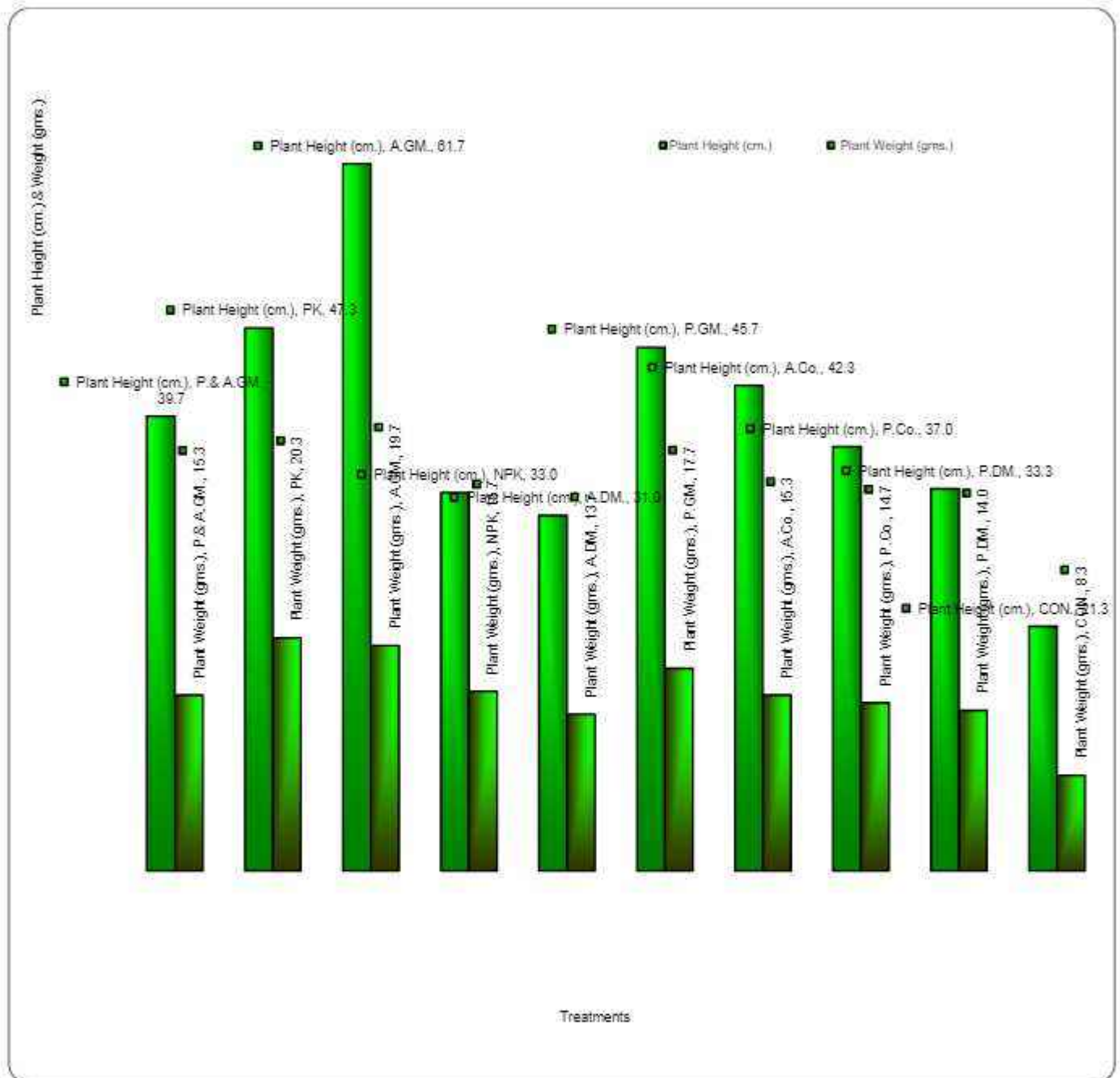


Fig. 1 : Graph of Residual Effect of Non-leguminous organic weed manures on *Vigna unguiculata* plant growth analysis.

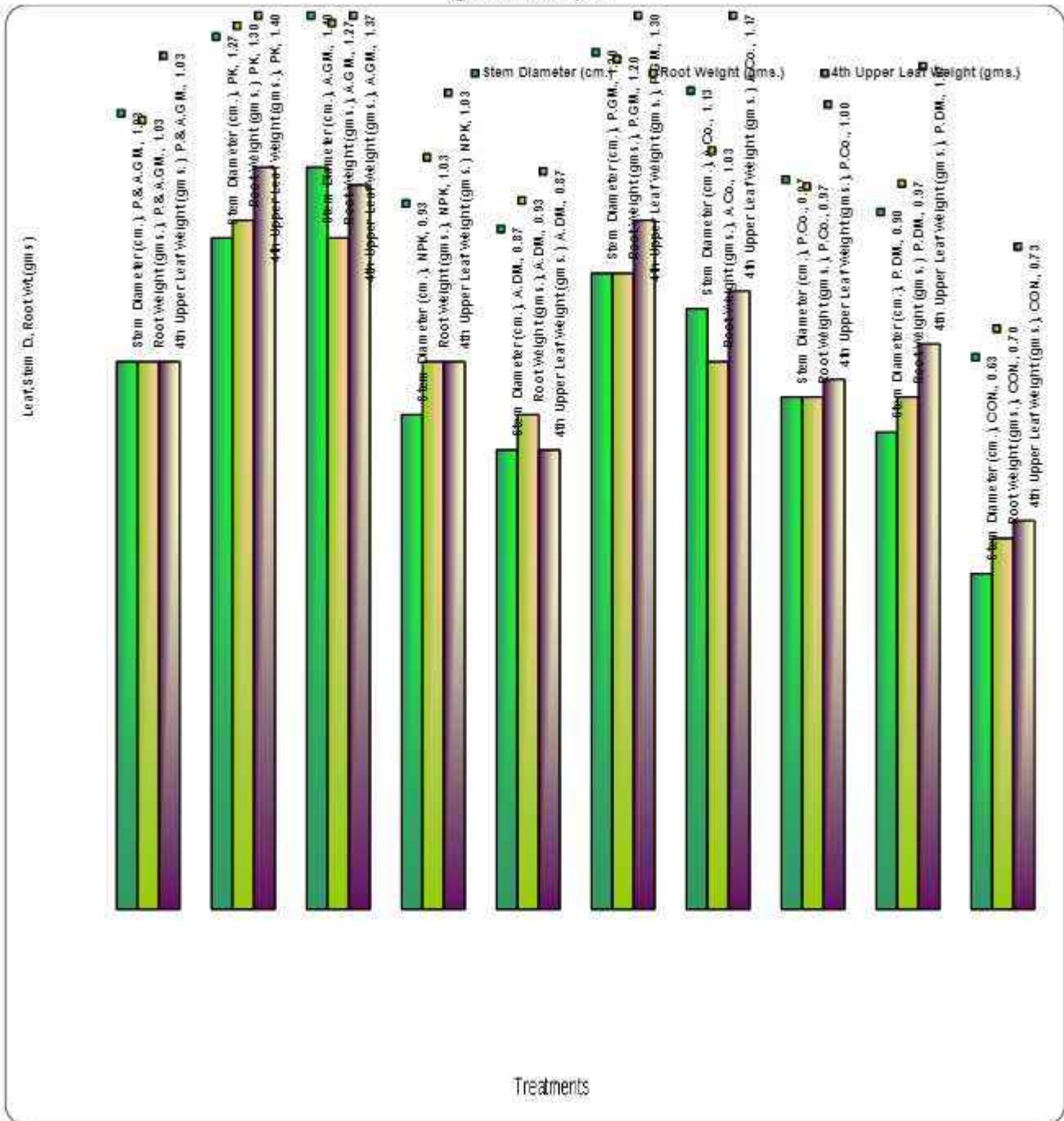


Fig. 2 : Graph of Residual Effect of Non-leguminous organic weed manures on *Vigna unguiculata* plant morphological growth analysis.

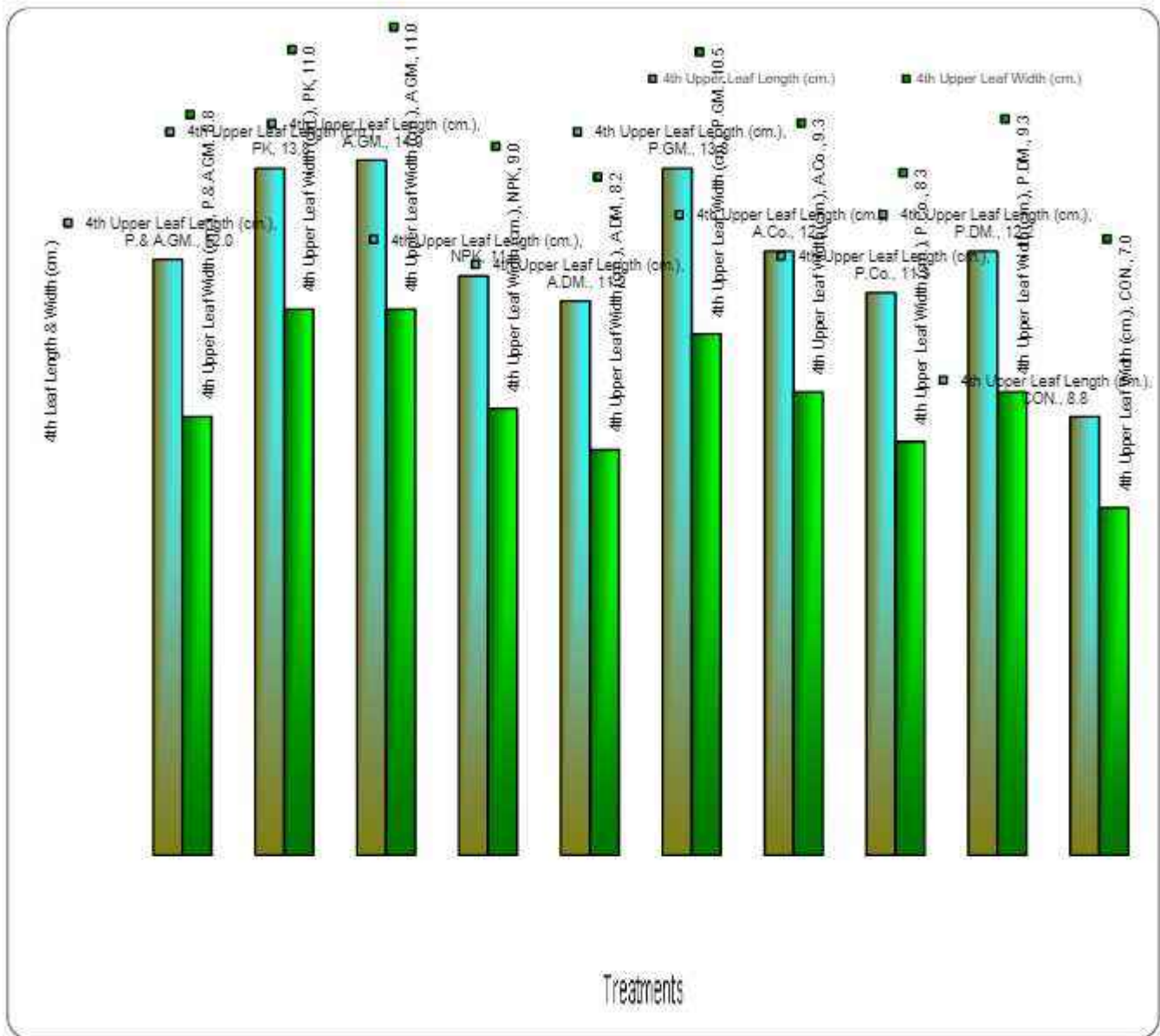


Fig. 3 : Graph of Residual Effect of Non-leguminous organic weeds manure on *Vigna unguiculata* 4th leaf growth analysis.

