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23rd and 24th February, 2019



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23rd and 24th February, 2019

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**WOMEN EMPOWERMENT WITH SPECIAL REFERENCE TO
LEGISLATIVE PROVISION OF INDIA**

Chayanika Kalita

Assistant Professor, Arunachal Law Academy, Arunachal Pradesh

Abstract: *Women Empowerment refers to the creation of an Environment for Women where they can make decisions of their own for their personal benefits as well as for the society. Empowerment provides a woman with great access to knowledge and resources freely live their life with a sense of self worth, respect and dignity, to make their own choice and decisions, have equal rights to participate in social, religious and public activities, have equal rights for social and economic justice, get safe and comfortable working environments. In India women empowerment is a buzz word today. The Indian Constitution guarantees that there shall be no discrimination on the ground of gender. There are various provisions for women's safety and empowerment in Indian Constitution. The Indian Penal Code plays a vital role in safeguarding the rights of women provided under the Constitution of India but the irony is that half of the population is unaware of their legal rights. Therefore study is to bring awareness amongst the women in particular and the public as a whole to strengthen as well as to visualise the women empowerment for an idealistic society.*

Key words: *Women Empowerment, Legal Provision, Women Rights and Codified Indian Laws.*

1. INTRODUCTION:

Women have been regarded as the weaker section of the society for the world at large. Even women have been engaged in different strata of work life, there were only few instances where their contribution has been regarded, respected and acknowledged. It has been perspective of the society in International Arena and throughout the ages of Indian sub-continent. Off late the society in particular has been started to recognize the contribution of women in various fields such as technology, social empowerment, poverty alleviation, law and so on. In India, throughout the ages the patriarchal society often disregarded the contribution of women apart from a few instances; which presented a very poor picture of gender equality in the light of women empowerment. Thus, the situation is not so normal throughout the patriarchal society of India, even in this millennium. To strengthen the idea of women empowerment globally, the United Nations made certain deliberation in the year 2000 through, U.N. Millennium Declaration to adhere into the principles to empower women in all strata of work life. This organization recognizes that in addition to the other responsibilities towards the individual societies, they also have collective responsibilities to uphold the principles of human dignity, equality and equity at the global level. The organisation considers certain fundamental values to be essential to international relations in the 21st century. These include; Freedom, Equality etc. Keeping in view of the above discussion it is found that for the better survival of women in this patriarchal society women should be treated with certain special approaches. In this regard we can talk about women empowerment.

Women empowerment has become a significant topic of discussion in the present scenario. Women empowerment refers to the ability of women to enjoy their rights, to control & benefit from resources, assets, income and maintain their own time as well as the ability to manage risk and improve their own status and economic well being. There are certain grounds which help women to develop and enjoy their rights. In this regard we can specially mention about the rights related to property. Property rights offer a key way to economically empower women by giving them the confidence they need to tackle gender inequalities. It is often found that women in developing and under developed nations are deprived from property rights on the sole basis of gender. It is only after the Amendment of Hindu Succession Act on 2005 women is also provided with equal rights to property. Besides this right, the Participation of women on various fields such as political field i.e. ability to vote or ability to run for office with a fair chance of being elected, Participation in household, participation in school and such other institutions etc. also can be

regarded as a way of women empowerment. Also the role of microcredit in empowering women cannot be underestimated. There are many Governmental and individual organization which supports women financially. They believe that lending money and credit allows women to function in business and society which in turn empowers them to do more in their communities. Loans with low interest are given to women in developing communities in the hopes that they can start a small business and stay a healthy life with her family. Education also plays a vital role it empowers women to increase self confidence and enables them to find better job, engage in public debate and other entitlements which results in improve their welfare. The most important is that education increases women awareness of their human rights, their confidence and their actual ability to assert those rights.

The growing access of the web in the late 20th century has allowed women to empower themselves by using various tools on the internet. With the introduction of World Wide Web (www) women has begun to use social sites through which they are able to empower themselves and raise their voice for equality rights without feeling oppressed by members of the society. Besides this women now can study and also can earn from the comfort of their home. It is seen that when women have the agency to do what they want, a higher equality between men and women is established. Besides this when women have monetary power it is a way for others to see them as equals members of society. Through this they achieve more self respect and confidence by their contribution to their communities.

It is from the above discussion found that women without whom the whole world will be incomplete are facing tremendous difficulties even in this 21st century needs adequate attention. Right to Equality under Article 14 of the Indian Constitution should not be only in the statute. It should be applicable even in the grassroots level of the society. Various steps are to be taken for development of this weaker but most important section of the society and the most valuable asset of a country.

2. LITERATURE REVIEW:

Gender and Green Governance, by Bina Agarwal, addresses the issue of gender and the role of women in relation to environmental collective action and green governance. It traces women's history of exclusion from public institutions and looks at how constraints can overcome.

Law Relating to Women and Child by SC Tripathi and Vibha Arora gives a clear description of the legal status of women and children. This book present all the laws related to women and children.

Indian Penal Code by Prof. S.N.Misra , this book gives the reader an idea about the meaning and elements of crime. In addition to that it deals with the section wise comments and the punishment provided for various offences. Further it gives an exhaustive comprehensive and lucid commentary on the Indian Penal Code with an elaborate discussion on criminal law and criminal jurisprudence.

Legal Research and Methodology by Dr. S.R. Myneni presented this book to serve the academic needs of law students. Further it gives a clear picture of the methods which are a part and parcel in academic fields.

Constitutional Law of India by Dr J.N.Pandey explains the basic principles of the Indian Constitution. Further this book enunciate the underlying concepts of the Indian Constitution and comments briefly on its basic structure.

3. STUDY OBJECTIVES:

- To study about the important legal provisions for women empowerment in India.
- To bring a clear picture of women rights in India.
- To extend few recommendations for the good of women.

4. METHOD:

The data for present paper was collected from both primary as well as secondary sources. The primary data has been collected through interviews and schedules with the members of Gauhati High Court Bar Association, visited various advocate chamber of Assam. The Secondary data has been collected from existing literature including books, articles, journals, working papers, research papers on the subjects and any other published and unpublished material wherever available.

5. Important Constitutional and Legal Provisions For Women in India:

The principle of gender equality is enshrined in the Indian Constitution in its Preamble, Fundamental Rights, Fundamental Duties and Directive Principles. The Constitution not only grants equality to women, but also empowers the State to adopt measures of positive discrimination in favour of women. Within the framework of a democratic polity, our laws, development policies, Plans and programmes have aimed at women's advancement in different spheres. Fundamental Rights, among others, ensure equality before the law and equal protection of law; prohibits

discrimination against any citizen on grounds of religion, race, caste, sex or place of birth, and guarantee equality of opportunity to all citizens in matters relating to employment. Articles 14, 15, 15(3), 16, 39(a), 39(b), 39(c) and 42 of the Constitution are of specific importance in this regard. India has also ratified various international conventions and human rights instruments committing to secure equal rights of women. Key among them is the ratification of the Convention on Elimination of All Forms of Discrimination Against Women (CEDAW) in 1993.

Let us now give a brief analysis of the laws related to women in India. First and foremost we need to speak about the laws provided under Indian Penal Code. Section 376 of IPC provides punishment for Rape. Whoever is involved in such offences shall be punished with rigorous imprisonment of either description for a term which shall not be less than seven years, but which may extend to imprisonment for life, and shall also be liable to fine. Section 363-373 of IPC deals with Kidnapping & Abduction for different purposes any person who is abducting a minor for purpose of begging or kidnapping minor/women for prostitution or illicit intercourse shall be punished with imprisonment of either description for a term which may extend to ten years and shall also be liable to fine. Section 302/304-B of IPC deals with Homicide for Dowry, Dowry Deaths or their attempts Whoever commits dowry death shall be punished with imprisonment of either description for a term which shall not be less than seven years, but which may extend to imprisonment for life. Section 498-A of IPC states that whoever being the husband or relative of the husband of woman treats with cruelty then he/she shall be punished with imprisonment for a term which may extend to three years and shall also be liable to fine. Section 354 of IPC deals with molestation. Whoever is involved in such crime shall be punished with imprisonment for a term which may extend to five years and shall also be liable to fine. Section 509 of IPC deals with sexual harassment of women. Whoever is involved in such crime shall be punished with imprisonment for a term which may extend to three years and shall also be liable to fine. Besides the above mention laws under IPC there are some acts which have special provisions to safeguard women and their interests. Among them the following are worth to be mention

- **The Dowry Prohibition Act 1961** prohibits the request, payment or acceptance of a dowry as consideration for the marriage. Asking for or giving of dowry can be punished by imprisonment of up to 6 months which may extend upto 5 years or fine or the amount of dowry (whichever is higher).
- **The Immoral Traffic (Suppression) Act (SITA) (1956)** is the primary law dealing with the status of sex workers. According to this law, prostitutes can practise their trade privately but cannot legally solicit customers in public. In particular, the law forbids a sex worker to carry on her profession within 200 yards of a public place.
- **The Protection of Women from Domestic Violence Act 2005** is an Act of the Parliament of India enacted to protect women from domestic violence. Domestic violence under the act includes actual abuse or the threat of abuse whether physical, sexual, verbal, emotional or economic.
- **The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013** is a legislative act in India that seeks to protect women from sexual harassment at their place of work. The Act will ensure that women are protected against sexual harassment at all the work places, be it in public or private.
- **The Family Courts Act, 1954** The Court established to conclude upon matters relating to family law like matrimonial reliefs, custody of children, maintenance for wife and children etc. The Family Court shall have the same status as that of a District Court and shall exercise the jurisdiction accordingly and also empowered to initiate suits and proceedings in par with the conditions stipulated by the Act.
- **The Special Marriage Act, 1954** is an Act of the Parliament of India enacted to provide a special form of marriage for the people of India and all Indian nationals in foreign countries, irrespective of the religion or faith followed by either party. The main objectives of this Act is to provide a special form of marriage in certain cases, registration of marriages and to provide divorce if situation says so.
- **The Maternity Benefit Act, 1961** (Amended in 1995) this Act provides for payment of medical bonus to every woman entitled to maternity benefit under this Act. The Central Government may before every three years, by notification in the Official Gazette, increase the amount of medical bonus subject to the maximum of twenty thousand rupees.
- **The Medical Termination of Pregnancy (MTP) Act**, which was enacted by the Indian Parliament in the year 1971 with the intention of reducing the incidence of illegal abortion and consequent maternal mortality and morbidity. . The Act clearly states the conditions under which a pregnancy can be ended or aborted, the persons who are qualified to conduct the abortion and the place of implementation.
- **The Equal Remuneration Act, 1976** provide for the payment of equal remuneration to men and women workers and for the prevention of discrimination, on the ground of sex, against women in the matter of employment and for matters, connected there with or incidental thereto.
- **The Marriage Laws (Amendment) Bill, 2010** has amended the Hindu Marriage Act, 1955 and the special marriage act, 1954 making divorce easier on some special ground. The Bill replaces the words "not earlier than

six months" in Section 13-B with the words "Upon receipt of a petition." It also provides a better safe guard to wife by inserting section 13D and section 13E .

6. ANALYSIS:

Some Special Rights Of Women In India:

We live in a world where goddesses are worshiped and women get tamed, harassed, abused, raped, and kidnapped every single day. Keeping a check on a number of women-related cases, the government of India provides crucial rights to Indian women. Such as women have the right to equal pay. According to the provisions listed under the Equal Remuneration Act, one cannot be discriminated on the basis of sex when it comes to salary, pay or wages. Working women have the right to draw an equal salary, as compared to men. Women also have the right to dignity and decency. In case the accused is a woman, any procedure to be performed on her must be by or in presence of a woman officer. Again if a woman faces problem in workplace like sexual harassment, the women can be benefited as per the provision provided under the Sexual Harassment of Women at workplace (Prevention, Prohibition and Redressal) Act, 2013. Section 498A of the Indian Penal Code protects the women from domestic violence. The accused shall be punished with a non-bailable imprisonment for a term which may extend to three years and shall also be liable to fine. Besides these the female sexual assault victims have the right to keep their identity anonymous to ensure that her privacy is protected, a woman who has been sexually assaulted may record her statement alone before the district magistrate when the case is under trial, or in the presence of a female police officer. Under the Legal Services Authorities Act, female rape victims have the right to get free legal aid or help from the Legal Services Authority who has to arrange a lawyer for her. Unless there is an exceptional case on the orders of a first class magistrate, a woman cannot be arrested after sunset and before sunrise. In addition, the law also states that the police can interrogate a woman at her residence only in the presence of a woman constable and family members or friends. Also the law gives women the provision for filing virtual complaints via e-mail, or writing her complaint and sending it to a police station from a registered postal address. Women have the right against indecent representation. Depiction of a woman's figure in any manner is a punishable offence. Women have the right against being stalked. Section 354D of the IPC makes way for legal action to be taken against an offender if he/she follows a woman, tries to contact her to foster personal interaction repeatedly despite a clear indication of disinterest or monitor the use by a woman of the internet, email or any other form of electronic communication. Women have a right to Zero FIR, an FIR that can be filed at any police station irrespective of the location where the incident occurred or a specific jurisdiction it comes under, the Zero FIR can later be moved to the Police Station in whose jurisdiction the case falls under. This ruling was passed by the Supreme Court to save the victim's time and prevent an offender from getting away scot-free.