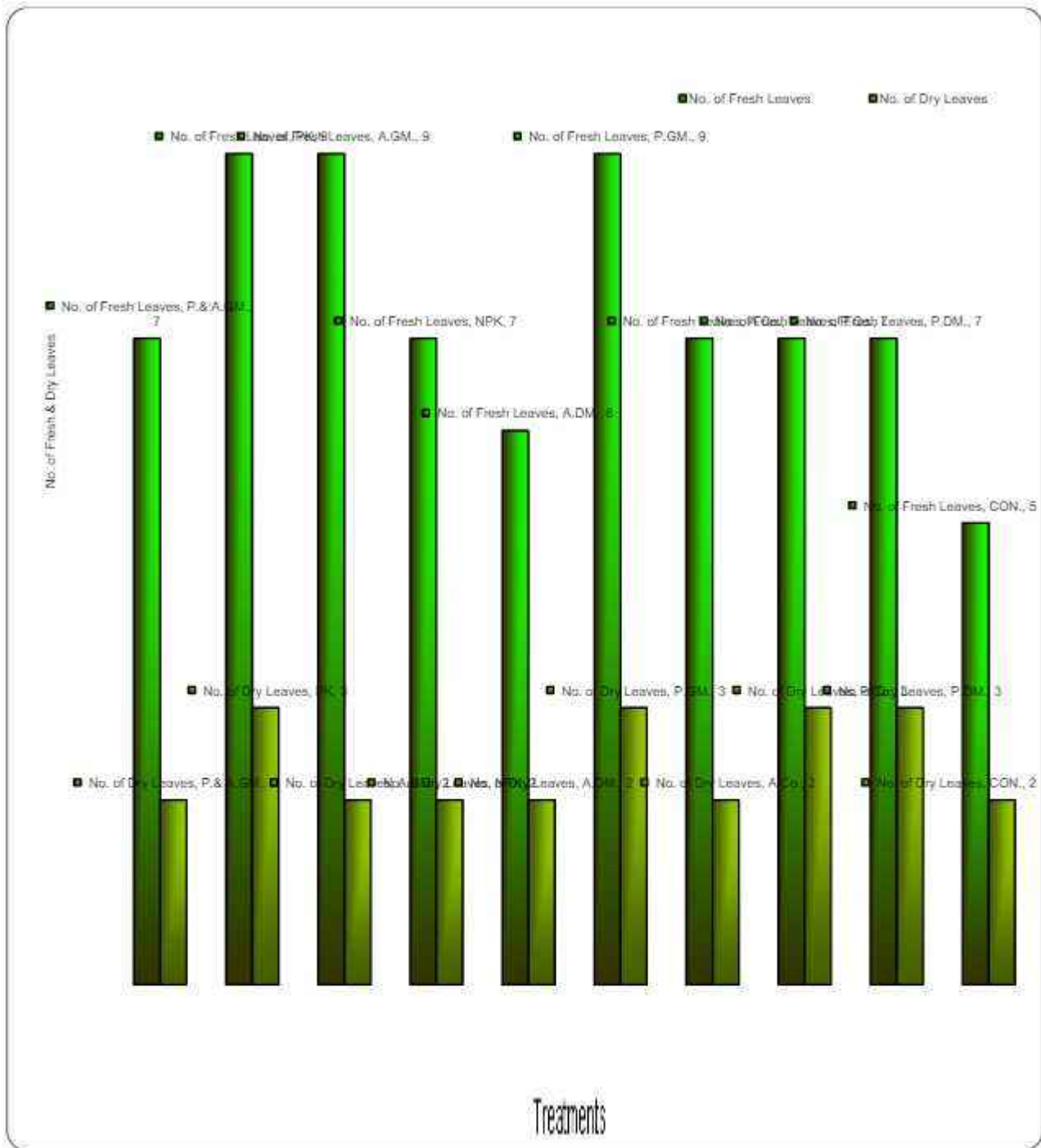


Fig. 4 : Graph of Residual Effect of Non-leguminous organic weeds manure on *Vigna unguiculata* Fresh and dry leaves analysis.

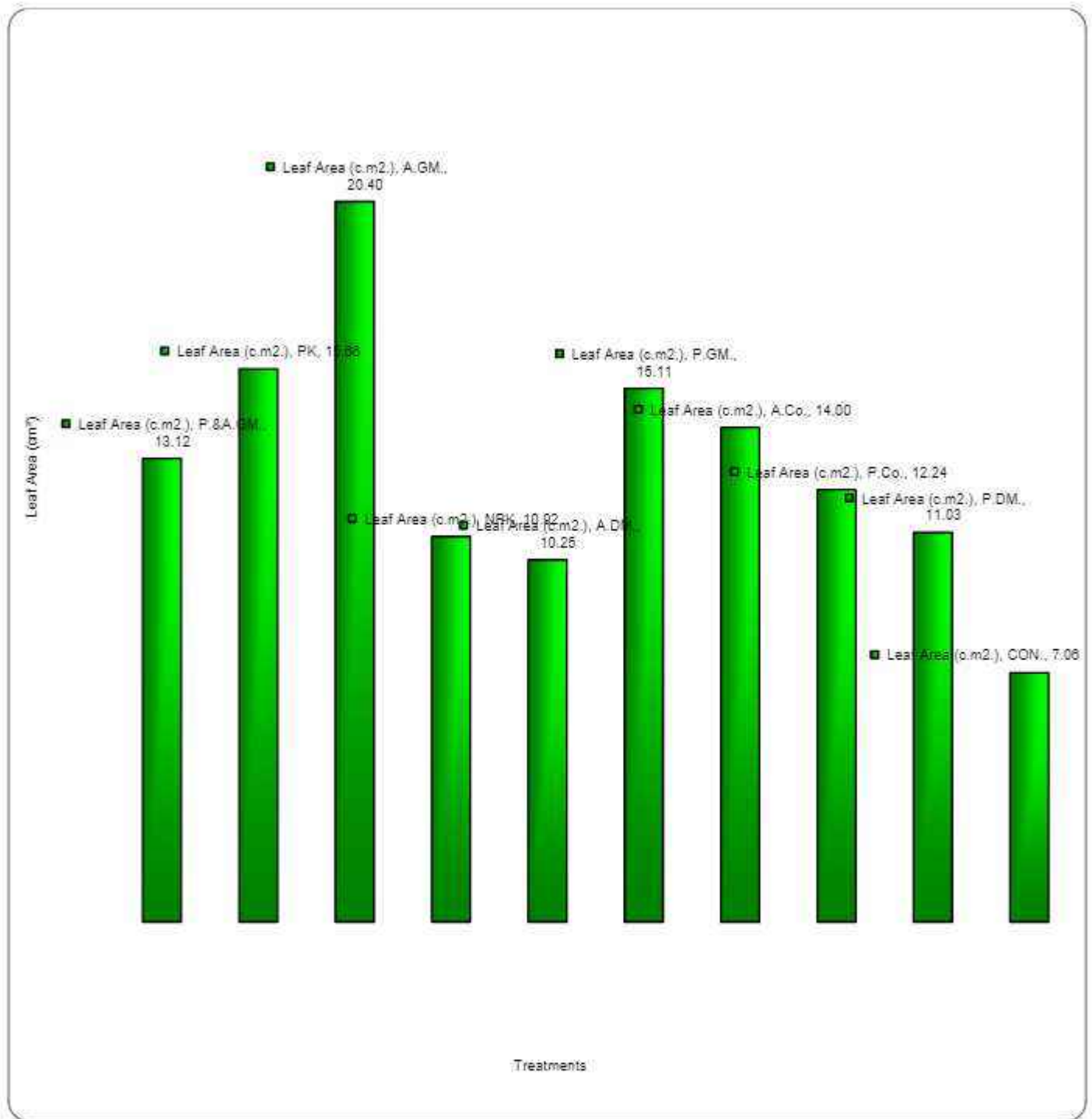


Fig. 5 : Graph of Residual Effect of Non-leguminous organic weeds manure on *Vigna unguiculata* Leaf area analysis.

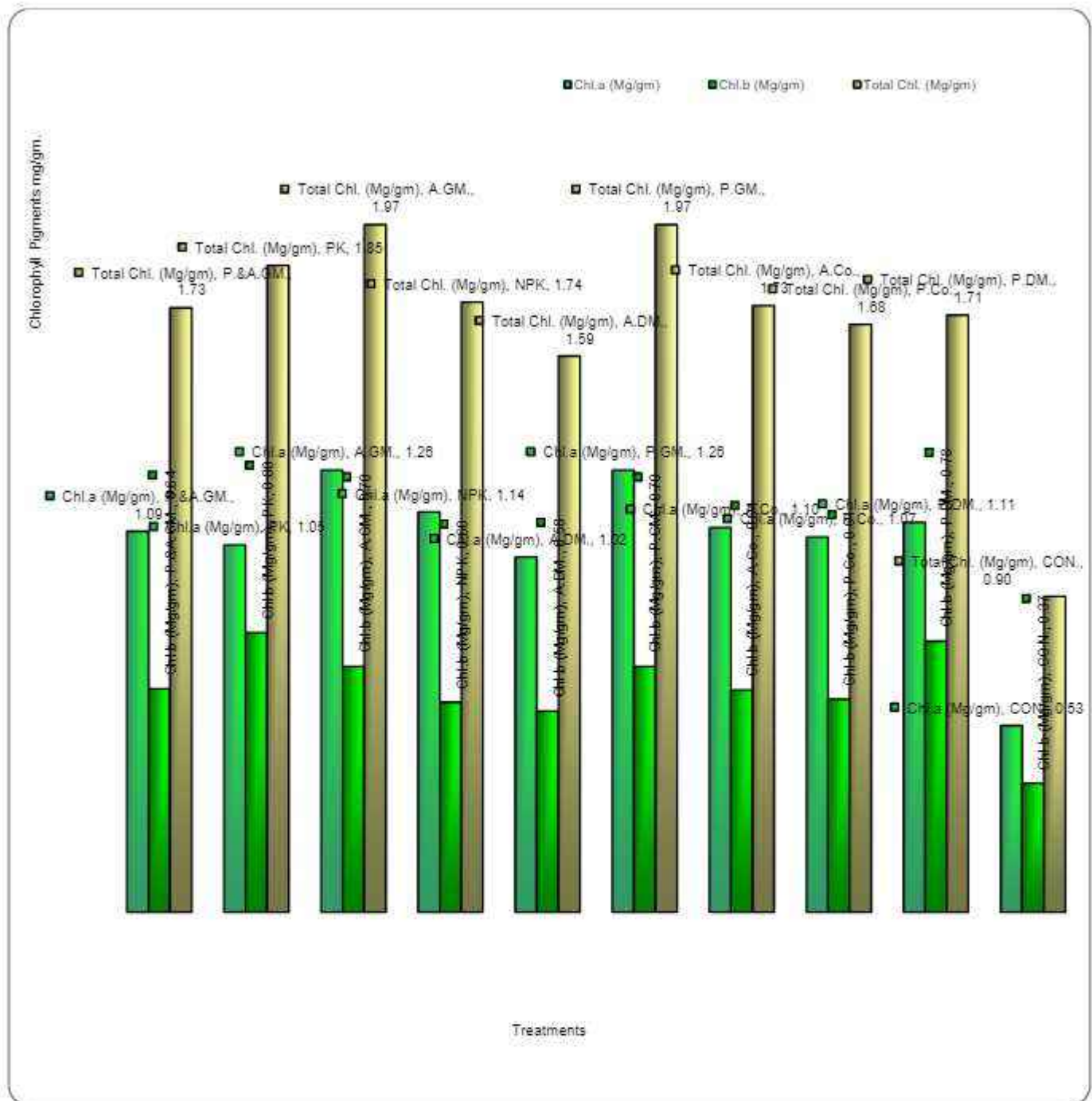


Fig. 6 : Graph of Residual Effect of Non-leguminous organic weeds manure on *Vigna unguiculata* Chlorophyll analysis. Chl.a (Mg/gm) S.C.= 0.09, C.D.= 0.20, Chl.b (Mg/gm) S.E.= 0.11, C.D.= 0.24 and Total Chl. (Mg/gm) S.E.= 0.11, C.D.= 0.22

A Facile and Efficient Synthesis of Benzimidazole Using Reusable Phthalimide-N-Sulfonic Acid (PISA)

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ABSTRACT

A green and facile route has been developed for the synthesis of benzimidazole from condensation reactions of o-phenylenediamines with aromatic aldehyde in presence of phthalimide - N - sulfonic acid (PISA) as an efficient, cheap and reusable catalyst under mild reaction conditions.

Keywords: PISA, o-phenylenediamines, aromatic aldehyde, recyclable, Benzimidazole

I. INTRODUCTION

In medicinal Chemistry for a long time synthesis and biological study of heterocyclic compounds has been an interesting field. A number of heterocyclic derivatives containing nitrogen and sulphur atom serve as a unique and versatile scaffolds for experimental drug design [1]. The benzimidazole moieties are usually present in a large number of natural products in addition to pharmacologically active compounds [2]. It shows a wide range of biological and pharmacological properties such as antifungal [3], antimicrobial [4], anthelmintic [5, 6], antiviral [7, 8], topoisomerase inhibition [9] and anticancer activities [10]. A number of their derivatives are marketed as antifungal drug (Carbendazim) [11], anthelmintic drug (Mebendazole and Thiabendazole) [12], antipsychotic drug (Pimozide) [13] and antiulcer agent (Omeprazole) [14]. Due to their attractive pharmacological properties, huge attention has been paid to the synthesis of benzimidazoles.

Because of their wide range of synthetic, industrial and pharmacological application, many methods for the preparation of benzimidazole are reported in the literature. The most common method is direct condensation of 1,2-phenylenediamine and carboxylic acids [15, 16] or their derivatives [17], that require strong acidic conditions and sometimes need high temperature or the use of microwave [18]. In recent years, solvent-free synthesis of benzimidazoles under microwave irradiation using Yb(OTf)₃ [19], KSF clay [20], PPA [21], Na₂SO₄ [22], K-10 clay [23], have been reported.

However, a variety of catalysts have been reported for the synthesis of 2-aryl benzimidazole most of them suffer from disadvantages such as long reaction times, forceful conditions, low yields, low selectivity, tedious workup, and use of toxic or expensive reagents. Consequently, a new procedure that avoids these drawbacks

is desirable. We report herein an efficient, low cost and environmentally benign protocol for the synthesis of benzimidazole using reusable SuSA catalyst under mild reaction condition.

II. METHODS AND MATERIAL

All purchased chemicals were of analytical grade and used without further purification. Silica gel coated aluminum sheets (Merck made) were used for thin layer chromatography (TLC) to monitor progress of reactions. Melting points were determined in an open capillary tube and are uncorrected. ^1H NMR spectra were recorded using DMSO as solvent and TMS as internal standard at 300 MHz on Bruker Avance spectrophotometer. All the products were characterized by IR spectral data and comparison of their melting points with those reported in literature and found to be identical. Also, the some products were confirmed by ^1H NMR spectral data.

Preparation phthalimide-N-sulfonic acid:

PISA was easily prepared by addition of an equivalent amount of chlorosulfonic acid to potassium phthalimide²⁴.

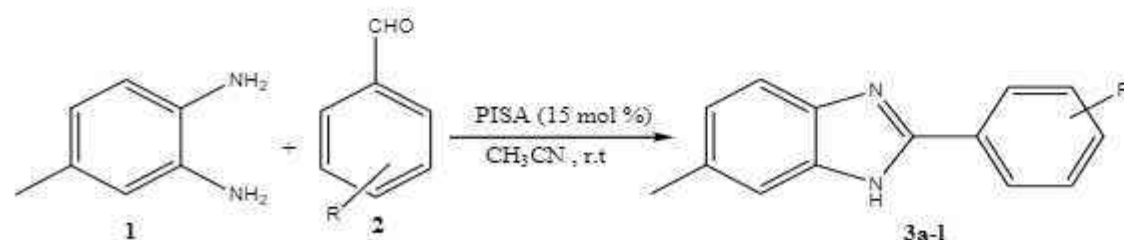
General procedure for the Synthesis of 2-aryl benzimidazole:

PISA (15 mol %) was added to a stirred solution of the aldehyde (1 mmol) and *o*-phenylenediamines (1 mmol) in acetonitrile (3 ml), and the mixture was stirred at room temperature for appropriate time (Table 1). After completion of the reaction monitored by TLC, the solvent was removed under reduced pressure and ethyl acetate (5 ml) was added, and the catalyst was recovered by filtration and washed with ethyl acetate (5 ml). The filtrate was washed with water and then dried over anhydrous Na_2SO_4 . Evaporation of the solvent under reduced pressure gave the highly pure product obtained. Further recrystallization was done in ethyl alcohol.

Selected spectral data:

5-methyl-2-(4-nitrophenyl)-1H-benzimidazole (Table 2, entry 3c)

IR(KBr pallets): ν_{max} 3109, 1605, 1511, 1463, 1354, 1176, 739, 701 and 657 cm^{-1} ; ^1H NMR (300 MHz, $\text{DMSO}-d_6$): δ 8.39 (s, 4H+1H, overlapped Ar-H and N-H), 7.54 (d, $J = 8.0$ Hz, 1H, Ar-H), 7.43 (s, 1H, Ar-H), 7.09 (d, $J = 8.3$ Hz, 1H, Ar-H) and 2.44 (s, 3H, $-\text{CH}_3$); ^{13}C NMR (75 MHz, $\text{DMSO}-d_6$): δ 159.0, 153.6, 143.2, 136.3, 131.0, 129.3, 127.9, 119.4, 114.7, 114.6, 111.5 and 31.1. Mass (EI, m/z): 254 [M^+].



Scheme 1: Synthesis of benzimidazoles

III. RESULTS AND DISCUSSION

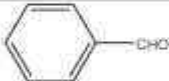






To explore the use of PISA as a catalyst for the reaction of benzaldehyde and o-phenylenediamines for the preparation of 2-arylbenzimidazole compound **3a** was considered as a standard model reaction (Table 2). Model reaction in the absence of catalyst did not led to desired product formation. It means interference of catalyst was must for initiation of the reaction. To determine exact requirement of catalyst for the reaction, we used model reaction at different concentrations of PISA (Table 1). During this study, we observed that, 15 mol% catalysts proved to be an efficient catalyst to carry out the reaction smoothly.

Encouraged by this result, in further set of experiments, in order to build the generality of the reaction, variety of aromatic aldehydes with either electron-donating or electron-withdrawing groups were converted to 2-arylbenzimidazoles derivatives in good to excellent yields. All the results are summarized in Table 2.

Table 1 Optimization of the catalyst

Entry	Catalyst (mol %)	Isolated Yield %
1	---	Trace
2	5	58
3	10	82
4	15	90
5	20	91

Table 2 Synthesis of 2-arylbenzimidazole ^a

Entry	Aldehydes	Time (min.)	Yield ^b (%)
3a		60	88
3b		62	88
3c		50	90
3d		52	90
3e		65	84
3f		65	87
3g		70	86

3h		65	88
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* Reaction conditions: Aromatic aldehydes (1 mmol), *o*-phenylenediamines (1 mmol), PISA (15 mol%) at room temperature. [‡] Isolated yield

IV. CONCLUSION

The Bronsted acid PISA is a catalyst that has high efficiency in the synthesis of benzimidazoles. The reaction of the condensation of aromatic aldehyde with *o*-diphenylamines in acetonitrile as a solvent at room temperature gave maximum yields. The present protocol has numerous advantages such as high reaction rates and excellent yield, ease of preparation and handling of catalyst, inexpensive with lower loading and a simple experimental procedure.

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राज्यपालाची भूमिका : एक अभ्यास

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कालिकादेवी कला, वाणिज्य व विज्ञान महाविद्यालय, शिरूर (का.) जि.बीड.

प्रस्तावना :

संविधानात्मक दृष्ट्या राज्यपालाचे पद हे अतिशय महत्वाचे आहे. घटक राज्याच्या कारभाराची जबाबदारी राज्यपालावर असते. कार्यकारी प्रमुख या नात्याने तो राज्यकारभारावर नियंत्रण, देखरेख ठेवतो. राज्याची प्रतिष्ठा राज्यपालावर अवलंबून असते. राष्ट्रपती आणि घटक राज्य यांना साधणारा तो महत्वाचा दुवा आहे. राष्ट्रपतीचा प्रतिनिधी या नात्याने त्याचे कार्य महत्वाचे असले तरी प्रत्यक्षात हे पद नाममात्र स्वरूपाचे आहे. महाराष्ट्राचे राज्यपाल पद भूषविलेले श्री.श्रीप्रकाश पट्टुभी सीतारामय्या यांनी आपल्या स्टेट गव्हर्नमेंट इन इंडिया या पुस्तकात राज्यपालाच्या नाममात्रपणावर प्रकाश टाकणारी अनेक उदाहरणे दिली आहेत. इतर काही राज्यपालांना आपण केवळ बड्या पाहुण्यांचे आदरातिथ्य करणाऱ्या एका मोठ्या हॉटेलचे व्यवस्थापक आहोत असे वाटले तर काहीना केवळ चिन्हांकित रेषेवर निमुटपणे स्वाक्षरी देण्यासाठी आहेत असे वाटले. श्रीमती विजयालक्ष्मी पंडित या मुंबईच्या राज्यपाल (महाराष्ट्र) असतांना या पदाला फारच वैगातल्या होत्या. त्यांनी सुमारे अडीच वर्षांनी राज्यपाल पदाचा राजीनामा दिला. श्री.प्रकाश पट्टुभी सीतारामय्या यांनी 1967 नंतरच्या काळात राज्यपालांच्या बदलत्या भूमिकेचे वर्णन आपल्या पुस्तकात केलेले आहेत.

उद्दिष्ट्ये :

- 1) राज्यपाल पद नाममात्र आहे काय यांचा अभ्यास करणे.
- 2) राज्यपालाला स्वविवेक अधिकार प्राप्त असले तरी तो प्रत्यक्षात त्यांचा वापर कसा करतो यांचा अभ्यास करणे.
- 3) अलिकडील काळात राज्यपाल पद पक्षीय राजकारणातून कार्य करते काय?
- 4) 356 कलमांचा दुरुपयोग होतो का?

गृहितके :

- 1) केंद्र सरकारच्या आदेशाचे पालनामुळे राज्यपाल पदाकडे पाहण्याचा दृष्टीकोन बदला आहे.
- 2) राज्यपाल पद हे केंद्राचे हस्तक बनले आहे.
- 3) राज्यपाल पदावर नियुक्त होणारी व्यक्ती कोणत्याही पक्षाचा गटाच्या राजकारणापासून अलिप्त असावा.
- 4) राज्यपालाची नियुक्ती चारित्र्य, शिक्षण व सार्वजनिक जीवनातील स्थान या निकषावर व्हावी.

संशोधन पध्दती :

सामाजिकशास्त्रात अनेक संशोधन पध्दतीचा वापर केला जातो. त्यापैकी 'राज्यपालाची भूमिका : एक अभ्यास' या विषयाचे संशोधन करित असतांना वर्णनात्मक संशोधन पध्दतीचा अवलंब केला आहे.

श्री.मेहता पट्टुभी सीतारामय्या हे स्वतः हे अनेकदा विविध राज्यांचे राज्यपाल राहिलेले असल्याने आपल्या सुरुवातीच्या काळातील व नंतरच्या काळातील अनुभव त्यांनी नमूद केले आहेत. संविधान लागू झाल्यानंतरच्या काही वर्षात जेव्हा ते राज्यपाल होते तेव्हा मुख्यमंत्र्यांची नेमणूक झाली की, मुख्यमंत्री मंत्री मंडळाची यादी तयार करून व खाते वाटप करून ती यादी राज्यपालासमोर संमतीसाठी ठेवीत असत. ही यादी राज्यपालाच्या सहीने जाहीर होत असे व नंतर शपथविधी होई. नंतरच्या काळात नाममात्र फारक यात होत गेला की, सर्वप्रथम यादी मंत्र्यांना शपथ देतांनाच राज्यपालाला पहावयास मिळते आणि राज्यपाल दुसऱ्या राज्यातील असल्याने त्या राज्यातील नावांशी अपरिचित असल्याने शपथ देतांना त्या मंत्र्यांचे नाव उच्चारतांना देखील कधी कधी अडचण होते. राज्यपालाच्या नाममात्र स्वरूपात तसेच राज्यपाल आणि मुख्यमंत्री यांच्यातील अनौपचारिक संपर्कात पडलेला हा बदल अतिशय महत्वाचा आहे.

राज्यपालाला स्वविवेकाधिकार प्राप्त असले तरी, तो प्रत्यक्षात त्यांचा वापर कसा करतो यांचा विचार करणे आवश्यक आहे. अनेकदा राष्ट्रपतीची मर्जी असे पर्यंतच तो पदावर राहू शकतो आणि राष्ट्रपतीच्या हातातील कळसुत्री बाहुले बनतो. केंद्र सरकारमध्ये सत्ता बदल झाला की, घटक राज्याचे राज्यपाल बदलले जातात, अलीकडे राज्यपालाचे पद पक्षीय राजकारणातून कार्य करते असे ही म्हटले जाते.