Apart from the above mentioned legal and constitutional provisions the Government of India has set up few special initiatives for the protection and empowerment of women. Among them National Commission for Women, Reservation for Women in Local Self –Government , The National Plan of Action for the Girl Child, National Policy for the Empowerment of Women, 2001 are worth to be mention.

7. FINDINGS:

The empowerment of women has been recognized as the central issue in determining the status of women. The National Commission for Women was set up by an Act of Parliament in 1990 to safeguard the rights and legal entitlements of women. The 73rd and 74th Amendments (1993) to the Constitution of India have provided for reservation of seats in the local bodies of Panchayats and Municipalities for women, laying a strong foundation for their participation in decision making at the local levels. The laws provided under the Indian penal Code is worth to be mention. India has also ratified various international conventions and human rights instruments committing to secure equal rights of women. Key among them is the ratification of the Convention on Elimination of All Forms of Discrimination Against Women (CEDAW) in 1993. Due to the revolutionary changes brought by our constitution and the amendments of the laws relating to women, the society has provided women present position. Efforts made by Indian women, they have earned themselves a respectable position in the society. Now they are treated equally with men. Today women are everywhere and to be precise women are in space, women are in corporate, women are in politics, women are in entertainment field, women are in defence field and the list goes on. However, there still exists a wide gap between the goals enunciated in the Constitution, legislation, policies, plans, programmes, and related mechanisms on the one hand and the situational reality of the status of women in India, on the other hand.

8. RECOMMENDATION:

Women are provided with lots of rights and privileges for their welfare and protection and it is also been a legalized one in worldwide but it cannot be functioning in a proper manner in this modern society. This is only because the rights and privileges awarded to them are only in statute. Until and unless proper implementation of the laws provided for the women is done the status of women will not be so developed as it is expected. It is indeed a

matter of pleasure that the position of women has improved in the last four decades. But still somewhere I feel that the presently Indian women are again a bit struggling to maintain their dignity and freedom. Mental and physical torture of women has again become common and that is why they have started feeling unsafe. As per my personal understanding with the proper knowledge of legal and constitutional rights of a woman their position can be further strengthen in the society. There is a need to introduce some statutory laws to ensure safety and protection of women in the recent trends. Keeping in view this requirement, various steps have also been taken by the Indian law in order to ensure dignified life to the Indian Women. Which includes the enactment of various laws and statutory acts to protect the interest of women and to stop the crime against women? Right to equality provided under the Constitution of India should not be only in paper and pen but it should be implemented without delay for social and economic development of women on global platform. In order to ensure adherence to constitutional provisions for women welfare, there was a need to enact specific laws by the state and central Government. Although a women can be victim of any crime in society and in fact all crimes cannot be classified as a crime against women except few crimes which affects a women largely. However major steps have been taken by the legislation which has proved as weapons for women and helped them to stand in male dominating country. Besides the above discussion on the laws and various other provisions related to women the most important is that women should be aware of their rights and for that purpose the respectable citizens must arrange some Legal awareness camp which will help them for proper empowerment. Government should also take proper initiative in this regard. Women are the asset of every society therefore they should be facilitated with their needs in order to build a society without discrimination.

9. CONCLUSION:

Many different developmental programmes has been initiating by the government as well as non - governmental organization regarding women empowerment. Indian women has come a long way and prove that she is capable of doing anything and equal partner in the growth and prosperity of the nation. Women are one of the pillars of the society and it would be very difficult to imagine society without the presence of women. Now it is high time for all of us to understand the power of women. Even our judiciary and legislature has also accepted the fact that women are one of the most important elements of society and their exploitation would not be accepted at any cost. There is one saying that behind every successful man there is a woman. This saying is enough to prove that man and women both are necessary element of society. Women plays different role in her life at different stages of life. So we must give them due care and respect and understand their efforts towards welfare of the society at large. Rights of women are very necessary and Indian law is strong enough to protect her from any kind of harassment and torture, In order to ensure adherence to constitutional provisions for women welfare, there was a need to enact specific laws by the state and central Government. Besides the above discussion the people in general and women in particular should be aware of the legislative provisions and keep an eye towards its implementations. Also comments and suggestion may be welcome from the concern people of the locality in particular and the State as a whole to strengthen the women's empowerment for an idealistic society

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**A GLANCE AT WHITE COLLAR CRIME: WITH SPECIAL REFERENCE TO
INDIAN CORPORATE SYSTEM**

Harjit Singh

Apex Professional University

Email - harjitsingh88@gmail.com

Abstract: *The term “white collar crime” has sprung up in recent years and now pervades our media. White collar crimes form a separate category of criminal offences. These are financially motivated crimes committed by individuals, businesses, and government entities who are involved in lawful businesses. The perpetrators often hold respectable positions in their communities or businesses. Corporate crimes are committed either by a business entity or corporation, or by individuals that may be identified with a corporation or other business entity. A corporate crime is the act of its personnel and need not be authorized or ratified by its officials. The terms White collar crime and Economic Crime are more often than not, used as synonyms in fact, both the terms need to be used to define different categories of crime. White collar Crimes not only victimize individuals with pecuniary loss but can also have serious repercussions on the Corporate System. White collar Crimes includes various financial scams, fraud, money laundering, tax evasion etc which evoke serious concern and impact on the corporate system. This paper seeks to present a perspective on the trend of corporate crimes and the legislative measures to deal with such crimes in India.*

Keywords: *White collar crime, Corporate Crime, Economic offences, legislative measures.*

1. INREODUCTION:

There is a growing recognition in the world that the economic offences are part of other serious crimes posing serious threat to the security of the nation. Since the early 90's India has witnessed a spate of major economic scams in different sectors of the economy. The millions of small investors have lost thousands of cores of rupees; the economic crimes have caused havoc in the government managed institutions like Bank, Public Sector Undertakings, Telecom Department, Insurance Companies, etc. The magnitude and the new methods of committing economic crimes have been a cause of serious concern to the government as well as to the people. It is important in the first instance to understand the nature of White Collar Crime or Corporate crime, as it is generally referred to a crime committed by a person of a certain social status in the course of his occupation. White Collar Crimes are the crimes committed by a person of high social status and respectability during the course of his occupation. It is a crime that is committed by salaried professional workers or persons in business and that usually involves a form of financial theft or fraud. The term “White Collar Crime” was defined by sociologist Edwin Sutherland in 1939. These crimes are non-violent crimes committed by business people through deceptive activities who are able to access large amounts of money for the purpose of financial gain. White Collar Crimes are committed by people who are involved in otherwise, lawful businesses and covers a wide range of activities. The perpetrators hold respectable positions in the communities unless their crime is discovered. The laws relating to white-collar crimes depends upon the exact nature of the crime committed. The general perception is that the white collar crimes are committed because of greed or economic instability. But these crimes are also committed because of situational pressure or the inherent characteristic of getting more than others. White Collar Crimes are rapidly increasing in our country with the advancement of commerce and technology. The recent developments in the technology have given new dimensions to computer related crimes known as cyber crimes. As such, the white collar crimes are increasing with the development of new websites. The areas affected by these crimes are banking and financial institutions, industry, business etc. White collar Crimes not only victimize individuals with pecuniary loss but can also have serious repercussions on the Corporate System. White collar Crimes includes such as various financial scams, fraud, money laundering, tax evasion etc. are crimes which are also included in corporate system.

It is from the above discussion we found that white Collar crime has been tremendously increasing in every sector including the corporate sector of India. Steps should be taken to create awareness among the people in general and the employee in particular relating to the laws for preventing such crimes and to build a healthy corporate system in future.

2. LITERATURE REVIEW:

Criminology, penology Victimology by Prof. N.V.Paranjape this book is an attempt to simplify and explain the concepts of criminology, penology and Victimology in strictly legal terms so that they may be applied by professionals. It also provides updated knowledge in the laws in India.

White Collar Crime (India and Abroad) by Dr. Manju, Koolwal this book gives a clear picture of the concept, analysis, the punishment provided for white collar crime. Further it also contains the white collar crime relates to business and financial scandals and the various Acts related to these crime. Overall it gives a vivid description of white collar crime.

White Collar Crime Detection, Prevention and strategy in Business Enterprises by Petter Gottschalk this book is an attempt to discuss the executive knowledge of white collar crime and white collar theories are presented. Executive positions involved in crime, white collar crime analysis, response to crime suspicion, corporate social responsibility and corporate reputation damages and repair are some of the core topics which has been highlighted in this book.

Indian Penal Code by Prof. S.N.Misra, this book gives the reader an idea about the meaning and elements of crime. In addition to that it deals with the section wise comments and the punishment provided for various offences. Further it gives an exhaustive comprehensive and lucid commentary on the Indian Penal Code with an elaborate discussion on criminal law and criminal jurisprudence.

Business Ethics Concepts and Cases By Manuel G.Velasquez this book is an attempt to introduce the reader to the ethical concepts that are relevant to resolving moral issues in business. Further to identify the moral issues involved in the management of specific problems area in business and to provide an understanding of the social, technological and natural environment within which moral issues in business arise.

Legal Research and Methodology by Dr. S.R. Myneni presented this book to serve the academic needs of law students. Further it gives a clear picture of the methods which are a part and parcel in academic fields.

3. STUDY OBJECTIVES:

- To study about different structure of corporate crime
- To bring a clear picture of law relating to economic offences
- To recommend some preventive measures for such crime.

4. METHODS:

The data for present paper was collected from both primary as well as secondary sources. The primary data has been collected through interviews and schedules with the members of Quark Group of Ghaziabad, Advocate S.Q.Kazim of Supreme Court, and a few members of Gauhati High Court Bar Association. The Secondary data has been collected from existing literature including books, articles, journals, working papers, research papers on the subjects and any other published and unpublished material wherever available.

5. DISCUSSION& ANALYSIS:

Corporate crime is a broad concept and it refers to different types of frauds and abuses related to business. The concept of corporate crime refers to acts committed to harm or benefit a company and includes criminal acts ranging from different types of frauds, misuse of assets, corruption, money laundering, tax evasion, forgeries, to fraudulent financial reporting. Corporate crime refers to acts perpetrated by individuals or companies which enable them to obtain certain benefits which they would not be able to obtain otherwise in regular business circumstances. Therefore, companies resort to different types of corporate crime in order to reach their goals, or to enable individuals who are creators of such acts and who are involved in them to reach their aims. Corporate crime overlaps with white-collar crime, because the majority of individuals who may act as or represent the interests of the corporation are white-collar professionals. It may be similar to white collar crimes in many respects. They can also include the types of crimes listed above. One main difference, however, is that with corporate crimes, the person committing the crimes are working on behalf of the company they work for. Their goal is to financially benefit the company or its shareholders. Behaviour can be regulated by the civil law including administrative law or the criminal law. In deciding to criminalize particular behaviour, the legislature is making the political judgment that this behaviour is sufficiently culpable to deserve the stigma of being labelled as a crime. In law, corporations can commit the same offences as natural persons. This process should be straightforward because a state should simply engage in Victimology to identify which behaviour causes the

most loss and damage to its citizens, and then represent the majority view that justice requires the intervention of the criminal law. But states depend on the business sector to deliver a functioning economy, so the politics of regulating the individuals and corporations which supply that stability become more complex.

Let us now give a brief analysis of different structure of corporate crime. Economic offenders have exploited weaknesses in almost all areas of economic activity and siphoned off thousands of cores. Their depredations will continue till the law makers plug loopholes in the affected system. In the recent past alone, scams have cost the exchequer and millions of Indians, astronomical sums of money. Some major corporate scams or economic offences, which have adversely affected out national economy in the recent past are:

Money Laundering: Money Laundering has a close nexus with organized crime. Money laundering is the process by which large amount of illegally obtained money such as drug trafficking, terrorist activity or other serious crime is given the appearance of having originated from the legitimate source. Money laundering has an adverse impact on economy and political stability of country and hence such an activity must be curbed with an iron hand.

Insider Trading: Corporate insiders are defined as a company's officers, directors and any beneficial owners of more than 10% of a class of the company's equity securities. Trades made by these types of insiders in the company's own stock, based on material non-public information, are considered to be fraudulent. However, "insiders can include any individual who trades shares based on material non-public information in violation of some duty of trust. Insider trading has been quite rampant in the recent past.

Primary Market Frauds: The Stock Market Scams of 90's affected millions of small investors across the country. Fly-by-night operators entered the primary markets and through initial public offers (IPOs) collected hundreds of cores and vanished! The irony is that the whereabouts of over 100 companies are still not known either to SEBI or to the other investigating agencies. Even those companies, which did not vanish, used the people's money for purposes other than for which it was collected. As a result, the value of their shares plummeted resulting in heavy losses to the investors.

Bank Frauds: Economic offenders have targeted nationalized and cooperative banks and siphoned off thousands of cores by having criminal nexus with the managements of the banks. The big borrowers alone are responsible for the huge non-performing assets of the nationalized banks. In the 90's unscrupulous economic offenders set up large number of UCBs (Urban Cooperative Banks) in different states and collected thousands of cores by offering unsustainable high rate of interest and later siphoned off hundreds of cores either by sanctioning loans to themselves, or to the borrowers with whom they had criminal nexus. Naturally such banks collapsed, which caused havoc to the millions of small investors.

Insurance Frauds: Insurance companies have been victims of frauds perpetrated by unscrupulous claimants with or without the active connivance of insurance officials. Instances of deliberately setting fire to the insured goods, go-downs, factories, making more than one claim on the basis of same accident, inflated claims supported by corrupt surveyors, are quite common.