केंद्र सरकारच्या अप्रत्यक्ष सुचनेवरून घटक राज्याचा कारभार स्थिर व सुव्यवस्थित असला तरी राज्यपाल तेथे राष्ट्रपती राजवट लादू शकतो. अशा वेळी भारतातील घटक राज्यांना स्वायत्तता नाही असेच दिसून येते. केंद्र सरकारच्या सल्ल्यानुसार 1959 साली केरळ मधील कम्युनिष्ट मंत्रिमंडळ 1967 साली पश्चिम बंगालमधील अजय मुखर्जी यांचे मंत्रीमंडळ 1975 साली गुजराज मधील बाबुभाई पटेल यांचे मंत्रीमंडळ, पंजाबमधील बर्नाला मंत्रिमंडळ इत्यादी मंत्रिमंडळ बरखास्त करण्याचा पक्षापाती निर्णय राज्यपालांनी घेतलेला दिसून येतो.

जेव्हा पासून केंद्रातील राज्यकारभार व घटक राज्यातील कारभार निरनिराळ्या राजकीय पक्षांच्या हाती जाऊ लागला आणि केंद्रात लागोपाठ होणाऱ्या निवडणुकांमध्ये सत्तारूढ पक्ष बदलू लागला, तेव्हा पासून राज्यपाल पदाकडे पाहण्याची दृष्टी बदलली. 356 कलमांचा वापर करून जर घटक राज्यातील शासन विसर्जित करावयाचे असेल तर राज्यपालाचा अहवाल राष्ट्रपतीला मागवावा लागतो व राज्यपालाने जरी तसा अहवाल दिला नाही तरी राष्ट्रपतीची खात्री झाल्यास ते आणीबाणी लागू करू शकतात. मात्र यामुळे राजकीय दृष्ट्या प्रतिकूल प्रतिक्रिया निर्माण होऊ शकतील आणि केंद्राकडून आलेला अहवाल प्रतीवर सहज स्वाक्षरी करू शकतील. यामुळे राज्यपाल हा सविधानाचा चौकटीनुसार स्वविवेक वापरून केंद्राला सल्ला देणारा न राहता राष्ट्रपतीच्या प्रतिनिधी नव्हे तर केंद्राचा हस्तक बनला आहे. अशी टिका विरोधी पक्ष करतांना दिसतात.

भारतीय संविधानाच्या मसुदा समितीचे सदस्य री अल्लादी कृष्णस्वामी यांनी राज्यपालाच्या नियुक्ती व अधिकारीबाबत आपले मत व्यक्त करतांना म्हटले की, "राज्यपाल पदावर नियुक्त होणारी व्यक्ती संबंधीत घटक राज्यांच्या परिस्थितीची जाणीव ठेवून निवडलेली, निर्विवाद योग्यता व चारित्र्य संपन्न, प्रतिष्ठित असणारी परंतु कोणत्याही पक्षाच्या, गटाच्या राजकारणापासून अलिप्त अशी असावी राज्यपाल ही व्यक्ती राज्यमंत्री मंडळाला सल्ला देणारी आणि तणाव पूर्ण परिस्थितीतून मार्ग काढणारी अशी असावी ही ज्यामुळे राज्याचा कारभार व्यवस्थित चालण्यास कोणतीही अडचण येणार नाही."

डॉ.बाबासाहेब आंबेडकरांनी राज्यपालपदाबाबत आपले मत व्यक्त करतांना असे म्हटले होते की, राज्यपालाची नियुक्ती चारित्र्य, शिक्षण व सार्वजनिक जीवनातील स्थान या निकषांवर व्हावी आणि राज्यपाल हे पद अलंकारात्मक म्हणून जरी मानले जात असले तरी विशिष्ट परिस्थितीत त्याला अमर्याद अधिकार प्राप्त होतात. या अधिकारांना सामोरे आणि राष्ट्रहिताची जाणीव ठेवून वापरण्याची क्षमता असणाऱ्या व्यक्ती या पदावर असल्या तरच संविधानातील उद्दिष्टे साध्य होऊ शकतील.

निष्कर्ष :

राज्यपाल पद नष्ट करावे म्हणून चुकीचे ठरेल वास्तविक पाहता राज्यपाल पद हे दिसते तितके नाममात्र नाही आणि ते अनावश्यक नाही कारण भारताने संघराज्य पध्दती स्विकारलेली असून घटक राज्यांना स्वायत्तता व अधिकार बहाल केलेले आहेत. सर्व प्रदेश समान विकास व्हावा आणि संपूर्ण देशातील राज्यकारभार सुलभ आणि कार्यक्षम व्हावा या दृष्टीने घटक राज्याची निर्मिती केली गेली केंद्र सरकार आणि घटक राज्य सरकार यांच्या कार्यात समन्वय आणि सुसंवाद स्थापित करण्यासाठी सरकारचा प्रतिनिधी या नात्याने राज्यपालांचे स्थान अतिशय महत्वाचे आहे. राज्यपाल पदाची प्रतिष्ठा टिकून राहण्यासाठी राज्यपालाने आपल्या विवेकाधीन अधिकाराचा योग्य वापर केला पाहिजे. निष्पक्षपणे व निर्भिडपणे निर्णय घेतले पाहिजेत, राष्ट्रपती किंवा केंद्र सरकारमधील वरिष्ठ नेत्यांनी त्यांच्यावर कोणतेही दडपण आणू नये. राज्यपालांनी निर्भिडपणे घेतलेल्या निर्णयाची मुख्यमंत्री व मंत्रीमंडळाने योग्यरित्या अंमलबजावणी केली पाहिजे. राज्यपाल व मुख्यमंत्री यांचे संबंध चांगले असणे आवश्यक आहे.

अशा प्रकारे घटक राज्यांच्या प्रशासनावर नियंत्रण ठेवण्यासाठी राज्यपालांचे कायम स्वरूपी पद असणे आवश्यक आहे.

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प्रस्तावना:

आज भारतीय अर्थव्यवस्था ही कृषी प्रधान व्यवस्थेकडून उद्योग प्रधान व सेवाधिष्ठीत अर्थव्यवस्थेत आहे. भारतीय अर्थव्यवस्था ही अर्थव्यवस्था आहे. भारताची लोकसंख्या जगात क्रमांक दोनवर असल्यामुळे तसेच या यामुळे भारताची क्रयशक्ती सर्वाधिक आहे. क्रयशक्तीचा विचार करता भारताची अर्थव्यवस्था प्रयशक्ती वा तिसऱ्या क्रमांकावर आहे. या क्रयशक्तीत आणखीन वाढ करण्यासाठी निश्चितीकरणाने प्रक्रिया मदत करत आहे. निश्चितीकरणामुळे रोकड विरहीत व्यवहारात वाढ होत आहे. तसेच अर्थव्यवस्थेत डिजीटलीकरणाने प्रक्रिया वेगाने होत आहे. परिणामी लोकांची रोखता कमी होण्याऐवजी रोखतेत खऱ्या अर्थाने वाढ होत आहे. कारण निश्चितीकरणाने प्रक्रियेत लोक आपल्याकडे काही प्रमाणात रोख रक्कम मुध्दा बाळगतात व ज्या ज्या ठिकाणी शक्य असेल त्या ठिकाणी डिजीटल साधनांद्वारे आर्थिक व्यवहार करत आहेत. म्हणजेच रोख रक्कम व डिजीटल साधने यामुळे लोकांच्या रोखतेत वाढ झालेली दिसून येते. रोखीच्या व्यवहारावर काळ, वेळ व ठिकाण इत्यादी मर्यादा असतात, परंतु डिजीटल व्यवहार आपण घरी बसून चौवीस तासापैकी केव्हाही करू शकतात. परिणामी लोकांच्या रोखतेत वाढ होवून लोकांची क्रयशक्ती वाढते. क्रेडिट कार्डांच्या सहाय्याने आपण आपल्याकडे रोख पैसा नसला तरी आपण वस्तूची खरेदी करू शकतो. लोकांची रोखता कमी न होता रोखतेत वाढ घडून येते. परिणामी लोकांच्या क्रयशक्तीत वाढ झाल्यामुळे अर्थव्यवस्था गतीमान होत आहे. परंतु डिजीटल साधनांमुळे लोकांची रोखता वाढली क्रयशक्ती वाढली लोक मोठ्या प्रमाणात आपल्या उत्पन्नाचा भाग बचत करण्याऐवजी विविध वस्तू व सेवांच्या उपभोगावर खर्च करत आहेत. निश्चितीकरणामुळे लोकांची पैसा खर्च करण्याची प्रवृत्ती (उपभोगवृत्ती) व जीवनशैली यात बदल होणार असून प्रामाणिक राहण्यासाठी प्रोत्साहन देण्याचा सरकारचा प्रयत्न आहे. त्याच बरोबर हळूहळू डिजीटल साधनांची व्याप्ती वाढवून कॅशलेस अर्थव्यवस्था व समाज निर्माण करण्याचा सरकारचा प्रयत्न आहे.

संशोधनाची उद्दिष्टे :

1. कॅशलेस (रोकडविरहीत) व्यवहार साधने व संकल्पनेचा अभ्यास करणे.
2. कॅशलेस व्यवहारामुळे लोकांच्या रोखतेवर झालेल्या परिणामांचा अभ्यास करणे.
3. कॅशलेस व्यवहार व काळापैसा व भ्रष्टाचार यांच्या संबंधाचा अभ्यास करणे.
4. निश्चितीकरण व आर्थिक साक्षरता यांतील संबंधाचा अभ्यास करणे.
5. भारतात जास्तीत जास्त आर्थिक व्यवहार इलेक्ट्रॉनिक माध्यमातून होत आहेत.
6. लोक आपले आर्थिक व्यवहार कॅशलेस पध्दतीने करत असताना काही व्यवहार रोखीने सुध्दा करत आहेत.
7. कॅशलेस व्यवहारामुळे काळा पैसा व भ्रष्टाचारास आळा बसत आहे.
8. निश्चितीकरणामुळे लोक आर्थिक साक्षर होतीलच असे नाही.

हितके :

रोकड विरहीत अर्थव्यवस्थेत जास्तीत जास्त पैसा बँकिंग व्यवस्थेतून येतो. लोकांची वैधानिक रोकड बँकेत सुरक्षित राहते. तसेच शांच्या मांडेबाजी व मट्टेबाजी व्यवहारावर नियंत्रण ठेवता येईल. बँक खात्यातील चालु ठेवीत वाढ होते. या बचतीचा उपयोग राष्ट्राच्या कासासाठी होवू शकतो. कारण वाढीव बचतीतून बँकाची कर्जपुरवठ्याची क्षमता वाढते. व्याजाचे दर कमी होतात. त्यामुळे कर्जाची मागणी

कहेल, तसेच डिजीटल साधनांच्या वापरामुळे लोकांची क्रयशक्ती वाढते. कारण भारतात लोक डिजीटल साधनांच्या वापराने ATM मधून पैसे काढून रोख रक्कम ही स्वतः जवळ बाळगतात. परिणामी लोकांच्या क्रयशक्तीत वाढ झाल्यामुळे लोक मोठ्या प्रमाणात वस्तूंची मागणी करतात. त्यामुळे अर्थव्यवस्थेत उत्पादन रोजगार व एकूण मागणीत वाढ होवून विकासाला चालना मिळते. अर्थव्यवस्थेत उर्जित अवस्था निर्माण होते. देशात छुट्या बचतीचे रूपांतर गुंतवणूकीत होत असल्यामुळे बेकारी व दारिद्र्य कमी होवून अधिक विषमता कमी होत आहे. कॅशलेस व्यवहारामुळे अर्थव्यवस्थेला सर्व समावेशक व शाश्वत विकासाच्या प्रक्रियेतून पुढे जाण्याचा मार्ग निर्माण होतो.

अर्थशास्त्रज्ञ जे. एम. केन्स यांच्या मते, " रोखतेच्या त्यागाचे बक्षिस म्हणजे व्याज होय. रोकड विरहीत अर्थव्यवस्थेत लोकांना स्वतः जवळ रोख रक्कम बाळगण्याची गरज नसते. म्हणजे लोकांची रोखत नष्ट होते असे मुळीच नाही. त्यामुळे लोकांना एकाच वेळी रोखतेच्या त्यागाचे बक्षिस म्हणून व्याज ही प्राप्त होते. तर डिजीटल साधनांद्वारे रोखता सुध्दा प्राप्त होते. व या रोखतेपासून लोक सट्टेबाजीच्या हेतूची पूर्तता करून भांडवल बाजारात गुंतवणूक करून लाभाश प्राप्त करता येतो. डिजीटल साधनांमुळे लोकांना रोखतेचा त्याग करून व्याज ही प्राप्त होते. तर या साधनांद्वारे भांडवल बाजारातील चढउतारांचा फायदा घेवून लाभाश प्राप्त करता येतो. डिजीटल साधनांमुळे रोखतेचा त्याग केला तरी आपणास देवदीन व्यवहार हेतू परिकल्पना हेतू व सट्टेबाजीचा हेतू यावर कोणताही विपरीत परिणाम होत नाही. उलट या साधनांद्वारे आपल्याला या सर्व गोष्टींची पूर्तता करता येते. थोडक्यात डिजीटल पेमेंट पध्दतीमुळे एकाच वेळी व्याज व लाभांश प्राप्त करता येतात. या पध्दतीमुळे लोकांची क्रयशक्ती वाढते तसेच श्रम, वेळ व पैशाची बचत होवून कल्याणात वाढ होत असल्याचे आढळून येते."

रोकडविरहित व्यवहाराची साधने :

भारताचे पंतप्रधान मा. नरेंद्र मोदी यांच्या नोटबंदीच्या निर्णयावर उलटसुलट प्रतिक्रिया उमटत असतांना मा. पंतप्रधान मात्र आपल्या निर्णयावर ठाम आहेत, त्यांनी आपल्या मन की बात या कार्यक्रमातूनही रोकडविरहीत अर्थव्यवस्थेवर जोर दिला आहे. नरेंद्र मोदी यांनी मेरा मोबाईल .. मेरी बँक... मेरा बटुआ असा संदेश देत रोकडविरहीत डिजीटल मार्गाचा अवलंब करण्यास सांगितले आहे. रोकडविरहित व्यवहारासाठी वारण्यात येणारी साधने पुढील प्रमाणे

- ०१) प्लास्टिक मनी (डेबीट कार्ड / क्रेडीट कार्ड) : भारतात नोटबंदी अगोदर प्लास्टिक मनी या साधनाचा मर्यादीत वापर होता. परंतु आता त्यात झपाट्याने वाढ होत आहे. यामध्ये क्रेडिट कार्डचा वापर करून एटीएम मधून पैसे काढणे, पैसे हस्तांतरित करणे, वस्तूंची खरेदी करणे इत्यादी अशी कामे करता येतात. या साधनांद्वारे ग्राहकांना कोणत्याही बँकेच्या एटीएम द्वारे आपले व्यवहार पार पाडता येतात. येथे मात्र प्लास्टिक मनी वापरामध्ये पैसा बँक खात्याच्या माध्यमातून ग्राहकांमध्ये हस्तांतरित होतो.
- ०२) चेक / डीडी : सर्वांना परिचयाची असलेली ही जुनी पध्दती आहे या पध्दतीमध्ये आर्थिक व्यवहार हे चलनी नोटाशिवाय पूर्ण केले जातात. मात्र या पध्दतीत प्रत्यक्ष बँकेत जावून सर्व आर्थिक व्यवहार करावे लागत असल्यामुळे वेळ जास्त खर्च होतो.
- ०३) नेट बँकिंग : ही एक इंटरनेटवर आधारित बँकिंग प्रणाली आहे. या प्रणालीद्वारे ग्राहक घर बसल्या किंवा आपल्या कार्यालयातील संगणकाद्वारे बँकेच्या संपर्कात राहून आपल्या खात्यातील रक्कम तपासणे, पेशाचे हस्तांतरण करणे, देयकांचे शोधन करणे, अर्ज करणे, विविध योजनांची माहिती घेणे, इत्यादी आर्थिक व्यवहार पार पाडू शकतो.
- ०४) मोबाईल बँकिंग : ही सुध्दा इंटरनेटवर आधारित एक बँकिंग प्रणाली आहे. या सेवेद्वारे ग्राहक आपल्या स्मार्ट फोनच्या आधारे बँकेच्या संपर्कात राहून वस्तूंची ऑनलाईन खरेदी करणे, पेशाचे हस्तांतरण करणे, खात्यातील रक्कम तपासणे, अर्ज करणे इत्यादी आर्थिक व्यवहार पूर्ण करू शकतात.
- ०५) पीओएस मशिन : पीओएस (POS) म्हणजे पाईट ऑफ सेल अर्थात विक्रीचे ठिकाण. शहरी भागात ही अगदी सामान्य बाब झाली आहे. या साधनांद्वारे आपण विक्रेत्याकडून वस्तू खरेदी केल्यास विक्रेता बिलाची रक्कम सांगून ती रक्कम त्यांच्याकडील (POS) मशिनमध्ये आपले कार्ड सरकावून (स्वाईप करून) पिन टाकला की आपल्या बँक खात्यातून रक्कम लगेच विक्रेत्याच्या खात्यात जमा होते. ही मशिन दुकाने, थिएटर, पेट्रोल पंप, इत्यादी ठिकाणी पहायला मिळते.
- ०६) अविस्तृत पुरक सेवा माहिती (USSD): अनस्ट्रक्चर्ड सप्लीमेन्ट्री डेटा (USSD) या प्रणालीच्या सहाय्याने कोणत्याही मोबाईलच्या इंटर फेसमधून आपण पैसे पाठवू शकतो. यासाठी आपल्याकडे स्मार्ट फोन असण्याची आवश्यकता नाही.

अर्थिक साक्षर आसणारी व्यक्ती डिजीटल तंत्र साक्षर असेलच असे सांगता येत नाही. आजच्या काळात महत्त्व कल्याण साध्य करण्यासाठी व्यक्ती ही अर्थिक साक्षर व डिजीटल तंत्र साक्षर असली पाहिजे. परंतु काही वेळा यात विरोधाभास असण्याचे आढळून येते. भारतीय अर्थव्यवस्था ही विकसनीशील व कृषीप्रधान अर्थव्यवस्था म्हणून ओळखली जाते. २०२० मध्ये भारताचे आर्थिक महासत्ता व ई-वॉलेट हे दोन वेगवेगळे माध्यम असून युपीआय ई-वॉलेट प्रमाणे पैसे भरण्याची गरज नसते. तर यासाठी थेट बँक खात्यामधून व्यवहार केला जातो. भविष्यात वा साधनाचा वापर अधिक केला जाईल अशी आशा आहे.

१.२) ऑनलाईन हस्तांतरण (RTGS/NEFT) : रोकडविरहीत व्यवहारासाठी हा सर्वात सोपा मार्ग आहे. मोठ्या रकमेचे हस्तांतरण करण्यासाठी RTGS/NEFT या मार्गाचा अवलंब करण्यात येतो. मात्र रोख रकम हस्तांतरित करण्यासाठी इंटरनेटची सुविधा असणे गरजेचे आहे.

चंगलस व्यवहार आणि काळा पैसा व भ्रष्टाचार :

भारतातील सर्व अर्थिक व्यवहारांमुळे केवळ ५ टक्के (२०१६) व्यवहार इलेक्ट्रॉनिक पध्दतीने होतात. तर हे प्रमाण २० टक्के पर्यंत वाढले आहे. सन २०१६ च्या अर्थसंकल्पीय भाषणा मध्येच काळा पैसा व काळ्या पैश्यामुळे निर्माण होणाऱ्या परिणामांना प्रतोबंध करण्यासाठी रोकड विरहीत अर्थव्यवस्थेची संकल्पना मांडली गेली. या संकल्पनेच्या अंमलबजावणीसाठी "पेमेंट्स अँड सेटलमेंट सिस्टीम इन इंडिया व्हीजन २०१८" या नावाने रिझर्व बँकेने संकल्प पत्र तयार करून रोकड विरहीत अर्थव्यवस्थेच्या दिशेने वाटचाल करण्यासाठी मध्यम व दिव्यकालीन उपाय योजनांचा आराखडा ही सादर केला होता. या मध्ये डिजीटल व्यवहारांना प्रोत्साहन देणे, करादात्यांची संख्या वाढविणे, काळा पैसा व पैशाचा साठा यांचे निर्मुलन करणे, निवडणुकांमधील गैरव्यवहार, भ्रष्टाचार, लुटमार इत्यादींचे प्रमाण अधिक होते. या सर्वांचे उच्चाटन करण्यासाठी सरकारने रोकडविरहीत अर्थव्यवस्थेच्या दिशेने पावले उचलली आहेत. "

बनवण्याचे स्वप्न प्रत्यक्षात साकार झाले नाही. कारण १९९१ नंतर भारताने मुक्त अर्थव्यवस्था धोरण स्विकारल्यानंतर राष्ट्रीय उत्पन्न वाढीबरोबर आर्थिक विषमता मोठ्या प्रमाणात वाढल्याचे आढळते. वाढत्या उत्पन्नाबरोबर लोकांची मानसिकता उपभोगवादी व चंगळवादी झाली आहे. परिणामी उच्च उत्पन्न गटातील लोक विदेशी वस्तूंचा वापर मोठ्या प्रमाणात करत आहेत. लोक उत्पन्ना व खर्चाचा ताळमेळ न बसवता मोठ्या प्रमाणात कर्ज काढत आहेत. परिणामी कर्जबाजारीपणा, दिवाळखोरी व आत्महत्या मोठ्या प्रमाणात वाढत आहेत. लोक कर्ज हे उत्पादक कामासाठी न वापरता ते अनुउत्पादक व चंगळवादासाठी वापरत आहेत. लोकांच्या वाढत्या उत्पन्नाबरोबर उपभोग खर्च वाढत आहे परंतु बचत प्रवृत्ती कमी होत आहे. परिणामी गुंतवणुक कमी होवून रोजगार निर्माण होत नाही. भारतीयांचे साक्षरता प्रमाण वाढत असले तरी आर्थिक साक्षरतेचे प्रमाण अल्प आहे. काही वेळा तर साक्षरता व आर्थिक साक्षरता यात व्यस्त संबंध आढळून येतो.

आर्थिक साक्षरता ही संकल्पना आर्थिक विषमतेच्या अनुषंगाने आलेली आहे. आर्थिक विषमता म्हणजे उत्पन्न वितरणातील भिन्नता होय. या भिन्नतेमुळे लोकांच्या उत्पन्न कमी अधिक असते. परंतु गरज पुर्ततेची अभिलाषा मात्र एकसारखी असते. त्यामुळे आपण आपल्या उत्पन्नानुसार खर्चाचे नियोजन करणे आवश्यक आहे. आर्थिक साक्षरता ही संकल्पना आपली निव्वळ प्राप्ती खर्च व गुंतवणुक सा संबंधीचे ज्ञान कौशल्य आणि निर्णय क्षमता यांचा योग्य व पर्याप्त वापर यांच्याशी निगडित आहे.

"आर्थिक साक्षरता म्हणजे आपल्या उत्पन्नाचा व खर्चाचा मेळ घालून योग्य ठिकाणी योग्य वेळी गुंतवणुक करणे आणि आपल्या आर्थिक कुवतीनुसार जोखीम घेवून चांगला परतावा मिळवणे होय."

"आपल्याकडे उपलब्ध असलेल्या आर्थिक संसाधनाचा योग्य वापर करण्याची क्षमता म्हणजे आर्थिक साक्षरता होय."

भारतमध्ये लोक मोठ्या प्रमाणात निरक्षरता आहे. जे साक्षर आहेत त्यांतही तंत्र शिक्षणाचा अभाव आढळून येतो. त्यामुळे अशा लोकांना आधुनिक व्यवहाराच्या पध्दती विषयी माहिती नाही या तंत्रज्ञानाच्या साहाय्याने आर्थिक व्यवहार करण्यास असमर्थ आहेत.