Fake Currency: Large scale circulation of fake currency can undermine the economy, as well as national security of any country. In India, the problem is age old, but with the development in technology, high quality fake currency notes have been recovered from terrorists, who had come from across the border. Fake currency printed abroad is generally channelised into India through Nepal and Dubai. Besides high quality fake currency notes being pumped into the country from across the border, criminal gangs and individuals within the country and remaking use of computes and sophisticated printers in making fake currency notes. Since the problem has national as well as international dimensions, it needs to be tackled effectively by the RBI, CBI and State Police Forces.

Fake Stamps Scam : A multi core fake stamps racket operated by Abdul Karim Telgi throughout the length and breadth of the country for many years with the active collusion of Police, Security Press and officials of banks and insurance companies exposed vulnerability of the system. The extent of the revenue loss caused to the exchequer by this gang alone is being estimated to the tune of Rs. 25,000 cores. Since there are many other gangs also engaged in different parts of the country, the problem needs to be dealt with in a pro-active and holistic manner.

Beside the above discussion the motto of this paper will not be fulfil if we do not mention about the law relating to economic offences. Economic Offences form a separate category of criminal offences. Economic Offences not only victimize individuals with pecuniary loss but can also have serious repercussions on the national economy. Economic offences, such as counterfeiting of currency, financial scams, fraud, money laundering, etc. are crimes which evoke serious concern and impact on the Nation's security and governance. Economic Crimes are not a new phenomenon in our country. Even one and a half century ago, when the Indian penal code 1860 was enacted, punishment was provided for cheating under Sec. 420, Breach of Trust under Sec-409, Counterfeiting of Indian coin under sec 232 etc. Besides this the government of India has introduced various regulatory legislations, the breach of which will amount to white-collar crime. Some of these legislations are Essential Commodities Act 1955, the Industrial (Development and Regulation) Act, 1951, The Import and Exports (Control) Act, 1947, the Foreign Exchange (Regulation) Act, 1974, Companies Act, 1956, Prevention of Money Laundering Act, 2002. The Indian Penal Code contains provisions to check crimes such as Bank Fraud, Insurance fraud, credit card fraud etc. In case of money laundering several steps have been

taken by the government of India to tackle this problem. The Reserve Bank of India has issued directions to be strictly followed by the banks under KYC (Know Your Customer) guidelines. The banks and financial institutions are required to maintain the records of transactions for a period of ten years. In order to tackle with computer-related crimes, Information Technology Act, 2000 has been enacted to provide legal recognition to the authentication of information exchanged in respect of commercial transactions. Also there are a number of regulation in place to control corporate criminal activities. Like Prevention of Corruption Act, 1988, SEBI Act, 1992, Insurance Act, 1938, Central Vigilance Commission Act, Banking Regulation Act, 1949, Reserve Bank of India Act, 1934, Code of Criminal Procedure act 1973, The telecom Regulatory Authority of India Act 1997, Value Added Tax Act, 2005, Indian Companies Act, 1956, Public Accountants and Auditors Act, Indian penal code: 1860, Prevention of money laundering Act 2002, Right to Information Act 2005, Lok ayukta Acts of the state etc.

The challenge of analyzing the phenomenon of white-collar crime lies in the fact that the term “white-collar crime” can mean different things to different disciplines or even different things to different camps within those disciplines. Academics often disagree with the legal profession, who may disagree with law enforcement, who in turn, may disagree with legislators and politicians as to exactly what constitutes white-collar crime. Generally, the varying definitions tend to concentrate on either or both of the following factors: characteristics of the offender, such as social status, or positions of trust within the community and characteristics of the crime itself. Depending on how one goes about deciding what to study in attempting to understand white-collar crime, one can either conclude that it is a form of conduct peculiar to offenders of high status enjoying positions of trust, as Sutherland seemed to feel. Violent crime is both alarming and costly. However, despite its physical and psychological impact on victims and even witnesses, street crime pales in many ways when compared with white-collar crime. A victim of a robbery is often traumatized by the experience and suffers the loss of any valuables taken by the perpetrator. They also suffer psychologically by being put in fear of injury or death, but, assuming the victim was not injured, valuables can be recovered by the police and may be covered by insurance and as such, may not actually be a loss at all.

An armed robber can certainly empty a cash drawer, take a wallet and jewellery, even steal a victim's car, but the loss of these items is insignificant when compared to the loss of the total contents of a person's bank account, life savings, credit rating, home, investments, and overall peace of mind. The issue of white-collar crime is extremely important because of its serious impact on victims, society, and the economy. Additionally, white-collar crimes are unique in that in many instances there is an inherent ability to victimize large numbers of individuals, often with a single act (i.e., identity theft). Estimates of monetary loss to employees and stockholders and, ultimately, society in general due to white-collar and corporate crime have reached hundreds of billions of dollars. It is estimated that approximately 36% of businesses and approximately 25% of households have been victims of white-collar crimes in recent years, compared to an 8% and 1.1% prevalence rate of traditional property and violent crime, respectively. One area of white-collar crime that consistently remains in the spotlight is health care and insurance fraud. The rising costs of medical care have driven the cost of health care insurance increasingly higher. In addition to the so-called more traditional forms of white-collar crime, a long and growing list of other white-collar crimes have come into prominence in recent years—especially intellectual property crime, mortgage fraud, and financial abuse of elders. The lack of a universal definition of white-collar crime poses more far-reaching consequences than simply lack of consistency; it is actually the key to the problem of analyzing white-collar crime. If something cannot be defined, then it cannot be accurately measured. Therefore measures should be taken to solve this problem.

6. FINDINGS & RESULT:

The historical tradition of sovereign state control of prisons is ending through the process of privatisation. Corporate profitability in these areas therefore depends on building more prison facilities, managing their operations, and selling inmate labour. In turn, this requires a steady stream of prisoners able to work. Bribery and corruption are problems in the developed world, and the corruption of public officials is thought to be a serious problem in developing countries, and an obstacle to development. There was a time when only a very few individuals had access to the means to commit many crimes. As recently the statistics shows that there is a tremendous growth of this crime.

The lack of a universal definition of white-collar crime poses more far-reaching consequences than simply lack of consistency; it is actually the key to the problem of analyzing white-collar crime. If something cannot be defined, then it cannot be accurately measured. The message here is that while all of us have a healthy fear of violent or street crime, white-collar crimes can be and often are far more damaging in terms of costs to the society and the rate at which the crimes are multiplying. One of the most difficult challenges is measuring just how much white-collar crime exists. This task is made infinitely more difficult by the fact that there is no universally accepted definition of what constitutes white-collar crime. This lack of consensus is understandable considering the many different types of crime that can fall under the umbrella of white-collar crime. Yet, without the ability to clearly define an act as a white-collar crime, it is impossible to determine with any accuracy just how much white-collar crime is taking place, what treatments intended to mitigate its prevalence are having an effect, or what level of punishment is likely to act as a deterrent.

7. RECOMMENDATIONS:

The following measures are recommended: The Laws governing economic offences are soft as compared to the laws enacted to deal with violent crimes like murders, Dacoity, etc. Therefore, all the laws relating to economic offences need to be reviewed and revamped. The punishment awarded for such offence may deter the accused from repeating the crime in future and may be a warning to those who are like-minded. The criminal liability for Socio-economic offences should be made absolute. Besides, the Indian Evidence Act should also be modified so as to shift the burden of proof of innocence's in case of White Collar or socio-economic crimes from the prosecution to that of the accused. The accused should be held liable for the violation of such laws, unless he proves his innocence. A provision should be made of public censure by publishing the names of white collar & social & economic offenders in the public domain with the help of digital medium including local as well as national newspapers etc. The most important is that more stringent regularity laws & punishment and special Tribunals similar to Fast Track Courts should be constituted with power to award sentence of imprisonment up to 10 years or even life imprisonment for such criminals. Now there is a need of separate chapter on White Collar Crimes in Indian Penal Code so that the Criminals are connected by the court & do not escape punishment because of high social status. Above all, public vigilance will always be required to have a positive change in the longer run.

8. CONCLUSION:

The threats and harm posed by White Collar Crimes to the well being of Indians and the economic development of this country cannot be underestimated. This Collar Crimes is the bane of most developing countries especially India. It is leading cause of its under development with its concomitant effects of poverty, squalor and disease. White Collar Crimes thrives on weak institutions, bad leadership and bad governance, something urgently needs to be done to nip in bud the increasing incidence of White Collar Crimes before the economy collapse. These White Collar Criminal activities because of widespread corruption in our offices & every walk of life are not likely to be done away with so soon. Until & unless each of our laws is properly enforced in their letters & Spirit by the law enforcing agencies & officials concerned with full honesty & integrity. Though there are a number of anti corruption law in the statute proper implementation is yet to be done. It has become the utmost necessity for proper enforcement of these law without delay especially against those who are seldom prosecuted should be punished to the maximum. Thus despite a slew of measures taken by the Governments there is neither decline in overall volume of White collar crimes, nor reduction in the number of major scams that are occurring with regular frequency in the country. In fact, the menace of white collar crimes has assumed serious proportion, which needs to be addressed with a holistic approach.

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**Analysis of Mobile Communication system and
Its Application in Disaster Management**

Deepjyoti Kalita

Post Graduate Student, Department of Electronics and Communication Engineering,
Indian Institute of Information Technology, Guwahati-15, India
Email – deepjyotikalitatu@gmail.com

Abstract: PUBLIC safety organizations protect the well-being of the public in case of any natural and man-made disasters, and are tasked with preparing for, planning for, and responding to emergencies. The emergency management agencies including law enforcement agencies, fire departments, rescue squads, emergency medical services (EMS), and other entities that are referred to as emergency first responders (EFR). The ability of EFR to communicate amongst themselves and smoothly share critical information directly affects their ability to save lives. The communication technologies such as legacy radio system, commercial network (2G/3G), and broadband (LTE/Wi-Fi) are largely used by the public safety organizations. Over the recent years, there has been increasing the interest improving the capabilities of public safety communications (PSC) systems. For example, in efficient spectrum management techniques, allocation models, and infrastructure options are introduced for PSC scenarios. Reforms on PSC policy have been discussed in and, which study the decoupling of spectrum licenses for spectrum access, a new nationwide system built on open standards with consistent architecture and fund raising approach for the undergoing of a new nationwide system. As explained in, communication of time critical information is an important factor for emergency response. In and insights on cognitive radio technology are presented, which plays a significant role in making the best use of scarce spectrum in public safety scenarios. Integration of other wireless technologies into PSC is studied in, with a goal to provide faster and reliable communication capability in a challenging environment where infrastructure is impacted by the unplanned emergency events. In this paper work basically I am discussing about the existing emergency communication system at the time of disaster and proposed some new approaches to overcome those situation.

Key Words: Disasters, Management, Communication, Public safety, Emergency first responders (EFR).

1. INTRODUCTION:

A thought kept the brain is of no use unless and until it is shared with another individuals and rest of the world. The idea, no matter however brilliant that is, must come out for its successful implementation for it to benefit one and all. It is the prime responsibility of the individual to share his or her thoughts and ideas with others also.

The communication system enables the successful transmission of idea, thoughts or any other important information among the individuals. The person from whom all the thought originates carefully encodes his ideas into a sensible content which is now ready to be shared with everyone. He is commonly referred to as the sender and the other side who receives the information from him is called the receiver or the recipient. The free flow of information between the sender and receiver takes place because of the communication system.

In the normal communication system there is one transmitter is there and at the receiver receive the signal. At first the analog signal converted into digital signal by encoder and then fed the input to the modulator and then through the channel the input go to the receiver part and then passed through the demodulator and decoded the signal and got the desired the output. This is the main communication system basically which is used in everywhere in the world. There are various types of communication system are there such as Optical communication, Mobile communication, Territorial communication, emergency communication etc. Generally we are basically focused on basics of mobile communication and at the time of disaster if the normal communication system may be destroyed totally. The base station will totally damage at the time of disaster. Hence there is no communication at the time of disaster as all the

system are destroyed. So there should be some alternative system for communication when the disaster will occur instantly activated the system and continuously provide the communication among all the people. At the time of disaster need of communication is a very essential services because ones should give the information about him/her to her relatives or ask help to authority also. There are some already some system are established which are used in USA and UK. But in India no such system has been developed till now, so we are trying to develop some new system to help our country at the time of disaster as our country is disaster prone area.

2. MOBILE COMMUNICATION SYSTEM:

Any radio network telephone capable to operate while running at any speed, battery operated and very small enough to be carried out by a person comes under mobile communication systems. These communication systems may have various types of facilities. The different types of mobile communication systems are mobile two-way radio, public land radio phone, mobile telephone etc. The mobile phone is an electronic device which is used for mobile communications over a cellular network of special base stations known as cell sites. A cell phone offers full Duplex Communication and transfer the link when the user moves from one cell to other cell. As the mobile phone user moves from one cell area to another, the system automatically switch or hand off from one network to other cell network. This is a very fast process that a human being can't see the differences between them. Mobile phone is primarily designed for Voice communication. In addition to the normal voice call facility, the new generation smart mobile phones support many additional services, and accessories, such as SMS for text messaging, email, packet switching for access to the Internet, gaming, Bluetooth, camera with video recorder etc. for sending and receiving the photos and video, MP3 player, radio and GPS.