जी व्यक्ती सर्व अर्थिक व्यवहार कमीत कमी रकमेत पार पाडते म्हणजेच आर्थिक देवाण घेवाण जास्तीत जास्त घनादेश, डी. डी. क्रेडिट कार्ड, डेबीट कार्ड, मोबाईल बँकिंग, पीओएस मशीन, अविस्तृत पुरक सेवा माहिती, आधार सक्षम पेमेंट सिस्टीम, ई-वॉलेट, युपीआय व ऑनलाईन हस्तांतरण या द्वारे करते त्यास डिजीटल साक्षरता असे म्हणतात. थोडक्यात आर्थिक व्यवहारासाठी E payments (डिजीटल) सुविधा वापरत आणणे म्हणजे डिजीटल साक्षरता होय.

आर्थिक साक्षरता व डिजिटल साक्षरता ही एकाच अर्थाने वापरली जात आहे. म्हणजेच भारतात डिजिटल साक्षर ही व्यक्ती या आर्थिक साक्षर बनत आहे. नवीन तंत्रज्ञानाचा वापर करून लोक आपल्या उत्पन्नाचे योग्य नियोजन करत आहेत. स्वतः कडे गोख रक्कम व बाजारात वेळीस पैसा ठेवून व्याज मिळवतात व डी मॅट साखी खाते उपडून शेअर बाजारातील चढउतारातील लाभ प्राप्त करत आहेत. डिजिटल व आर्थिक साक्षरतेमुळे एकाच वेळी व्याज व लाभांश प्राप्त करून आपल्या एकूण उत्पन्नात वाढ करत आहेत.

निष्कर्ष:

०१. रोकडविरहीत व्यवहारात नवीन-नवीन इलेक्ट्रॉनिक साधनांचा वापर वाढत आहे.
०२. भारतात आर्थिक व्यवहार करताना इलेक्ट्रॉनिक साधनांचा वापर वाढत असला तरी सुध्दा गोख रक्कम ही स्वतः कडे बाळगतात.
०३. डिजिटल प्रणालीमुळे लोक स्थानिक बाजारपेठ बरोबरच ऑनलाईन शॉपिंग करत आहेत.
०४. डिजिटल प्रणालीमुळे रोखतेचा त्याग करून व्याज मिळवता येते, तसेच भांडवल बाजारात गुंतवणूक करून लाभांश प्राप्त करता येतो.
०५. रोकडविरहीत व्यवहार व डिजिटल साधनांमुळे काळा पैसा भ्रष्टाचार यास आळा बसत आहे.
०६. डिजिटल साधनांमुळे लोकांची क्रयणकी वाढून लोकांचा वेळ, पैसा, व श्रमात बचत होत आहे.
०७. डिजिटल साधनांच्या वापरामुळे लोक अधिक साक्षर होतील असे निश्चितपणे सांगता येत नाही.
०८. डिजिटल पेमेंटमुळे स्मार्ट मोबाईल, संगणक व इंटरनेटचा वापर पाडल्याने समाजात डिजिटल साक्षरतेचे प्रमाण वाढत आहे.

शिफारशी:

०१. डिजिटल साधनांचा वापर वाढवण्यासाठी ही साधने स्वस्त व सहज उपलब्ध असली पाहिजेत.
०२. रोकडविरहीत अर्थव्यवस्था बनविण्यासाठी सरकारने चलनाचा पुरवठा अल्प प्रमाणात करावा.
०३. लोकांनी आपल्या उत्पन्नांनुसार जोखीम पत्कारून गुंतवणूक करावी.
०४. काळा पैसा कमी करण्यासाठी सरकारने मोठ्या मुल्याच्या चलनी नोटा बंद कराव्या.
०५. डिजिटल साधनांच्या वापरात असणारे धोके कमी करण्यासाठी उपाययोजना कराव्यात.
०६. डिजिटल साक्षरते बरोबर लोकांना आर्थिक साक्षर बनविण्यासाठी आर्थिक साक्षरता विषयक कार्याक्रमाची प्रभावोत्पन्नता वाढवता येईल.
०७. रोकड विरहीत व्यवहार म्हणजे कागदी चलना ऐवजी इलेक्ट्रॉनिक चलनाचा वापर करणे होय.
०८. प्रत्यक्ष गोख पैशाऐवजी इतर मार्गाने आर्थिक व्यवहार पूर्ण करणे म्हणजे रोकड विरहीत व्यवहार होय.

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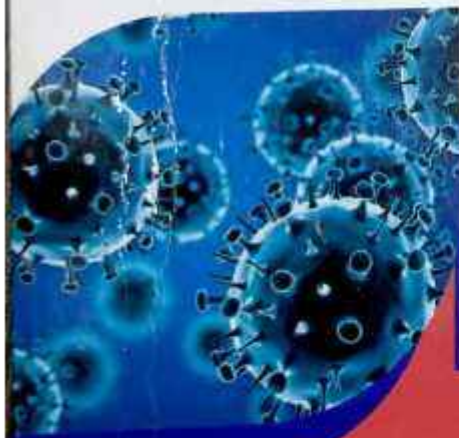
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विजयनगर साम्राज्यातील 'अमर-नायक' आणि 'अयांगर' व्यवस्था

प्रा. विठ्ठल बाबुराव गुंडे

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दक्षिण भारतातील हंपी ही राजधानी असलेले राज्य विजयनगर साम्राज्य म्हणून ओळखले जाते. वरंगळच्या हरिहर व बुलक या दोन भावांनी विजयनगरच्या साम्राज्याची पायाभरणी केली. या राज्याच्या उभारणीमध्ये त्यांचे गुरु विद्यारण्य यांची मोलाची मदत झाली. तत्कालीन महम्मद तुघलकाच्या अनागोंदी कारभाराचा फायदा घेत कृष्णानदी व तुंगभद्र नदीच्या दरम्यान स्वतंत्र हिंदू राज्य त्यांनी स्थापन केले. या राज्यावर एकंदर चार वंशजांनी राज्य केले. संगम, सालुव, तुलूव व अरविड घराण्याने राज्य केले. 1936 ला विजयनगर साम्राज्याची स्थापना झाल्यानंतर ते साहित्य व संस्कृतीचे विशाल दालन ठरले. हे साम्राज्य जवळपास 200 वर्षे काळ टिकले. या साम्राज्याच्या आर्थिक, सांस्कृतिक, राजकीय व सामाजिक जीवनाबद्दल खुप बोलले जाते. विजयनगर साम्राज्य हे भारतातील त्यांच्या काळातील सर्वात समृद्ध राज्य होते. पंधराव्या व सोळाव्या शतकात विजयनगरला भेट देणाऱ्या सर्व परदेशी प्रवाशांनी राज्य आणि तेथील लोकांच्या संपत्ती आणि समृद्धीचे चमकदार वर्णन आपल्या प्रवासवर्णनामध्ये केलेले आहे हे साम्राज्य नियोजित प्रशासकीय यंत्रणेद्वारे प्रचलित होत असे. प्रशासनातील अमर-नायक आणि अयांगर प्रणाली व्यवस्था ही अत्यंत महत्वाची म्हणून ओळखली जात असे प्रस्तुत शोध निबंध 'अमर नायक' आणि 'अयांगर' प्रणालीच्या पैलूवर प्रकाश टाकण्याचा प्रयत्न आहे.

प्रस्तावना :

विजयनगर राज्यात राजा हा सर्वसत्ताधारी होता, परंतु सर्व सत्ता पुजेच्या कल्याणाकरीता वापरावी असाही दंडक अनेक राज्यांनी स्वतःवर घालून घेतलेला आढळतो. या बाबतीत राजा धर्माचे पालन करीत असे. राजास सल्लामसलत करण्यासाठी मंत्रीमंडळ होते. तसेच प्रशासनाच्या सुचारु व्यवस्थेसाठी राज्याची विभागणी सहा प्रान्तांमध्ये करण्यात आली होती. प्रत्येक प्रान्तांची राज्यव्यवस्था राज्यपालांकडे म्हणजेच 'नायकाकडे' सोपवली जात असे. मुलकी, लष्करी आणि न्याय खात्याची सर्व सत्ता राज्यपालांकडे सोपविली असे, परंतु त्याला आपल्या प्रान्तांचा हिशोब मात्र दरवर्षी राज्यपालांकडे सादर करावा लागत असे. प्रान्ताचे विभाजन जिल्हा, परगना व खेडे याप्रमाणे करण्यात आले होते.

खेड्याचा कारभार ग्रामपंचायत तर्फे केला जाई, जमीन महसूल हे साम्राज्याचे प्रमुख उत्पन्न होते. जकात, कुरणपट्टी, विवाह कर इत्यादी सुद्धा कर सरकार आकारीत असे. विजयनगर साम्राज्याची जी प्रशासकीय व्यवस्था होती. त्यामध्ये 'अमर-नायक' व 'अयांगर' प्रशासकीय व्यवस्था होती ही महत्वपूर्ण व्यवस्था म्हणून ओळखली जात असे. या व्यवस्थेचा थोडक्यात प्रस्तुत शोध निबंधाच्या माध्यमातून घेतलेला आढावा.

'अमर-नायक' व्यवस्था :

अमर-नायक प्रणाली यालाच अमर-नयरकरा, नायकतन प्रणाली असेही म्हणतात. 'अमरा' या संस्कृत शब्द समुहापासून त्याची उत्पत्ती झाली आहे. 'अमरा' याचा अर्थ लढाई किंवा युद्ध होतो. याबरोबरच त्याचे स्वरूप फारसी संकल्पना अमी आर सारखे आहे. बहुधा या प्रणालीची अनेक वैशिष्ट्ये दिल्ली सल्तनतच्या 'इक्ता' व्यवस्थेसारखी भासतात. (जमीन वितरणाचा प्रकार आणि प्रशासनातील सहभाग ही व्यवस्था इल्लुतमिशाच्या काळात विकसित झाली होती) त्या काळात त्यांनी सामंती जमीनदार म्हणून राज्य केले आणि राज्याच्या उत्पादनाच्या साधनावर ताबा घेतला. याबदल्यात राज्याला लष्करी आणि प्रशासकीय मदत पुरवायची होती. विजयनगरच्या प्रशासकीय व्यवस्थेचे ही प्रणाली महत्वाचे वैशिष्ट्य होती. या व्यवस्थेमध्ये 'अमर-नायक' किंवा अधिकार आणि विशेषाधिकार यांच्या आधारावर वर्गीकरण करणे कठीण असले तरी त्यांच्या आरंभाचा सविस्तर अभ्यास दोन पोर्तुगीज लेखक यांनी केला आहे. त्यामध्ये फर्नाओन्सिझ आणि डोमिंगो पायस यांनी सोळाव्या शतकात कृष्णदेव राया आणि तुलूवा राजवटीचे अच्युत शाय यांच्या काळात भारताला भेट दिली होती. त्यांच्या प्रवासवर्णनावरून ते 'अमर-नायक' यांच्या जबाबदाऱ्यावर प्रश्न उपस्थित करतात तर मॅलेन्झीच्या लिखानामध्ये नायकांना राजकीय आकांक्षा असणाऱ्या व्यक्ती म्हणून संबोधले गेले त्यांची घोरणे कधी कधी राज्यकर्त्यांच्या उद्दिष्टाशी विरोधाभाषी होती तर अलिकडील काळात या व्यवस्थेबद्दल लिहिणारे एन.के.शास्त्री या व्यवस्थेला अनेक सरदारांची लष्करी युती म्हणून पाहतात. आपले मत मांडतांना ते म्हणतात की, तत्कालीन इस्लामच्या वाढत्या धोक्यामुळे विजयनगरच्या राज्यकर्त्यांनी लष्करी आणि धार्मिक दृष्टीकोन स्विकारून ही व्यवस्था स्विकारली असावी. कृष्णस्वामी या व्यवस्थेला 'सरंजामी' व्यवस्था मानतात. डी.सी. सिरकर कृष्णस्वामी यांनी मांडलेल्या मताचे खंडण करत सरंजामदार ऐवजी एक प्रकारचा जामीनदार म्हणून त्या 'अमर-नायक' कडे पाहतात जसे सरंजामशाहीचा एक प्रकारे ज्यामध्ये अमरनायकांना राजाला दिलेल्या लष्करी सेवांसाठी जमीन देण्यात आली होती. अशाप्रकारे डीसी सिरकर आणि टिच्ची महालिंगम विजयनगरच्या नायकांना केंद्र सरकारकडून लष्करी सेवा देण्याच्या अटीवर त्यांना दिलेले कार्यालय (कारा) असलेले योद्धा मानतात. अमरेनयनकान हे एक लष्करी अधिकारी किंवा प्रमुख (नायक) ज्याला त्याच्या नियंत्रणाखाली विशिष्ट सैन्याची संख्या होती. या नयनकडे अमरम (अमरमकर किंवा अमरमहली) नावाच्या जमीन किंवा प्रदेशावर महसूल अधिकार होते. तमिळ देशात आणि विजयनगर साम्राज्यात या कार्यकाळात अशा प्रकारे विभक्त झालेल्या जमिनीचे क्षेत्रफळ बरेच होते. नायकांची कर्तव्ये आणि उपक्रम इतरांमध्ये होते. मंदिरांना भेटवस्तू देणे, टाक्यांची दुरुस्ती आणि इमारत, पडीक जमिनीची पुर्नबांधणी आणि मंदिरांकडून थकबाकी गोळा करणे. तमिळ शिलालेख, तथापि नायकाने राजा किंवा त्याच्या अधिकाऱ्यांना दिलेल्या देयकांचा संदर्भ देत नाही. कृष्णस्वामी, मॅलेन्झी हस्तलिखितांच्या आधारे, मत मांडतात की विजयनगर सैन्याच्या कमांडरांनी (पूर्वी कृष्णदेवरायाच्या नेतृत्वाखाली) नंतर स्वतंत्र नायक राज्य स्थापन केले. अशा धोक्यांपासून बचाव करण्यासाठी विजयनगर राजांनी घोड्याचा व्यापार करणाऱ्या किनारपट्टीच्या बाजारपेठांवर अधिक नियंत्रण स्थापित करण्याचा प्रयत्न केला. त्यांनी त्यांच्यासाठी उच्च किंमत देऊन चांगल्या दर्जाच्या घोड्यांच्या खरेदीवर मक्तेदारी करण्याचा प्रयत्न केला. त्यांनी त्यांच्यासाठी उच्च किंमत देऊन चांगल्या दर्जाच्या घोड्यांच्या खरेदीवर मक्तेदारी करण्याचा प्रयत्न केला. त्यांनी