The basic block diagram for mobile communication system are described here-

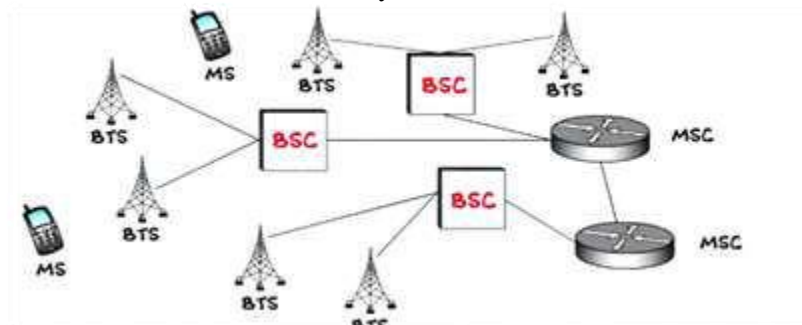


Fig 2.1: Basic mobile communication network

Where, MS= Mobile Station

BTS= Base Trans-receiver Station

BSC= Base Station Controller

MSC= Mobile Switching Centre

When we call from one mobile to another mobile then how it is happen on that system basically. At first when we dial a no then the Mobile phone connect to the BTS and BTS transmits the call to BSC and the BSC forward the call to the MSC. All the MSC are connected with each other and the then forwarded the call from one MSC to another MSC and then go to BSC and then forwarded to BTS and finally the other mobile receive the call easily. Thus anyone can call from one Mobile to another Mobile easily. In the MSC there are also some parts attached with MSC. Those are HLR-Home Location Register, VLR-Visitors Location Register, AUC-Authentication Centre. The is connected to the PSTN, ISDN and Data Network also. Here is the block diagram for all these system which is very distinct view of mobile communication system.

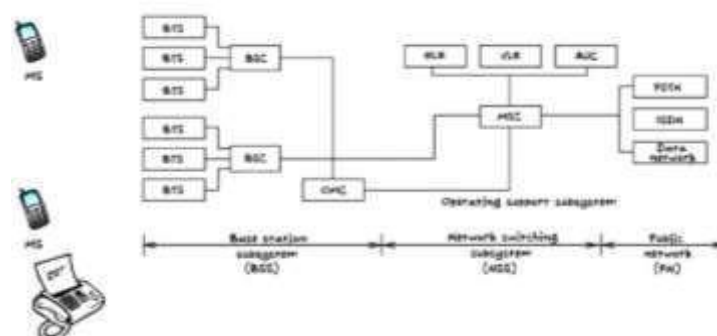


Fig 2.2: Basic GSM system

The BSS (Base subsystem) is consist of two parts one is BTS and BSC. If there will any disaster occur then all the base station may be destroyed and then all the communication system will be failed. So in that case if we have replaced the base station with some new system at the time of emergency and thus the communication system will be unaffected.

3. DISASTER MANAGEMENT SYSTEM:

Communication system performances are very crucial during disaster relief operations. The wireless system are expected to perform at their best in hostile conditions with limited resources since thousands of lives are at stack. Need of communication in disaster deals with many challenges like energy/power efficiency, reliable connectivity, availability, throughput, QoS, and interoperability. So considering all these aspects there should be an operator independent future reliable communication architecture looking towards the major disaster aspects. The feasibility of that network further should be analysed considering all pros and cons of the established communication technologies till date along with considering all the possible challenges for the future communication in disaster scenarios.

Disaster occurrence bounds us to think about the need of efficient Public Safety (PS) Network, which challenges us to establish communications. In the absence of an efficient disaster communication backbone network the people will be left scrambled to establish communication. We firstly discuss about the operated PS network operated till date, their working principle and how their standard technologies can help rescue team in preventing and minimizing the lives and property by alerting the people about the impending disaster. Simultaneously we discuss on how up gradation in technologies and tools are proved to be useful for the PS network to serve the people at the time of disaster. Visualizing the aspects of the both case of pre and post disaster communication scenarios we can reach to the statement that network congestion should be minimized to provide the proper network utility, to each and every user, in post disaster activity allocated bandwidth utilization can be optimized in such a way that only text message or flash message operations are operated by the operator and the other bandwidth consumed broadband service should be stopped for the critical hour for optimal use of the network utility, social applications need to be developed and make people aware of the internet and social media.

Effective emergency and natural disaster management depends on the efficient mission-critical voice and data communication between first responders and victims. Land mobile radio system (LMRS) is a legacy narrowband technology used for critical voice communications with limited use for data applications. Recently, long term evolution (LTE) emerged as a broadband communication technology that has a potential to transform the capabilities of public safety technologies by providing broadband, ubiquitous, and mission-critical voice and data support. For example, in the United States, First Net is building a nationwide coast-to-coast public safety network based on LTE broadband technology.

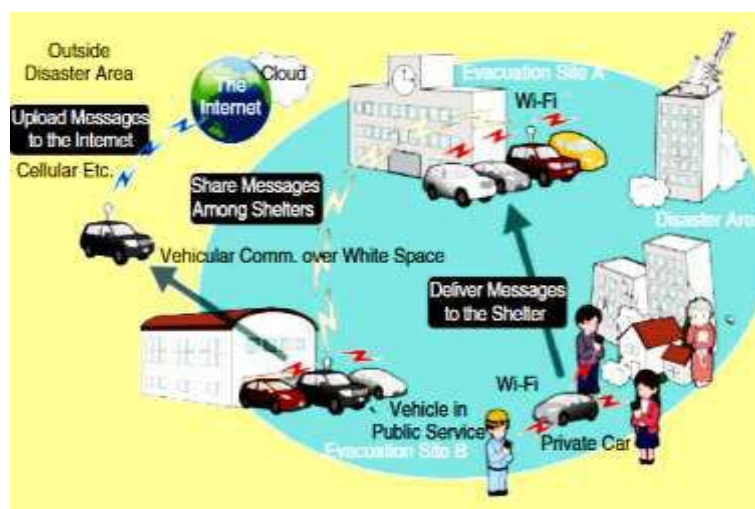


Fig 3.1: Basic Disaster Communication Scenario

Unlike general wireless communications in an organization, the wireless network used relief has specific needs to be fulfil.

- Provide broadband wireless communication.
- Manage spectrum sharing through cognitive radio.
- Provide integrated service.
- Provide security and reliability.
- Network should be scalable and reconfigurable.
- Real time communication and response.

- Efficient energy consumption.
- Resilience/availability of the network.

There are some system which are already established in USA and Europe other than India. TETRA (Terrestrial Trunk Radio) and TETRAPOL in Europe and APCO 25 in USA. Beyond TETRA, TETRAPOL and APCO 25 standards, various wireless telecommunication systems are used by PS organizations depending on their operational needs. Also Vodafone have already implemented two types of network one is Vodafone instant and Vodafone instant mini network and in China they have used satellite-LTE technology for their communication at the time of emergency time.

Now we are discussing some techniques which has been already used in some other countries. Those are-

- 1) **TETRA:** Terrestrial Trunked Radio (TETRA) previously known as Trans-European Trunked Radio, a European standard for the trunked radio system, is a professional mobile radio network and two-way transceiver specification. TETRA was basically designed for use by government agencies, emergency services, (police forces, fire departments, ambulance) for public safety networks, rail transport staff for train radios, transport services and the military. TETRA is European version of trunk radio similar to Project 25. TETRA is a European Telecommunications Standards Institute (ETSI) standard, in 1995 the first version was published and it is mentioned by the European Radio communications Committee (ERC). TETRA uses time-division multiple access (TDMA) method with 4 user channels on one radio carrier and 25 kHz spacing between the carriers. Both point-to-point and point-to-multipoint transfer can be used. Digital data transmission is included also in the standard though at a low bit rate.
- 2) **TETRAPOLE:** TETRAPOL is a digital professional mobile radio standard, as defined by the Tetrapol Publicly Available Specification (PAS), in use by professional user groups, such as public safety, military, industry and transportation organizations throughout the world. TETRAPOL is a fully digital, FDMA, professional mobile radio system for closed user groups, standardizing the whole radio network from data and voice terminal via base station to switching centre, including interfaces to the Public switched telephone network and data networks. End-to-end encryption is an integral part of this standard. Tetrapol Publicly Available Specifications (registration required) which has detailed information and an overview picture.
- 3) **APCO 25:** Project 25 (P25 or APCO-25) is a suite of standards for digital mobile radio communications designed for use by public safety organizations in North America. P25 radios are a direct substitution for analog UHF (Example: FM) radios but add the ability to transfer data as well as voice, allowing for a more natural implementation of encryption or messaging. P25 radios are commonly implemented by various types of organizations, such as police, fire, Ambulance and Emergency Rescue Service, using vehicle-mounted radios combined with walkie-talkie handheld use. Starting around 2012, the products became available with the newer phase 2 modulation protocol, the older protocol known as P25 became P25 phase 1. P25 phase 2 products use the more advanced AMBE2+ vocoder, which allows audio to pass through a more compressed bit stream and provides two TDMA voice channels in the same RF bandwidth (12.5 kHz) that only phase 1 can only provide one voice channel. The two protocols are not compatible. However, P25 Phase 2 infrastructure can be used as a "dynamic transcoder" feature that translates between Phase 1 and Phase 2 as needed. In addition to this, phase 2 radios are backwards compatible with phase 1 modulation and analog FM modulation, per the standard. On the other hand, EU area made the standard for Terrestrial Trunked Radio similar to Project 25. P25 fills a similar role as the TETRA or DMR protocols.
- 4) **Vodafone Instant Network:** Instant Network Emergency Response responsible for people and technology to provide free communications and technical support in those area which are affected by natural or humanitarian disaster. They have already established 11 emergency response missions in 4 years. Also established 2.9m calls placed using Instant Network, Connected 84,700 devices and offered the equivalent of 2.2 billion Whatsapp messages to refugees in Greece.



Fig 3.2: Vodafone Instant Network Setup

- 5) **Vodafone Instant Mini:** Vodafone instant Network Mini is an 11 kilogram mobile network system in a backpack that can be deployed in just 10 minutes, enabling aid workers to swiftly carry out life-saving work in disasters. The robust backpack which can be taken as hand bag luggage on commercial flights and deployed by non-technical staff, Instant Network Mini can serve up to five concurrent calls within the radius of 100 metres and enable text messages to be sent to thousands of people to provide crucial information following a disaster. The Instant Network Mini was developed with Vodafone Spain and partners Huawei and Telecoms sans Frontiers and provides a secure 2G GSM network. The GSM base transceiver station connects to the host network with the help of a satellite connection. The equipment is specially suitable for providing a GSM mobile network in the immediate aftermath of a disaster and for delivering mobile money solutions to inaccessible areas. It has been designed to provide both voice call service and SMS communications services to a small humanitarian field office in disaster areas.



Fig 3.3: Vodafone Instant Mini Network Bag

4. PROPOSED METHOD THAT CAN USE IN DISASTER:

In this paper we have already discuss about the system which was already implemented in other developed country. But in our country like in developing country there have still no other option for communication when the disasters happen. So basically we are just proposing some method which may be implemented at very low cost and give better performance at the time of emergency also in developing or underdeveloped country also. The methods are-

- To avoid congestion only text message or flash message should be allowed-At the time of emergency we are not busy with talking each other as normally done ,we give our information to the helping authority or other agencies that we are in emergency and we need help.
- Satellite communication can be used as a back haul communication. As the satellite are located in the space so they are not infected by the disaster that happens in earth. So at the time of emergency we can use satellite as our backhaul for communication each other.
- Towers can be replaced by helium balloons, unmanned aerial vehicle, etc. The BTS can be replaced by the helium balloons and at the top of the balloons the antennas are located and it gives a certain height to communication as the BTS tower gives to the normal mobile communication system. Or we can use some vehicle where the BTS have already installed on that and that vehicle will go to the emergency area and provide the services.
- We can integrate satellite and LTE as china has already implemented it.
- Using of emergency vehicle as network hub. It is an easy process to establish a small area network very urgently.
- We can use drone also to get the certain height also. On the drone we have to implement some sending and receiving antenna as done in BTS. But flight time of the drone should be increased.

These are the methods that will be implemented at the time of emergency time at very low cost and minimum requirements.

5. CONCLUSIONS:

Recent updates in communication technologies have great beneficial aspects for the disaster management scenarios. In the seminar report we tried to show how some of the recent communication features help in disaster management and listed the major problem in till date operated disaster management network architecture. We

proposed many solutions of disaster management out of which few are TETRA, APCO-25 etc. will be most attractive solution for the severe large area disaster management. In this way a resilience of the network can be achieved with proper power management in the base station. It will be easy to handle the disaster situations to some extent if there is a possibility of Base Station with adaptive height with the help of hot air balloon in the near future and if those Base Station works in the operator independent global network architecture. We also suggest that developing countries also need to implement such situation in their countries as because disaster may hit any countries. Developed countries have reached to an extent that they can handle such effect till date, however there is always a need of development, and we hope that developing countries will also find out ways to implement it soon.

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Comparative Study on Phytochemical Composition and Antioxidant Activity of
Natural and Hybrid Variety of Papaya Leaves

¹ Dr. M.V. Dass Prakash, ² Dr. K. Amudha, J. P. Anupriya

^{1, 2} Assistant Professor, Department of Biochemistry, Sri Sankara Arts and Science College, Kanchipuram,
Tamil Nadu, India

Email: dassbms@gmail.com

Abstract: The present study was carried out to investigate the bioactive compounds present in different extracts of *Carica papaya* leaves and determine their antioxidant activities. The phytochemical analysis and antioxidant activity were assessed by in vitro. It was found that the bioactive Compounds from different extracts of *C. papaya* were varied. Quantification result showed that high amount of polyphenols and flavonoids were present in ethanolic extract when compared to aqueous and chloroform extracts. The extracts were found to have different levels of antioxidant and free radical scavenging activity in the systems tested. The crude extract of *Carica papaya* appeared to be as potent as gallic acid with maximum inhibition. The GC-MS analysis shows the several bioactive compounds present in the *Carica papaya* leaf extracts. This partly shows the use of this plant in herbal medicine, as a rich source of phytochemicals, coupled with the presence of the essential vitamins and minerals. However, further studies are needed to obtain purified compounds that may be responsible for the activities observed from the tested leaves.