विश्वासाह सैनिकांसह मजबूत तटबंदी बांधली. अशाप्रकारे एकीकडे, तेलगू नायक विजयनगर साम्राज्यासाठी शक्तीचे स्रोत होते आणि दुसरीकडे ते त्याचे प्रतिस्पर्धी बनले. अमर-नायक हे सारांश म्हणून लष्करी कर्मांदारी होते. ज्यांना प्रदेश दिले गेले रायाव्दारे शासन करा. त्यांनी परिसरातील शेतकरी, कारागीर आणि व्यापाऱ्यांकडून कर आणि इतर देयके गोळा केली. त्यांनी वैयक्तिक वापरासाठी आणि घोडे आणि हत्तीची निर्धारित तुकडे राखण्यासाठी महसुलाचा काही भाग राखून ठेवला. या तुकड्यांनी विजयनगर राजांना एक प्रभावी लढाऊ शक्ती प्रदान केली. ज्याच्या सहाय्याने त्यांनी संपूर्ण दक्षिण द्वीपकल्प त्यांच्या नियंत्रणाखाली आणला. काही महानगर मंदिरांच्या देखभालीसाठी आणि सिंचन कामासाठी वापरला गेला. अमर-नायकांनी राजाला दरवर्षी रसद पाठवली आणि स्वतःची निष्ठा व्यक्त करण्यासाठी भेटवस्तु घेऊन दरबारात हजर झाले. राजांनाही त्यांना पत्र ठिकाणाहून दुसऱ्या ठिकाणी पाठवून त्यांच्यावर आपले नियंत्रण प्रस्थापित केले. तथापि सतराव्या शतकाच्या दरम्यान, यापैकी अनेक नायकांनी आपली स्वतंत्र राज्ये स्थापन केली. त्यामुळे मध्यवर्ती सत्ता कमकुवत बनत गेली.

'अयांगर-प्रणाली' :

आयंगर-प्रणाली ग्रामीण प्रशासनाशी संलग्न असणारी व्यवस्था होती. विजयनगर कालखंडात तत्कालीन प्रचलित असणारी खालील पातळीवरील घोल कालखंडातील स्वायत्त शासन परंपरा कमकुवत झाली होती व तिचे हस्तांतरण 12 ग्राम अधिकाऱ्यांमध्ये जी विभाजीत झाली होती. या प्रशासकीय अधिकाऱ्यांना 'अयांगर' म्हणून ओळखले जात असे यांना वंशपरंपरागत पध्दतीने पदे प्रदान करण्यात येत असत. शिवाय या पदांची खरेदी-विक्री झाल्याची सुध्दा काही उदाहरणे आहेत. त्यांच्या कार्याच्या बदल्यात त्यांना वेतन म्हणून भूमि स्वरूप किंवा कृषी महसूलाच्या टक्केवारीत त्यांना वेतन दिले जात असे. अयांगर हे ग्रामसेवक किंवा कार्यकर्ते म्हणून वावूर असत. या अधिकाऱ्यांमध्ये इतरही काही प्रमुख होते. जसे 'सेनतेओवा' जो पूर्ण ग्रामाचा लेखाधिकारी म्हणून ओळखला जात असे, 'अधिक्षक' त्याला दंडनायक म्हणून प्रसिध्द होता. याशिवाय 'राजा महानायकाचार्य' या नावाचा अधिकारी इतर अधिकाऱ्यांवर व ग्रामावर लक्ष ठेवत असे या अयांगर प्रणालीमध्ये असणाऱ्या 12 ग्राम अधिकाऱ्यांशिवाय ज्यांनी ग्रामीण समाजासाठी अत्यावश्यक सेवा आपल्या कौशल्याच्या माध्यमातून बजावल्या त्यांनाही वेतन स्वरूपात भूमि किंवा वेतन दिल्या जात असे. ज्यामध्ये मंदिरातील पुजारी, गावातील चामडवांगी गरज भागवणारे कामगार, कुंभार, लोहार, सुतार, निरानीकर इ.समोवश होता.

निष्कर्ष :

ऐतिहासिक साधनांच्या आधारे उपरोक्त निबंधातून काही निष्कर्ष निघतात की, 'अमर-नायक' प्रणालीचा प्रवास हा मध्ययुगीन काळातील 'इक्ता' आणि 'जहागिरी' प्रणाली म्हणूनच झालेला असून तो विजयनगर साम्राज्याच्या विकासात, उत्कर्षात त्यांनी मोलाचा वाटा उचलेला असून कालांतराने त्यांच्यातूनच अनेक राजकीय महत्त्वकांक्षा निर्माण होऊन ते केंद्रीय सत्तेच्या विरोधात सुध्दा एकवटलेले दिसून येतात.

अयांगर प्रणालीमध्ये प्रशासनात सुसूत्रता राखण्यासाठी 12 सदस्यीय अधिकारी गटाची स्थापना करून गाव पातळीवर नियंत्रण प्रस्थापित केले. गावगाडा या अधिकाऱ्यांच्या सेवेसाठी मुक्तपणे वापरण्यासाठी हे अधिकारी वंशपरंपरागत अधिकारी होते. त्यांच्या परवानगीशिवाय जमिन मिळणे किंवा खरेदी करणे हे शक्य

नव्हते हिच व्यवस्था पुढे ओरिसांच्या गंगांनी आपल्या प्रदेशात लागू केली. या व्यवस्थेने ग्राम प्रशासनावर केंद्र प्रशासनाची घट्ट पकड ठेवण्यात विजयनगर साम्राज्य यशस्वी झाले असेच म्हणावे लागेल.

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A Study of VI and Jio Cell Phone Service Providers in Maharashtra

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Abstract

India's telecommunication network is the second largest in the world by number of telephone users with 1.183 billion subscribers as on 31 May 2018. It has one of the lowest call tariffs in the world enabled by mega telecom operators and hyper-competition among them. As on 31 July 2018, India has the world's second-largest Internet user-base with 460.24 million broadband internet subscribers in the country. As of 31 December 2018, India had a population of 130 crore people (1.3 billion), 123 crore (1.23 billion) Aadhaar digital biometric identity cards, 121 crore (1.21 billion) mobile phones, 44.6 crore (446 million) smartphones, 56 crore (560 million or 43% of total population) internet users up from 481 million people (35% of the country's total population) in December 2017, and 51 per cent growth in e-commerce

Keyword :- Telecommunication, Broadband, Biometric, Internet, Smartphones

Introduction

Mobile phones have been the key to India's technology revolution. India is the second largest mobile phone market globally, next only to China. At the end of 2018, the estimated number of smart phone users in India was 337 million, compared to 2.53 billion users worldwide. One would imagine that the exponential increase in cheaper smart phone models would displace the market for feature phones; to the contrary, feature phones continue to dominate the Indian market. While smart phone and feature phone shipments in 2018Q3 were about the same, a comparison of growth rates shows that both phablets (large screen smart phones) and regular smart phones eclipse feature phones. Mobile phone sales have increased dramatically over the last decade, both in terms of the volume and value. Using data from 2007 to 2018, we find that the compounded annual growth rate (CAGR) of mobile phone sales was 6.66% and 6.54% by volume and value respectively.

The average selling price of phones decreased at a CAGR of 0.11% during the same period. Research shows that the smart phone industry boasts of the lowest Innovation Cycle Time amongst a host of other industries. The number of years from initiation of R&D to first customer delivery is on average three years for the industry. At present, the

mobile phone market in India is congested with over 75 brands and 3400 models. The market is also very dynamic; the pecking order of firms is constantly changing with new brands challenging established manufacturers. Chinese brands such as Xiaomi, Gionee, Oppo and Vivo are now very prominent in the Indian market, sidelining established domestic brands such as Lava, Intex and Micromax. In 2018, Xiaomi replaced Samsung to become the top player in India by volume. The Government of India viewed the rise of mobile phone users as an opportunity to scale up domestic manufacturing in the country. In April 2017, it notified the Phased Manufacturing Program (PMP) to boost domestic manufacturing through a mix of fiscal incentives. A report in 2017 estimated the possibility for domestic local value addition in mobile phones to rise up to 25.8% by 2019. The recently implemented National Policy on Electronics (NPE 2019) that will replace the 2012 policy, has set target of manufacture of 1 billion mobile phones by 2025. This report focuses on concentration, technological progress, adoption and price points in the mobile handset market in India over a ten-year period between 2008 and 2018. The objective is to examine the extent and nature of competition in the market. A feature mapping exercise included in this report, finds quality improvements across different price bands of mobile phones, between 2008 and 2018. In order to

minimize conflation with factors such as brand, type of phone, etc. we segregated phone models manufactured only by Samsung across 12 price bands for this analysis. Samsung has products across all sub-markets considered in this report.

The analysis finds improvements in functionalities across most price bands with the addition of features such as dual SIM, improved wi-fi, GPS and cameras. Comparison of technology and phone types indicates that the market for mobile phone is highly segmented and any competition analysis at the industry level may be subject to qualifications. Defining the relevant market is central to any competition analysis. There are two fundamental dimensions of the relevant market – product and geography. Since the analysis focuses on India and sub-regional demand data is not available, the market segmentation in this report is based on product categories. We segment the market using three distinct approaches, by price, by technology and by phone type, in addition to an overall analysis of the market. Price bands are defined based on observable characteristics in the data and expert feedback. Technology generations are exogenously determined, namely 2G, 2.5G, 3G and 4G. The introduction of each generation was a landmark in the technology evolution of the industry. And finally, the third segmentation divides the market into broad product categories, namely, feature phones, phablets and smart phones. There are however, overlapping trends across different market segmentations. For example, 2G and 2.5G phones generally fall within the lower price bands. Feature phones also fall within the lower price bands.

Objective of the Study

1. To discuss the cell phone service providers in Maharashtra.
2. To discuss the Vodafone idea and Jio year wise development and its services.

Research Methodology


This part of the research furnishes the research methodology used in this study. The review uses secondary data. The data is collected through various magazines, newspapers, and government websites for this study.

Cell Phone Service Providers in Maharashtra

Two different technologies are deployed by the mobile operators in India namely GSM and CDMA. The GSM service providers are BSNL, MTNL, Bharthi Airtel, Vodofone, IDEA, Aircel, Reliance Communications, RelianceJio, Uninor, and Tata Communications whereas the CDMA service providers are TATA, and Reliance.