Key Words: *Crica papaya* leaf, Phytochemicals, free radical scavenging, antioxidant.

1. INTRODUCTION:

Biological activity is the basis for traditional medicine, which uses the pharmacological efficacy of natural compounds present in herbal preparations for treating human diseases. Plants constitute a good source of cheap and affordable drugs and medicinal plants possess therapeutic efficacy like their orthodox drugs counterpart, yet they show little or less side effects. Plants and their parts such as roots, stems, barks, leaves, flowers, fruits, seeds and exudates form an important major constituent of drugs used in traditional herbal medicinal systems [1].

Carica papaya is an herbaceous plant with prominent leaves (20-60 cm long), and is a member of the caricaceae family, *C.papaya* is distributed throughout the tropics and subtropics where it is extensively cultivated [2]. Alkaloids such as carpaine, pseudocarpaine, dehydrocarpaine i and ii, kaempferol and quercetin are present in the leaves. On the other hand, there are reports that describe the therapeutic effect of *C. papaya* leaf on dengue and malaria [3] and as anti-inflammatory. Other reports suggest that a fermented papaya preparation significantly reduces plasma glucose levels in healthy subjects and in patients with type 2 diabetes. The hypoglycemic activities of carica papaya have been previously described for its fruit and leaves [4].



Fig 1: *Carica papaya* Leaf

Carica papaya leaf has been researched for its medicinal uses. It contains carbohydrates, minerals and vitamins, lipids and proteins. Papaya is a power house of nutrients and is available throughout the year. *C. papaya* are steamed and eaten like spinach. The leaf extract of *Carica papaya* has been effectively used in dengue fever disease. Many pharmacologically active compounds like Flavonoids, Alkaloids, Phenolic compound, Tannin, Saponin, Glycoside which are stored in their specific part of leaves. Papaya effectively treats and improves all types of digestive and abnormal disorders. Papaya leaf has numberless benefits [5].

2. MATERIALS:

Carica papaya leaves were obtained locally from different locations in and around Kanchipuram. DPPH (2, 2—diphenyl-1-picrylhydrazyl), FeCl₃, gallic acid, quercetin and Folin-Ciocalteu, reduced glutathione, reagents used were of analytical grade.

3. METHOD:

3.1.1 Ethanol Extraction

5g of powdered leaves was used separately for the preparation of extract. Sample was packed between folds of filter paper and placed in Soxhlet apparatus run between 60-80°C (7 cycles) using Ethanol as solvent.

3.1.2 Chloroform Extraction

5g of powdered leaves was used separately for the preparation of extract sample was packed between folds of filter paper and placed in Soxhlet apparatus run between 60-80°C (7 cycles) using Chloroform Extraction.

3.1.3 Aqueous Extraction

5g of powdered leaves was used separately for the preparation of extract sample was packed between folds of filter paper and placed in beaker 150 ml water heated in a boiling water bath for 30 min.

3.2 Homogenate Preparation

The plant tissue was weighted, uniformly homogenized with 1.0ml of 0.5M phosphate buffer, pH 6.9 and the homogenate was used for the following Biochemical assays.

3.3 Qualitative Phytochemical Screening

Preliminary qualitative phytochemical analysis was carried out to identify the secondary metabolites present in the different crude extract of *Carica papaya* leaves [6].

3.4 Quantitative Screening

Total phenolic of *Carica Papaya* leaf extracts were determined by utilizing the Folin-Ciocalteu reagents in accordance to a modified method using gallic acid as a standard. Aluminium chloride calorimetric method was used for total flavonoid determination.

3.5 Free Radical Scavenging Activity

The scavenging activity of the plant extracts are assessed according to the method reported by George et al (1996), measuring the degenerate colour of DPPH at 517 nm using BHT as standard.

3.6 FRAP Assay

The reducing power of the plant extracts was measured by Benzie and Strain 1996 by reducing ferric cations to ferrous form, measuring the change in absorption at 593 nm.

3.7 Estimation of Minerals

Flame photometric method was used to estimate iron and copper. Using the flame photometer, the diluents of sample was aspirated into the Digital flame photometer using the filter corresponding to each mineral element. All of these were carried out using the method described by Oshodi, 1992.

3.8 GC-MS Procedure

GC-MS analysis was performed using an Agilent 7890A GC system equipped with 5975C VL MSD (Agilent Technologies, CA, USA). The capillary column used in this study was DB-5MS (30 m × 0.25 mm, film thickness of 0.25 µm; J&W Scientific, CA, USA). The temperature program was set as follows: initial temperature 50°C held for 1 min, 5°C per min to 100°C, 9°C per min to 200°C held for 7.89 min, and the total run time was 30 min. The flow rate of helium as a carrier gas was 0.811851 mL/min. The MS system was operated in electron ionization (EI) mode with selected ion monitoring (SIM). The ion source temperature and quadrupole temperature were set at 230°C and 150°C, respectively. Identification of phytochemicals was performed by comparison of their retention times and mass with those of authentic standards spectra using computer searches in NIST08.L and Wiley7n.l libraries.

4. RESULTS AND DISCUSSION:

The Phytochemical analysis of the various leaf extracts (Table 1 & 2) showed that the leaves contained alkaloid, flavonoids, saponins, tannin, glycoside and steroids are present in all the extracts. Reducing sugar was absent.

in chloroform extract. Flavonoids and alkaloids are the most efficient therapeutically significant plant substance. Pure isolated alkaloids and the synthetic derivatives are used as basic medicinal agents because of their analgesic, antispasmodic and bacterial properties. They show marked physiological effects when administered to animals. The presence of alkaloids in the leaves shows that these plants can be effective anti-malaria, since alkaloids consist of quinine, which is anti-malaria [10].

The contribution of phenolic compounds one of the Mechanism of the overall antioxidant activities this mainly due to their redox properties involve in the plant material phenolic compound for neutralizing lipid free radicals and preventing decomposition hydro peroxides into free radicals. The papaya leaf high amount of phenolic content fresh sample 24mg/g and Aqueous 16mg/g compare hybrid fresh 22mg/g aqueous 12mg/g

Total flavonoid content of the sample was successful to demonstrate by linear regression analysis flavonoid present in the molecule can act as protein donating and show radical scavenging activity. The papaya leaf extraction present flavonoid content fresh sample 28mg/g compare to hybrid extraction 24mg/g [11].

Table 1: Phytochemical Constituents of Various Extracts of Natural *Carica Papaya* leaf

Phytochemical Constituents	Ethanol Extract	Chloroform Extract	Aqueous Extract
Alkaloids	+	+	+
Tannin	+	+	+
Flavonoids	+	+	+
Saponin	+	+	+
Glycoside	+	+	+
Reducing Sugar	+	-	+
Protein	+	+	+
Terpenoids	+	+	+
Carbohydrates	+	-	+
Polyphenol	+	+	+
Amino acid	+	+	+

Table 2: Phytochemical Constituents of Leave Various Extracts of hybrid *Carica Papaya* leaf

Phytochemical Constituents	Ethanol Extract	Chloroform Extract	Aqueous Extract
Alkaloids	+	+	+
Tannin	+	+	+
Flavonoids	+	+	+
Saponin	+	+	+
Glycoside	+	+	+
Reducing Sugar	+	-	+
Protein	+	+	+
Terpenoids	+	+	+
Carbohydrates	+	-	+
Polyphenol	+	+	+
Aminoacid	+	+	+

Table 3: Total phenol content of natural and hybrid leaves of *Carica papaya*

Parameter(mg/g)	Ethanol Extract	Chloroform Extra	Aqueous Extract	Fresh leaf
Phenol (Natural)	18	14	16	24
Phenol (Hybrid)	16	12	15	22

The odd electron in DPPH Free radicals gives a strong absorption maximum at 517nm azizahetal 1999. When DPPH Free radical becomes paired with hydrogen from free radical scavenging antioxidant its purple color fades rapidly to yellow to form reduced DPPH.

Table 4: Total flavonoid content of natural and hybrid leaves of *Carica papaya*

Parameter(mg/g)	Ethanol Extract	Chloroform Extra	Aqueous Extract	Fresh leaf
Flavonoid (Natural)	17	9	16	28
Flavonoid (Hybrid)	16	12	14	25

The DPPH (1, 1-diphenyl-2-picrylhydrazyl) radical scavenging activity of *Carica papaya* leaf extracts is shown in the graph. This activity was increased by increasing the concentration of the sample extract. DPPH antioxidant assay is based on the ability of 1, 1-diphenyl-2-picryl-hydrazyl (DPPH), a stable free radical, to decolorize in the presence of antioxidants. The DPPH radical contains an odd electron, which is responsible for the absorbance at 515 nm and also for a visible deep purple colour. When DPPH accepts an electron donated by an antioxidant compound, the DPPH is decolorized, which can be quantitatively measured from the changes in absorbance. The IC₅₀ value of the extract was 43.26µg/ml, as opposed to that of ascorbic acid which is a well known antioxidant. Total antioxidant capacity of the various extract, expressed as the number of gram equivalents of ascorbic acid, is shown in The phosphomolybdenum method was based on the reduction of Mo (VI) to Mo (V) by the antioxidant compound and the formation of a green phosphate/Mo (V) complex with a maximal absorption at 695 nm.

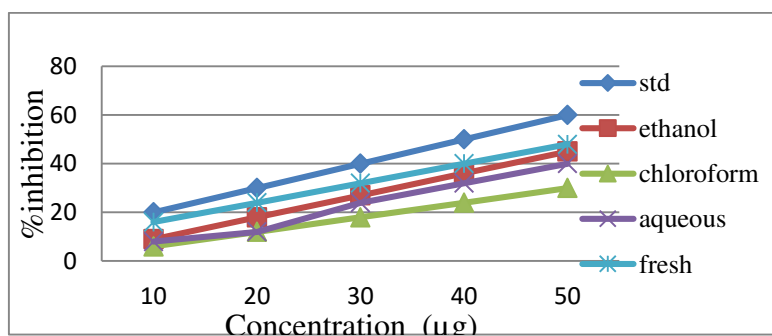


Fig 2: Free radical scavenging activity of natural leaves of *Carica papaya* by DPPH

Reducing power is associated with antioxidant activity and may serve as a significant reflection of the antioxidant activity. Compounds with reducing power indicate that they are electron donors and can reduce the oxidized intermediates of lipid peroxidation processes, so that they can act as primary and secondary antioxidants [12].

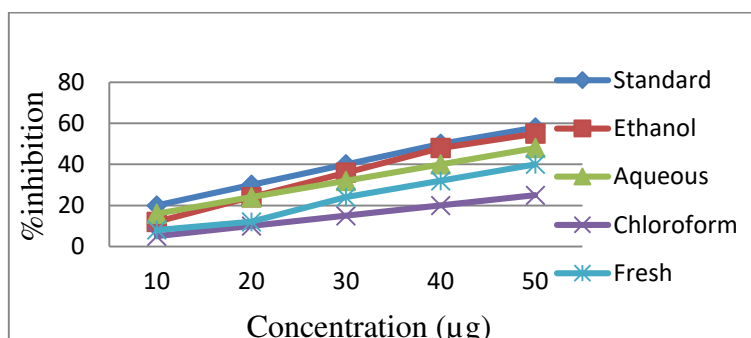


Fig 3: Free radical scavenging activity of hybrid leaves of *Carica papaya* by DPPH

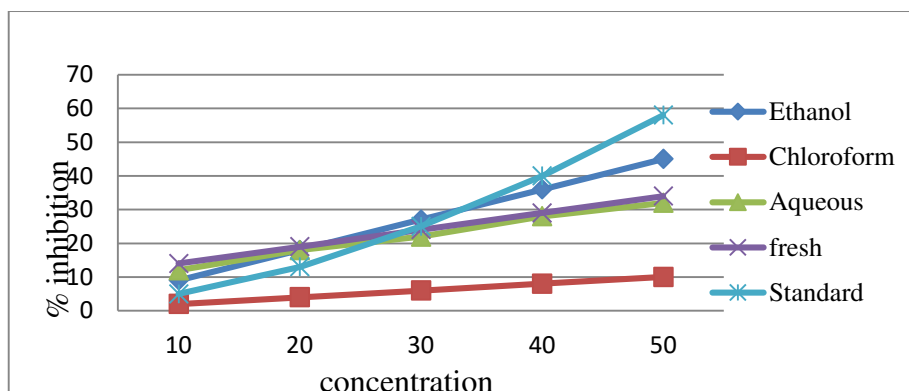


Fig 4: Reducing power assay of natural leaves of *Carica papaya*

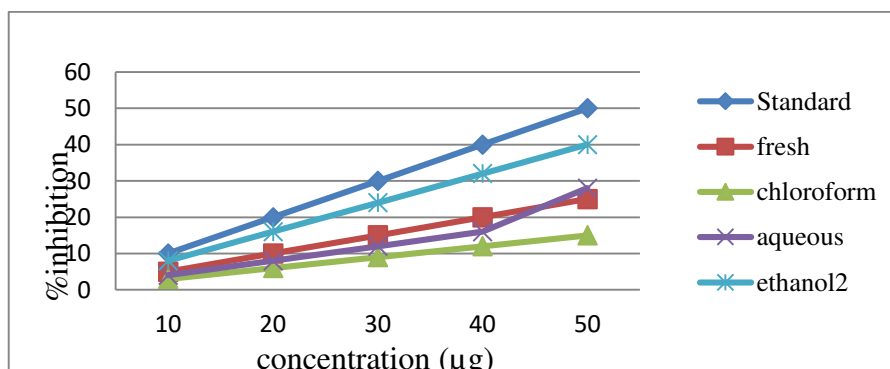


Fig 5: Reducing power assay of hybrid leaves of *Carica papaya*

Table 5: Mineral Content of Natural and Hybrid *Carica Papaya* leaf

Parameters	Natural Leaves Ethanol	Natural Leaves Aqueous	Hybrid Leaves Ethanol	Hybrid Leaves Aqueous
Iron (mg/100g)	6.6	6.5	14.6	51.1
Copper	9.62	11.26	16.29	35.4

The presence of oxidizing agents which provides a measure of the total amount of minerals with in a food. Analytical techniques for providing information about the total mineral can be distinguished from all other components with in a food in some measurable way. The most widely used method is based on the fact the minerals are not destroyed by heating and that they have a low volatility compared to other food components. Ascorbic acid in the body also aids in iron absorption from the intestine it is required for connective metabolism especially the scar tissue bone and teeth. Papaya leaf extraction Ethanol and Aqueous present in Iron and copper dengue fever so fasten the natural course of recovery with increasing the platelet count and prevents the complication [13].

Table 6: GCMS analysis of natural *C. Papaya* Leaf Extract

S.No.	RT	Compound	Formula
01	4.344	Propane 1,1,3 triethoxy	C ₉ H ₂₀ O ₃
02	11.053	Pentanedioic acid (2,4 di-t butylphenyl) – Monoester	C ₁₉ H ₂₈ O ₄
03	16.942	n-pentadecanol	C ₁₅ H ₃₂ O
04	29-419	Octadecanoic acid ethyl ester	C ₂₀ H ₄₀ O ₂

Table 7: GCMS analysis of hybrid *C. Papaya* Leaf Extract

S.No.	RT	Compound	Formula
01	11.056	Pentanedioic Acid (2,4-di-t-butylphenyl) Mono Ester	C ₁₉ H ₂₈ O ₄
02	21-178	Phthalic Acid butyl hept-4-yl ester	C ₁₉ H ₂₈ O ₄
03	38-722	Squalene	C ₃₀ H ₅₀

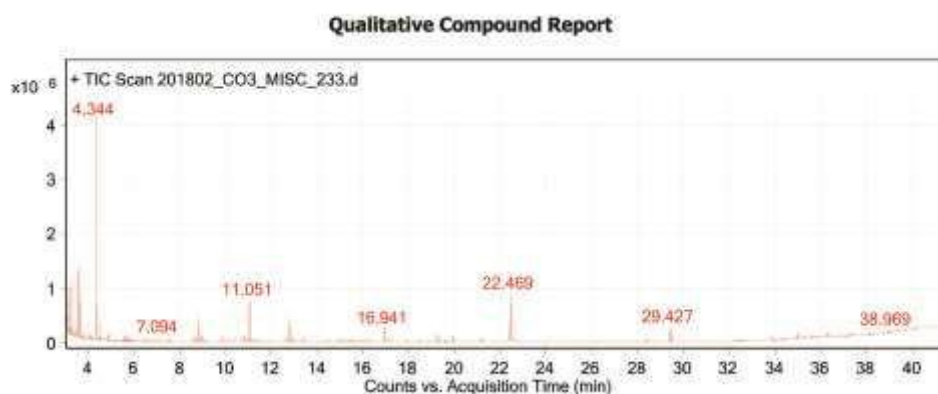


Fig 6: GC-MS chromatogram of natural *C. Papaya* Leaf Extract



Fig 7: GC-MS chromatogram of hybrid *C. Papaya* Leaf Extract

The GC/MS/MS analysis of n-hexane extract of leaf of *C. papaya* variety CO7 gave us nineteen major compounds. All compounds identified by GC/MS/MS screening were assessed for their biological property using physico-chemical property calculations according to As per Tice rule compounds are more likely to have properties of antimicrobial, anti-cancerous antioxidants and anti-insect if molecular weight is within ≥ 150 and ≤ 500 ; theoretical logarithm of the nocturnal/water partition coefficient is less than or equal to 5.0; hydrogen bond acceptor is within 1-8; hydrogen bond donor is less than or equal to and the number of rotatable bond is less than or equal to. The compounds those are strictly following the Tice rules are considered as antimicrobial, anti cancerous, antioxidant and anti-insect potential compounds for new or novel drugs. Almost all the compounds detected in GCMS Analysis Pentanedioic Acid (2,4-di-t-butylphenyl) Mono Ester, Phthalic Acid butyl hept-4-yl ester, Squealing Natural papaya leaf extract compared to hybrid Propane 1,1,3 truoethoxy, pentanedioic acid (2,4 dit-t butylphenyl) – Monoester, Octadecanoic acid ethyl ester.

5. CONCLUSION:

Our work concludes that, from the obtained data of three extracts, the use of *C. papaya* leaves preparations as ethanolic extract has more potential activity for scavenging free radical due to the presence of considerable amount of phenolic which shows more antioxidant capacity as compared to that of aqueous and chloroform extracts. Therefore, further work should be carried out in isolation of active components in each extract to describe their mode of action.

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**TOURISM CULTURE AND ITS IMPACT ON SUSTAINABLE
DEVELOPMENT WITH REFERENCE TO ETHIOPIA**

Dr. Ziya. A. Pathan

Associate Professor, Department of Sociology, Ambo University, Ambo, Federal Democratic Republic of Ethiopia
Email: dr.zia4sociology@gmail.com

Abstract: *Tourism is an activity involves travelling to and staying in places outside one's usual environment less than a year and the main purpose of travel is other than the exercise of an activity remunerated from with the place visited. Tourism is perceived as a leisure time activity. Sociologists began writing about the implication of increased leisure time in 1960s, and sociologically speaking it became more a complex phenomenon.*

Tourism is considered as an element which has not only economic but also cultural and scientific value. The need for diversity rose from heterogeneous perceptions/expectations of tourists and sometimes, the phenomena of tourism become a potential danger for man and environment. These risks appear due to the lack of intercultural communication, lack generated by carelessness or ignorance. Socio-cultural impacts arise when tourism brings changes in value systems/behavior or threatening indigenous identity. There are changes or loss of indigenous identities or values due to co modification, standardization & adaptation to tourist demand leading to cultural clashes and unethical issues like crime generation, child labor, prostitution and sex tourism.

The development should have an economic, social and an environmental dimension, that have a sound balance made between the different components that contribute to the general function of natural environments – the function of life support. Sustainable development via sustainable tourism must use the resources sustainably, reducing over consumption, supporting local economy, training and recruitment of local personnel at all levels, improving the quality of tourism product and making tourism a part of planning

Key Words: *Tourism – Sustainability – Sustainable Development – Sustainable Tourism – Strategies*

1. INTRODUCTION:

Ethiopia is one of the countries with the richest histories in the African continent; it is with a land of contrast and surprise of remote and wild places, home to cultured and friendly people. Lucy, the worlds' oldest known hominid skeleton which is more than three million years old was discovered here. Ethiopia has much to offer visitors, the historic route covering the ancient towns of Axum, Christians festival, Gondar with castles and palaces, Lalibela with remarkable Rock Hewan Churches, Negash, one of the earliest Muslim centers from the Prophet Mohammed's era with the Negash

Mesgid, the old cities of Harar, and Legaoda near Dire Dawa where you can see cave paintings considered to be thousands of years old.

There are a number of national parks and several sanctuaries where 277 species of wild life and more than 8050 species of birds can be seen in Ethiopia. The Semen Mountain National park is registered by UNESCO as a world heritage site and is home to three of the endemic mammals. Walia ibex, Gelada Baboon and Abyssinian wolf and Ras Dashen, the fourth highest peak in Africa with an altitude of 4620 meters is also located within this national park.

Ethiopia is the mosaic of people with more than 80 languages, different life style, customs and cultures. People's livelihood vary from pastoralists and farmers to factory workers, business people and academics.

Ethiopian is endowed with exotic natural and manmade historical attractions, which could be the basis for a vibrant tourism industry, if complimented with standardized supporting services. Ethiopia stands among the countries of the world which possess great and unique tourist resources.

Tourism has a significant economic and social benefit for the country, which includes among others, foreign exchange earnings, creation of employment, generation of revenue for the government, integration of the national cultures and societies and the like. These days, tourism sector is one of the major economic sectors in the world.

1.1. Understanding Tourism Culture

Tourism is a temporary short-term movement of people to destinations outside the places where they normally live and work, as well as their activities during their stay at these destinations.

Tourism comprises the *activities of persons travelling to and staying in places outside their usual environment for less than a year and whose main purpose of travel is other than the exercise of an activity remunerated from within the place visited*. It should be noted that all tourism should have some travel, but not all travel is tourism.

According to UN WTO definition on tourism, tourism is categorized as:

1. Domestic Tourism : Involves trips made by local residents within their own country
2. International Tourism: Involves trips between 2 countries.

2. LITERATURE REVIEW:

Over the last two decades, the concept of sustainable tourism development has become almost universally accepted as a desirable and politically appropriate approach to tourism development (Sharpley, 2003). The tourism industry should be encouraged to embrace 'clean green' tourism, which means that firms should do their best to decrease the environmental impacts of their operations. If a destination is to achieve sustainable tourism development then the actions of its constituent firms must be consistent with and support this objective. Dwyer and colleagues in a study stated that tourism firms should adopt a Triple Bottom Line (TBL) approach to sustainable development to ensure that firms integrate social, environmental and economic information into managerial decision-making. Firms must aim to achieve sustainability in their operations if the destination as a whole is to conform.

Rural tourism actors are conscious that the main ingredient for success is the environment. Everybody is conscious that one must be respectful and careful with the environment. One should preserve Nature in its original form as much as possible, which is the same as keeping authenticity or diversity. Rural tourism is growing and developing as an integral part of the environment, in a sustainable way, keeping the identity of the locality and recovering lost activities, such as subsistence farming. Rural tourism is tourism in the country, not in the town (Sanagustin Fons, Mosene Fierro, & Gomez y Patino, 2011).

The viability of rural tourism lies in the fact of its being compatible and complementary to traditional activities, and not being a substitute to previous incomes. Moreover, it is preserving all the countryside habitats, values and lifestyle. Regarding how hectic urban life has become in recent decades, rural tourism has become a favorable and suitable alternative among tourists, particularly in developed countries.

In our twenty-first century society, large hotel chains or entertainment centre are all rather similar and lack of identity, without the special added value of the landscape or environment. That is where the rural environment has the advantage, as it shows the value of reality, no matter how advanced the hotels. It is a great opportunity for country people to complement traditional ways of agriculture and livestock as a source of incomes. Furthermore, the increase in demand for services and infrastructure that is arising in any kind of rural area benefits people living in these natural areas all the year round (Sanagustin Fons et al., 2011).

3. STUDY OBJECTIVES:

- To have an insight on major tenets, strengths and weakness of perspectives on tourism
- Acquainting with tourism policies in context of Ethiopia
- Impact of tourism and sustainability of local communities

4. METHOD:

Content analysis is adopted in this research work to study the progress of research on Sustainable Tourism Development by conducting a thorough examination of peer reviewed journal articles in recent years and to identify the key disciplines, journals, articles and authors.

The recent trends in sustainable development and tourism research have been captured and this paper excludes any study whose major concepts were not directly focused on sustainable development and tourism industry.

It should be noted here that some papers could be classified into several categories as the concepts of some categories are close; however, this research focused on concept of tourism and sustainable development.

5. PERSPECTIVES ON TOURISM:

Since its beginnings, tourism is perceived as a leisure time activity. Sociologists began writing about the implications of increased leisure time in 1960s, and sociologically speaking it became more a complex phenomenon.

The objective of sociology of tourism is to analyze the tourist migrations in terms of two point of views i.e., *Local community & tourists*.

In present contexts, Hypothesis of Sociology of Tourism perceives three different hypostases;

5.1. An Economical Resource: Tourism is considered as an element which has a specific value in addition to economic, like cultural and scientific. The need for diversity rose from heterogeneous perceptions of tourists, thus, tourism as a resource can be seen from different angles.

Tourism is an opportunity of development for different areas alongwith other economic resources.

For example:

Ethiopia, in the insurance of local population survival through hospitality promotes traditional artistry and crafts.

Tourism is also a resource of economic reconvert/modification for the former industrial platforms. Ex, Ruhr basin of Germany

Tourism is also a source of urbanism (direction of city development based on touristic principles Ex, Dubai (UAE)

5.2. A Risk factor: Sometimes, phenomena of tourism become a potential danger for man and environment.

Sometimes the tourists practice gestures, habits and practices that are intolerable by the local community. These risks appear due to the lack of intercultural communication, lack generated by carelessness or ignorance. Conflicts emerge between the tourists from western countries and locals in the culturally rigid countries. It is difficult to manage such conflicts, especially when it is religious based.

Risk factor from the perspective of local community as a source of degradations:

- i. Social degradation
- ii. Spiritual degradation.