In this study I have selected two cell phone service providers in Maharashtra state First Vodafone idea and Second Jio.

1. Idea and Vodafone (VI)

Profile of Idea Cellular Limited	
	
Type	Public
Traded as	BSE: 532822 NSE: IDEA
Industry	Telecommunications
Fate	Merged with <u>Vodafone India</u> March 2017
Successor	<u>Vodafone Idea Limited</u>
Founded	1995; 26 years ago
Headquarters	Gandhinagar, Gujarat, India
Key people	<u>Kumar Mangalam Birla</u> (Chairman) Himanshu Kapania (Managing Director)
Products	Mobile telephony, wireless broadband
Revenue	35,475.7 crore (US\$5.0 billion) (2016)
Operating income	10,291.9 crore (US\$1.4 billion) (2016)
Net income	831.1 crore (US\$120 million) (2016)
Members	220.00 million (June 2018)
Parent	<u>Aditya Birla Group</u>
Website	<u>www.ideacellular.com</u>
Source: https://en.wikipedia.org/	

Vodafone Idea Limited is an Aditya Birla Group and Vodafone Group partnership. It is India's leading telecom service provider. The Company provides pan India Voice and Data services across 2G, 3G and 4G platform. With the large spectrum portfolio to support the growing demand for data and voice, the company is committed to deliver delightful customer experiences and contribute towards creating

a truly 'Digital India' by enabling millions of citizens to connect and build a better tomorrow. The Company is developing infrastructure to introduce newer and smarter technologies, making both retail and enterprise customers future ready with innovative offerings, conveniently accessible through an ecosystem of digital channels as well as extensive on-ground presence. The Company is listed on National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) in India.

1.1 Vodafone Idea Services

Vodafone – a postpaid & Prepaid GSM service.
Idea – a prepaid GSM service, similar to Vodafone Prepaid, offering 2G, 3G and 4G, 4G+ and VoLTE.

1.2 Value Added Services

- callertunes & tones
- profile tunes
- Vi™ services
- voice chat
- star talk
- Vi™ movies & TV
- games
- astrology
- name tunes
- do It yourself
- sports
- contests
- short codes and special characters
- conference call

1.3 Vi Popular plan

- 3G Data (835)
- 4G Data (801)
- Voice Calls Rate Cutter (763)
- Roaming International (100)
- ISD Rate Cutter (9)
- Data (2G/3G/4G) (833)
- Night & Weekend (22)
- SMS (648)
- Top Up (266)
- 28 Day Validity Plans (445)
- 1 GB Per Day Plans (216)
- 2 GB+ Per Day Plans (199)
- 84 Day Validity Plans (156)
- VI (Vodafone Idea) to VI (Vodafone Idea) plans (22)
- Unlimited Plans (674)

1.4 Year wise Development of Vodafone Idea

- 1995: Incorporated as Birla Communications Limited
Obtained licenses for providing GSM-based services in the Gujarat and Maharashtra Circles following the original GSM license bidding process
- 1996: Changed name to Birla AT&T Communications Limited following joint venture between Grasim Industries and AT&T Corporation
- 1997: Commenced operations in the Gujarat and Maharashtra Circles
- 1999: Migrated to revenues share license fee regime under New Telecommunications Policy .
- 2000: Merged with Tata Cellular Limited, thereby acquiring original license for the Andhra Pradesh Circle
- 2001: Acquired RPG Cellular Limited and consequently the license for the Madhya Pradesh (including Chattisgarh) Circle
Changed name to Birla Tata AT&T Limited
- 2001: Obtained license for providing GSM-based services in the Delhi Circle following the fourth operator GSM license bidding process
- 2002: Changed name to Idea Cellular Limited and launched Idea brand name . Commenced commercial operations in Delhi Circle
Reached the one million subscriber mark
- 2003: Reached the two million subscriber mark
- 2004: Completed debt restructuring for the then existing debt facilities and additional funding for the Delhi Circle. Acquired Escotel Mobile Communications Limited (subsequently renamed as Idea Mobile Communications Limited) Reached the four million subscriber mark First operator in India to commercially launch EDGE
- 2005: -Reached the five million subscriber mark
 - Won an award for the Bill Flash service at the GSM Association
- 2006: -Became part of the Aditya Birla Group subsequent to the TATA Group transferring its entire shareholding in the Company to the Aditya Birla Group
 - Acquired Escorts Telecommunications Limited (subsequently renamed as Idea Telecommunications Limited)
 - Reached the 10 million subscriber mark

- 2007: -Won an award for the CARE service in the Best Billing
- 2009 -Subscriber base as on December 31, 2009: 57,611,872
 - Emerging Company of the Year - fastest growing mobile operator in the world's fastest growing telecom market
 - IDEA wins prestigious Golden Peacock Award 2008 for My Gang
 - IDEA and Babajob launch a unique wap portal for job seekers in the informal sector
- 2010: - Idea Cellular - Auction of 2.1 GHz band (3G Spectrum)
 - Idea cellular wants to provide 3G services in 4 circles out of the 11 that it has, for the same it has contacted Nokia Siemens Networks for deployment of equipment and services.
 - Nation gives a thumbs up to Idea Oongli Cricket
 - IDEA Cellular recognized as the 'Most Customer Responsive Company' in the Telecom sector by Avaya Global Connect
- 2011: - In order to provide assistance to 700 million mobile users regarding the services of mobile number portability, idea cellular has started a helpline number just before the three days of its launch.
 - Launch of 'Idea MyCash', Powered by Axis Bank
 - Idea introduces special International Roaming offer
 - Idea user becomes first Indian to win Panchkoti Mahamoney on KBC
- 2012: Department of Telecom (DoT) has said that the proposal of Malaysia based Axiata group to raise 1 per cent stake in Idea cellular to 21 percent would not create any fresh security threat for the country
 - o Idea Cellular declared as winner in 2G Spectrum auction
 - o Idea, one of the leading telecom brands in India, continues to buzz in the global arena! It has now bagged the prestigious World Communication
 - o Idea wins at the prestigious World Communication Awards 2012, second year consecutively.

- Ivory from Idea most affordable Android 4.0 Smartphone launched in India.
- 2013: -Idea Cellular introduces buffet plans for post-paid subscribers
- 2014: -Idea wins 900 MHz for Delhi, and 4G in 8 strategic markets
 - Idea Cellular Ltd Board recommends Dividend
- 2015: Microsoft has tied with Idea Cellular to launch operator billing on the Windows Store for Idea subscribers
 - Idea Cellular Ltd has successfully retained the crucial 900 MHz spectrum and won 54 MHz of 900 MHz spectrum
 - Videocon Telecommunications sold its spectrum in Gujarat and UP (West) circles to Idea Cellular at a valuation of Rs 3,310 crore
 - Idea launches world-class, high-speed 4G LTE services in all four Telecom service areas of South India
 - Idea Cellular launches 4G in all 5 states of South India, Andhra Pradesh, Karnataka, Kerala, Tamil Nadu and Telangana
- 2016: Idea launches 4G services in four more states
 Idea Cellular launches Easy Share Plan
- 2017: Idea Cellular achieves highest 4G Upload Speed in May 17: TRAI
 - Idea achieves footprint of 2.6 lakh cell sites across the country; 50% on broadband network
 - Merger of Vodafone India and Idea: creating the largest telecoms operator in India.
 - Birth of Digital Idea, With the launch of a suite of integrated Digital Entertainment Apps
 - Idea Cellular extends partnership with Kings XI Punjab for the second year.

2. Reliance Jio

Reliance Jio Infocomm Limited	
	
Type	Subsidiary of Reliance Industries
Industry	Telecommunications
Founded	15 February 2007; 13 years ago

Jio SIM card to use them. Additionally, most of the apps are in the beta phase. Notable apps include:

- JioPages - a web browser for Android devices
- JioChat - instant messaging app
- JioCinema - online HD video library
- JioCloud - cloud-based backup tool
- JioHealth - health services app
- JioNews - e-reader for news
- JioMeet - video-conferencing platform
- JioMoney - online payments/wallet app
- JioSaavn - for online and offline music streaming in English and Indian languages
- JioSecurity - security app
- JioTV - TV Channels streaming service
- JioVoice - VoLTE phone simulator
- MyJio - manage Jio account and digital services associated with it

2.2 Jio digital and television services

Jio TV

Jio TV is an app based service enabling Jio customers to view TV channels & programmes on their preferred digital devices.

Jio TV+

Jio TV+ is a service which provides customers access to various VoD and OTT services from all over world in one app

2.3 Jio Festival plan offer

The Diwali festival, RelianceJio launched three new mobile recharge plans with rates beginning from 222 monthly. The new plans come with 2GB free daily data, along with free unlimited Jio-Jio voice calls and 1,000 minutes of voice calling to all non-Jio numbers.

Jio's new 222 recharge plan:

Free Jio to Jio calls. 1,000 minutes of voice calling to non-Jio mobile numbers. After 1,000 minutes you are charged at the IUC rate of 6 paise per minute. 2GB/day high speed data. Thereafter, unlimited at 64 Kbps.100 SMS/day and complimentary subscription to Jio Apps.

Validity - 28 days (1 month)

Jio's new 333 recharge plan:

Free Jio to Jio voice calls. Jio to Non-Jio Mobile are free upto 1,000 minutes. Thereafter, IUC calls are charged at 6paise per minute. 2GB/day high

speed data. Thereafter, unlimited at 64 Kbps.100 SMS/day and complimentary subscription to Jio Apps. Validity - 56 days (2 months)

Jio's new 444 recharge plan:

Free Jio to Jio calls. Jio to Non-Jio Mobile are free upto 1,000 minutes, after which it is charged at 6 paise/minute. 2GB/day high speed data thereafter unlimited at 64 Kbps. 100SMS/day & complimentary subscription to Jio Apps. Validity - 84 days (3 months)

2.4 Year wise Development of Reliance Jio Infocomm – Jio Digital Life

- 2010 Reliance Industries Limited purchased 95 per cent stake in Infotel Broadband
- 2013 Infotel Broadband renamed as Reliance Jio Infocomm
- 2016 Commercial roll-out of services in September 2016
- 2016 Surpasses 50 million subscribers within 83 days of launch
- 2017 Launched its Jiophone
- 2017 Announced acquisition of wireless spectrum, tower, fiber and MCN assets of Reliance Communications
- 2018 Approved plan to spin off fibre and tower assets
Adjudged 'Best Mobile Operator Service for Consumers' at Mobile World Congress
- 2019 Launched Digital Udaan for first time users
- 2019 Became the second largest operator in terms of subscribers in India
- 2019 Launched JioFiber in August
- 2020 On September 22, 2020, Jio announced its plans to launch Jio Smartphone worth Rs. 4,000 (US\$ 54) On July 15, 2020, Jio received investment of Rs. 33,737 crore (US\$ 4.79 billion) from Google for a 7.7% stake. This takes the total investment by stakeholders in Jio Platforms to Rs. 152,056 crore (US\$ 21.57 billion). In June, Jio Platform received investment of Rs. 5,683.50 crore (US\$ 806.28 million) from a unit of Abu Dhabi Investment Authority (ADIA), Rs. 9,093.60 crore (US\$ 1.29 billion) from

Abu Dhabi-based Mubadala Investment Co. and an additional investment of Rs. 4,546.80 crore (US\$ 645.03 million) from Silver Lake

In May 2020, Jio Platform received investment of Rs. 5,655.75 crore (US\$ 802.35 million) from Silver Lake, Rs. 11,367 crore (US\$ 1.61 billion) from Vista Equity Partners and Rs. 6,598.38 crore (US\$ 936.07 million) from General Atlantic Facebook to invest US\$ 5.7 billion in Jio Platforms Ltd

Conclusion

The world of mobile wireless communication is rapidly developing. The last few years have experienced a remarkable growth in wireless industry. 5G technology going to be a new mobile revolution in mobile market. There are many new techniques and technologies that will be used in the new 5G cellular or mobile telecommunications system. These new 5G technologies are still being developed and the overall standards have not yet be defined. However as the required technologies develop, they will be incorporated into the new system which will be defined by the standards bodies over the coming years. Attempts are being made to reduce the number of technologies to a single global standard resulting in 5G. Trials have already started on 5G which may lead to its commercial availability around 2020. The world is trying to become completely wireless, demanding uninterrupted access to information anytime and anywhere with better quality, high speed, increased bandwidth and reduction in cost.

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