For Example, *The Milan Dome* - nowadays people visit it because it is the biggest gothic (16th c home) cathedral and not because it is a cathedral. - loses its sacred character.

Therefore, it is better to draw a limit between the religious and touristic exploitation.

Intensive exploitation can affect the local community's sentiments, and have a negative impact on the social environment and cultural pattern.

5.3. A Sociological Phenomena.

Tourism involving varied phenomena, some of them are as follows:

5.3.1. Culture: Through tourism, culture becomes accessible to everybody as the tourist visit different locations and cultural sites gathering information that is normally shared.

5.3.2. Educational Phenomena: Tourism must be also perceived as an educational phenomenon, especially for youths since they are the majority of tourists recently.

Ex. Countries as Nepal, Mauritania or Honduras developed programs for youths for discovering and exploring local resources.

This proves the fact that tourism can be perceived as an educational phenomenon and according to UNWTO, 80% of the youths return home more tolerant and respectful.

5.3.3. Fashion: Greece, Turkey, Egypt, Dubai...., are the places considered to be fashionable. Whenever public figures go to such places it sets a trend, they provide services for luxurious people and for the local one leading to team building packages for tourists.

In present days there is a general lack of communication, even within a social group. In these circumstances, tourism, as a way of spending leisure time becomes a bridge in communicating.

6. SUSTAINABLE DEVELOPMENT AND SUSTAINABLE TOURISM

6.1. Sustainable Development

The most frequently quoted definition is from the *Brundtland Report*: The 1987 report of the *United Nations World Commission on Environment and Development*. "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

The report raised debate on:

- Environmental consequences of industrialization
- The effects of present actions for future generations.
- The physical or ecological constraints of economic growth

6.1.1. Central Idea of Sustainable Development:

1. The development should have an economic, social and an environmental dimension, that have a sound balance made between the different components that contribute to the general function of natural environments – the function of life support.
2. The current generation has a moral obligation towards future generations to leave sufficient social, environmental and economic resources for them to enjoy levels of wellbeing at least as high as our own.

6.2. Sustainable Tourism

The principle of sustainable tourism was proposed as early as 1988 by the WTO, sustainable tourism is, "tourism which leads to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological process, biological diversity and life-support system".

- The Charter for sustainable tourism approved during the World Conference on sustainable tourism, held in Lanzarote in 1995.
- In 1999, the WTO redefined ST as an integrated approach of tourism.

"Development that meets the needs of the present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural Integrity, essential ecological processes, biological diversity and life support systems".

6.2.1. The Principles for Sustainable Tourism

The conservation and sustainable use of resources is crucial for sustainable tourism, some of the significant principles for sustainable tourism are:

1. *Reducing over-consumption and waste: avoids the costs of restoring long-term environmental damage and contributes to the quality of tourism;*
2. *Maintaining Diversity: maintaining and promoting natural, social and cultural diversity is essential for long-term sustainable tourism, and creates a strong base for the industry;*
3. *Integrating Tourism into Planning: which undertakes environmental impacts and assessments and increases in the long-term viability of tourism;*
4. *Supporting Local Economies: -protects economies and avoids environmental damage.*
5. *Involving local communities: Benefits local communities*
6. *Consulting Stakeholders and the Public: consultation between the tourism industry and local communities, organizations and institutions.*
7. *Training Staff: Training and recruitment of local personnel at all levels, improves the quality of tourism product.*
8. *Marketing Tourism Responsibly: marketing provides tourists with full and responsible information increases respect for the natural, social and cultural environments of destination areas and enhances customer satisfaction.*
9. *Undertaking Research: Research and monitoring by the industry using effective data collection and analysis is essential to help solve problems and to bring benefits to destinations, the industry and consumers.*

6.2.2. Pillars of Sustainable Tourism

1) Economic sustainability

- a. *Contributing some of the income generated to assist in training, ethical marketing and product development*
- b. *Promoting an ethical and environmentally conscious behavior among clients*
- c. *Diversifying the products by developing a wide range of tourist activities*
- d. *Provide financial incentives for businesses to adopt sustainability principles*
- e. *Partnerships throughout the entire supply chain from micro-sized local businesses to multinational organizations.*

2) Ecological Sustainability

In order to achieve ecological sustainability in the tourism industry:-

- a. Codes of practice should be established for tourism at all levels
- b. Formulate national, regional and local tourism policies and development strategies that are consistent with overall objectives of sustainable development
- c. Ensuring the design, planning, development and operation of facilities incorporate sustainability principles
- d. Perform institute baseline environmental impact assessment studies
- e. Ensure tourism in protected areas, such as national parks, is incorporated into and subject to sound management plans
- f. Monitor and conduct research on the actual impacts of tourism

3) Cultural sustainability

Sustainable Tourism should:

- a. Increase people's control over their lives
- b. Ensure how it is compatible with the culture and values of those affected by the industry, and
- c. Strengthens community identity

7. ETHIOPIAN TOURISM POLICY AND STRATEGIES:

To lead the country's tourism industry in a broad-based developmental direction, the strategy will give emphasis for creating strong relationships with other development strategies and policies to integrate directions. Here especially interlinking and connecting the tourism policy with agricultural and rural policy and strategy which helps to expand tourism attractions like eco-tourism in rural and agricultural areas.

7.1. Indeed the policy strategies focus on:

- ✓ *Development of the tourism environment.*
- ✓ *Ensuring participation.*
- ✓ *Increasing visitor volume.*
- ✓ *Strengthening linkages in a cross-sectorial approach to poverty reduction.*
- ✓ *Sequential development to avoid conflicts associated with mass tourism elsewhere.*

7.2. To develop new attractions and improving existing ones considering type, quality and quantity; possible strategy is:

- ✓ *Developing high quality destinations and productions such as handicrafts.*
- ✓ *Increasing flows of tourists in areas of the counties that are not in the current circuits.*
- ✓ *Linking tour circuits to create a strong tourism package.*

7.3. To develop crucial infrastructure and service delivery institutions

- ✓ *Capacity building of federal and regional implementing structures.*
- ✓ *Development of land and sea transport infrastructure, telephone and internet facilities and energy supply networks.*

7.4. To make Ethiopia a competitive destination in the world tourism market

- ✓ *Creation of an effective tourism promotion strategy.*
- ✓ *Market analysis.*
- ✓ *Building partnerships with domestic and international tour operators.*

7.5. To coordinate the efforts of stakeholders

- ✓ *Formation and consolidation of trade organizations.*
- ✓ *Establishment of new for a Tourism Management Council formed by officials from federal and regional tourism offices*
- ✓ *Government Tourism Common Forums formed from the relevant federal and regional executive bodies with NGOs, institutions and private sector stakeholders with interests in tourism.*

7.6. To increase the current low capacity of the tourism industry

- ✓ *Increase the capacity of major industry players with the introduction of professional standards for service providers.*
- ✓ *Establishment of tourism training and education centers to address shortcomings in human resources development.*
- ✓ *Improve the capacity state tourism institutions and systems in research, information dissemination and data collection and the creation and periodic publication of tourism satellite accounts.*

8. RECOMMENDATIONS:

1. Sustainable tourism should involve physical, economic, social, environment and marketing activities simultaneously.
2. Association of public and private sectors shall play a tremendous role in development of tourism culture
3. Constituent like finance and infrastructure should be shared.
4. Local level planning must focus on accommodation, local transport, and local attractions alongwith visitors management.

9. CONCLUSION:

Tourism is a major global economic sector and is increasingly making a contribution to national economies by creating income, taxes, hard currency, generating employment, and stimulating regional development. However, despite the positive impacts of tourism, such as economic benefits, it has significantly contributed to environmental degradation, negative social and cultural impacts and habitat fragmentation.

These undesirable side-effects have led to the growing concern for the conservation and preservation of natural resources, human well-being and the long-term economic viability of communities. Sustainable development emerged as a solution to optimise the residents' standards of living conditions by promoting local economic benefits, by protecting the environment and meeting visitors' needs to have a high-quality experience.

As a resource-dependent industry, tourism must recognise its responsibility to the environment. Tourism development that consistently ignores environmental concerns is unlikely to remain viable in the longer term. Environmental benefits include support for preservation of the landscape and a stimulus for the preservation, protection and improvement of the natural environment. In this sense, new environmental regulations have been applied to protect the environmental assets, and adopt new laws in order to control the use of the landscape and to reduce damage.

The conceptual basis for natural resource management has fundamentally changed because of shifting attitudes for addressing societal challenges and encouraging interactive activities among public-private institutions in the process of governance. Co-management is very logical as it combines the collaborative and adaptive narratives and 'orientates social-ecological systems towards sustainable trajectories'.

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Agricultural Marketing in Mizoram: A study in the Problems of Successful
Agriculture Marketing

Laldinpuia

Research Scholar, Department of Economics, Apex Professional University, Pasighat, Arunachal Pradesh
Email - elldycom@gmail.com

Abstract: A case study was conducted in Mizoram to emphasize on the production and marketing of agriculture products in Serchhip District and the District is noted in Mizoram for its good quality and successful production of agriculture crops. The study aim to analyze how agriculture contributed to the economy of Mizoram especially Serchhip District, whether the marketing system at present satisfy the farmers and makes it encourage to produce more or not, and the problems faced by the farmers and land owners in the marketing of their production and make a suggestive measures for improvement. Primary data is collected by means of giving questionnaire and personal interviews to the farmers, retailers and sellers. Secondary data has been obtained from relevant book publications and from related government departments such as Economics and Statistics Department, Agriculture Department, Horticulture Department, etc. The production and distribution of various agriculture products in Mizoram has been hindered by various problems like Transportation, Lack of Cold Storage and problems in Market intermediaries. The study reveals that there is a possibility of producing more from the farmers. From studying the agricultural marketing system of Mizoram especially Serchhip District from various angles, it can be concluded that agricultural marketing system is the major determinants of the income of the people and the growth of economy in the District depends upon the growth of agriculture and allied activities.

Key Words: Agriculture, Marketing, Farmers, Mizoram, Serchhip District.

1. INREODUCTION:

This study aims to bring problems of agriculture marketing and make recommendations to fix the problem. Mizoram is a one of the most pleasant state in North East and due to a good rainfall and monsoon, Agriculture is the main occupation of the people and marketing of its product greatly affects the state economy. The study should focus on agriculture marketing and problems in Serchhip District, Mizoram.

2. LITERATURE REVIEW:

The term agricultural marketing is to be understood from the two words, viz., agriculture and marketing. Agriculture in its broadest sense comprises of all the farm activities, which use the natural resources for human welfare. On the other hand marketing comprises of all the economic activities involved in facilitating the flow of goods and services from production Centre to consumption Centre (Sjo John, 1976). It is marketing which helps making goods useful to the society by getting them where they are wanted, when they are wanted and by transferring them to those people who want them. Marketing in this sense has defined as, “all the activities involved in the creation of place, time and possession utilities” (Sinha, 1976)

About 75% of India's poor population lives in rural areas and 80% of them depend largely on agriculture for their livelihoods (Kohl's and Richard, 1961; Mohammed *et al.* 2007). As per the Economic Survey 2018, the national economy has posted a remarkable recovery and as per the advance estimate, the GDP is expected to grow at 6.5% and in the fiscal year 2019, the survey said that the Indian economy is expected to grow between 7% and 7.5%. The Agriculture growth in Fiscal year 2018 is likely to be at 2.1%.

3. STUDY OBJECTIVES:

In Mizoram, the term agriculture and agriculture marketing is common as it is the main occupation of the people in the state. More than 70% of the total populations are depending upon agriculture and allied activities. Mizoram is a hilly area and the climate is good enough for producing agriculture and allied activities, the fertile soil of the land blessed the farmers. WRC and Jhum System are the methods mostly used for producing in Mizoram. Though Mizoram has a land of hills, there are many plain areas which are available for producing Wet Rice Cultivation. Champhai Zawl, N Vanlaiphai and Serchhip Zawlpu is the major producing areas. N Vanlaiphai and Zawlpu is located in Serchhip District and is located in the center part of Mizoram. The agriculture production in the state is increasing year by year and in 2017 the total production has reached to 130784 metric tons. The total agriculture production during the last five years is as given in table no 1& Figure 1.

Table 1 : Agriculture Production in the last 5 years

Year	Area in Ha	Production in MT
2012-2013	52420	79993
2013-2014	52768	87312
2014-2015	51033	124853
2015-2016	51957	135210
2016-2017	50512	130784

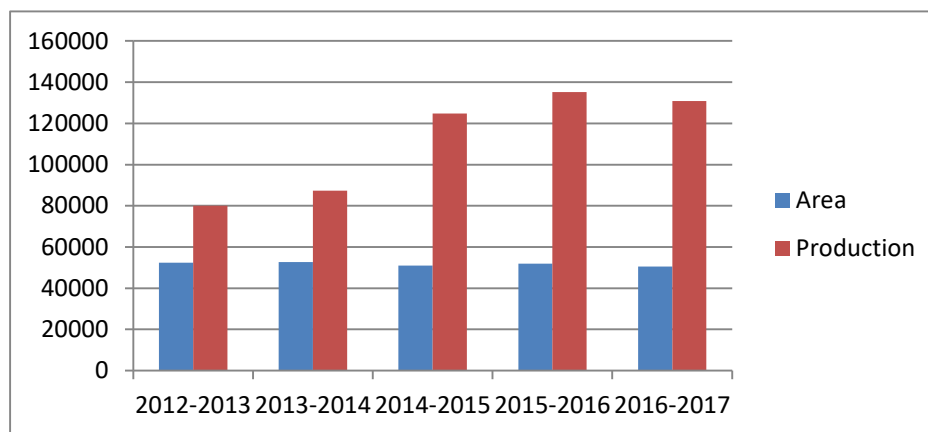


Figure 1

As per 2011 census, the total population of Mizoram is 10,97,206 and, the average requirement of rice per person per year is 1.64 Qtls. The total requirement of rice for 1 year for human consumption only is 20,55,924 Qtls and the production of rice by farmers in Mizoram is 6,15,160 Qtls in 2016-2017 FA. The data shows that the total Production of Mizoram is 29.92% only and deficiency in the production is 70.08%.

This paper emphasize the study on the common problems faced by the farmers in marketing and transporting their production and give suggestions for their improvement.

4. MATERIALS & METHODS:

The area of the study Serchhip District is located in the central part of Mizoram and in this area; agriculture is the main source of their income. Agriculture and allied crops production are one of the economic indicators in this area. The climate is pleasant throughout the year and this makes opportunity for farmers to take up both Kharif and Rabi crops.



Picture 1: Zawlpu Leilet, Serchhip

Rice, Bean, Mustard, Potato, Tomato, Reddish etc. is the major crops cultivated for commercial production and more than hundred tones are produced every year from Serchhip district and it is one of the largest agriculture crops producing areas in Mizoram.

In the study area (Serchhip District), out of the total households, 6214 families are cultivators and which was 37% of the total households in the District. There are 4 major agriculture production areas in the District – Serchhip, Thenzawl, E.Lungdar and N Vanlaiphai.

Table 2: No of cultivator families in Serchhip

Sl	Year	Total no of household	Total no of cultivator families	Percentage of cultivator families
1	2014-2015	17300	6415	37.08
2	2015-2016	17300	6260	36.18
3	2016-2017	16750	6214	37.09

The primary data were collected by means of giving semi-structural questionnaire and personal interviews with progressive farmers, retailers and sellers within the district. Secondary data were obtained through literature search. The relevant book publications and from related government departments such as Economics and Statistics Department, Agriculture Department, Horticulture Departments, etc. were cited after thorough study.



Picture 2: Zawlpui, Serchhip a view from Chuanhnuai, Paragliding site

5. DISCUSSION & ANALYSIS:

In this study, many local farmers are interviewed and analysis has been done through Government Department statistics. Questionnaire has been made to the farmers and many farmers are visited in their field.

6. FINDINGS & RESULT:

The agriculture production in the district has increasing year by year and the total production of agriculture crops in 2016-2017 FA is 27893 metric tons which is 21.32% of the total production in Mizoram.

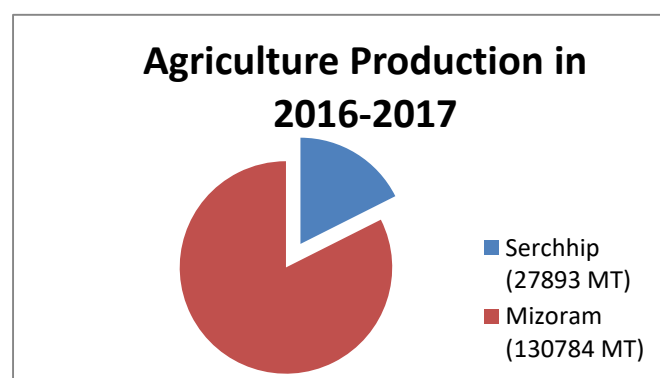


Figure N

The study revealed that many families depends on agriculture production, they prefer to work in the field rather than making other business or work in a private firm or Government Job. But the inadequacy and inefficiency in the marketing system of agriculture in the area makes a problem for them. Due to this insufficiency in the system of marketing they are making the production limit and all the available resources are not utilized. This case hinders the successful marketing and need the help from others to solve their problems.

The following are the problems faced by the farmers in agriculture marketing:

- 1) *Middleman and wholesaler:* The village middlemen and wholesale buyers play an important place in the process of assembling and marketing. The Middlemen buys from the farmers to resale in the market. In this case, the ignorance of the farmers is sometimes used to take advantage by the middlemen and in some cases the middlemen used to get high profit than the farmer. Involvement of market intermediaries such as wholesalers and retailers reduce the overall profit of the farmers.
- 2) *Post-harvest loss due to lack of proper management:* Agriculture production is transported to markets from the field by various modes such as head loads and vehicles for transportation which also increase the cost of production. Lack of post-harvest handling and proper management lead to many post-harvest loss which greatly reduce their net income. There are several factors influence post- harvest losses. Some factors which influence post-harvest losses may be physical, physio-biological, mechanical and hygienic (Talukdar and Bhowmick, 1993).
- 3) *Grading:* The own agriculture production of the district are sometimes not selected by the buyers due to lack of Grading. The buyers always select the cheaper one, the production in the district are sometimes costlier than imported from outside the state. The buyer cannot identify crops grown with organic and chemical fertilizers. So, grading and branding of the product is very important for success in the market.
- 4) *Lack of Storage:* Storage plays an important part in the production and marketing of agriculture production. Storage is required at producer level as well as at traders' level. But in the study area (Serchhip District), storage is a big problem due to lack of good storage facilities in the District. This leads to damaged and heavy loss before arriving at the market place. This condition urged farmers to sell their produce immediately after harvesting with low rate. Diamond black moth, Head borer, Aphids and leaf miner were the major insect reported by the farmers. They may even led to pre-harvest and post-harvest losses although some possible plant protection measure has been taken by them.
- 5) *Transportation:* Transportation is another problem which caused the farmers in marketing their agricultural production. A good transportation system is essential for success in agricultural marketing. The agriculture production is better to transport to the market place at the earliest so that the farmer can get the maximum benefit. But sometimes this cannot be done due to lack of proper transportation system. The roads are very bad and be available to the vehicle on a specific period (means summer). Transportation is not possible on rainy season. The government has taken several steps to improve this transportation system and many Agricultural Link roads have been constructed in the recent years. In the financial year of 2016-2017, 32 no of agricultural link road have been constructed on Serchhip District and the total length in Kilometer is 63. But it still needs to improve more and more to satisfy the farmers.



Picture 3: Agriculture Production in Serchhip (Cabbage)

7. RECOMMENDATIONS:

The risks associated with crop production, marketing, deficiencies in knowledge and information at all levels, and household-level complexities and intra household conflicts and need to be recognized as determinants of inefficiencies and inequities (Villareal, 1978; Sharma, 1984; FAO, 1989; Braun, Joachim Von. 1994). There are no proper regulations in the marketing system and the price of a commodity has not been fixed by the association as well as the government. Due to this, different price has been changed on the same commodity place to place. The study shows that trading of commodity such as faulty measures, low prices while purchasing and high prices while selling within the same market is a common practice in the region. For successful agriculture marketing, the study come up with some recommendation such as maintaining of proper grading and provision of cold storage facilities for the perishable products at the producing centers and regulated markets must be set up in the states with strict enforcement of the provisions of market regulation. The regulated markets be managed efficiently to provide all kinds of benefits to the producers, consumers and market intermediaries and same case happen in tomato marketing in Karnataka, India (Mukherjee, 1960; Talukdar and Bhowmick, 1993; Subrahmanyam and Mruthyunjaya, 1979).

8. CONCLUSION:

Agriculture is the main economic indicator of Mizoram State and, it affects most of the people. So, a good and successful marketing system of agriculture products is the basic needs of the state especially in the District of Serchhip(the study area). Though some measures and improvements have been made through various development programmes there is still remain to be done and some defective measures still practice in agricultural marketing system. There are still many gaps in agricultural marketing which need to be bridged (Ahmed, *et al.*,2007)

9. ACKNOWLEDGEMENT

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Volar Digital Flexion Crease Patterns (VDFCP):
An Anthro-forensic Study in South India

¹Sangeeta Dey, ²Anup Kumar Kapoor

¹UGC- SRF Fellow, Department of Anthropology, University of Delhi, Delhi, India

²Retired as Professor & Head, Department of Anthropology, University of Delhi, Delhi, India

Email - sangitadey29@gmail.com

Abstract: Volar digital flexion crease occurs on the palmar surface of each digit at the level of interphalangeal joints. Three digital flexion creases (distal inter-phalangeal crease, proximal inter-phalangeal crease and metacarpo-phalangeal crease) are normally found on each digit of the hand except for the thumb because of its different anatomy. The aim of the present study is to document the prevalence pattern of all the three flexion creases on the second to fifth digit in 211 male and 211 female of Reddy population from Southern Zone of India (Andhra Pradesh) using a simplified classification scheme. Digit prints were obtained from both the right and left hand of each individual. Type I pattern had the highest prevalence in distal-interphalangeal area. Type II was more frequently encountered in the proximal interphalangeal area. Digit III is characterized by the highest number of extra creases at the proximal and metacarpo-phalangeal areas. Extra + creases were highly rare characteristics and are restricted to the mid-phalangeal area of the digits. The result shows non-significant differences in the crease patterns between right and left hand, as well as between males and females. The study suggests a classification system for analyzing anthropological variability however future research in this direction is necessary and also the characteristics need to be investigated and studied thoroughly in varied population groups which ultimately aids in the advancement of science and technology.

Key Words: Volar Digital Flexion Crease Patterns, Anthro-forensic Identification, Biometrics, Reddy Population, Technological advancement

1. INTRODUCTION:

Volar Digital Flexion Creases Patterns (VDFCP) occurs on the volar surface of each finger in the vicinity of inter-phalangeal joints where the skin is attached to the underlying structures [1]. This is due to this strong attachment to the underlying structures, it provides ease for the movement of the digits, stability required for strong grasping and precision to perform innumerable patterns of actions in everyday life. Human hand contains a total of fourteen digit bones or phalanges and these phalanges correspond to the area where digital flexion crease patterns occurs [2], [3]. Each digit contains three phalanges (distal, middle and the proximal) and thus three digital flexion creases are normally observed to exist on each digit - distal inter-phalangeal crease, proximal inter-phalangeal crease and metacarpo-phalangeal crease [4], [5] except thumb because of its different anatomy as it has only two phalanges - proximal and the distal [6].

Digital flexion creases are regarded as one of the external anatomical landmarks of the hand in addition to palmar creases [6], [7]. Human hand has been utilized effectively for various identification domains such as to estimate stature from hand parameters [8 - 13], to determine sex [14- 17]. Studies also indicated that genetic factors play a crucial role in crease formation [18], [19] and flexion creases are also featured in a number of syndromes such as in Allagile syndrome [19], Sick cell anemia [20], partial deletions of chromosome 1q [21], Down's syndrome [22], [23] etc. However, few studies are available on incidence patterns of digital flexion creases. Thus, this work aims at documenting the prevalence pattern of all the flexion creases of the entire volar area of the digits except thumb using a simplified classification scheme.

2. STUDY OBJECTIVES:

The present study aims at documenting the incidence pattern of the flexion creases of the entire volar area of the digits except thumb using a simplified classification scheme.

3. MATERIALS:

The research study are based on palmar prints taken from a random sample of 211 male and 211 female of Reddy population from Southern Zone of India (Andhra Pradesh) within age group 18 – 60 years. Participants were required to fill in a questionnaire containing basic demographic profile (e.g. sex; age; ethnicity) and were given prior information regarding the research study and were assured about the confidentiality of the data they provided. They also required to sign a consent form before participating in the study. Participants without any medical history of hand, disease, injury, deformity were included to conduct the research study. Palm print was obtained from both the right and left hand as suggested by Cummins & Mildo (1926) [24]. Palmar Prints which clearly revealed the phalangeal creases were used and classified for the prevalence pattern of digital flexion crease.

4. METHOD:

The classification scheme is based on the patterns suggested by Aue-Hauser et al., 1977 [25] as depicted in Fig. 1. It can be classified in the following two ways – classification depending on the number of creases in their respective position (Type I and Type II) neglecting all additional flexion creases and classification based on only the additional creases in accordance with their usual position such as extra creases (E) and extra + creases (E+).






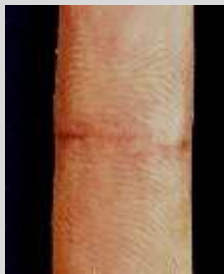







Phalanges	Classification Scheme of the Digital Flexion Creases				
	Type I		Type II	Extra (E)	Extra + (E+)
	Mono (M)	Double (D)	Triple (T)		
Distal Phalanx (DP)					
Middle Phalanx (MP)					
Proximal Phalanx (PP)					

Fig. 1. Classification Scheme of the digital flexion creases (ME – an extra crease along with mono crease, DE – an extra crease along with double crease, TE – an extra crease along with triple crease).

Type I is simplified form of digital flexion crease with small numbered crease such as mono (M) if a single crease is present at the normal site and double (D) if two creases are present at the normal site. Type II includes higher numbered complex form of digital flexion creases such as triple (T) if three or more digital flexion creases occurs at the normal site. Dejong and Platou (1967) defined extra crease for the first time as creases presents in addition with the usual interphalangeal crease and disrupts the local ridge configuration [26]. Extra creases are separated by two or more epidermal ridges. The extra+ creases is extremely rare and considered as the extreme variation of extra creases.

These creases are generally restricted to the mid-phalangeal area of the digits [6]. The volar surfaces of each phalanx of all the digits were classified except digit I (Thumb) because of its different anatomy. The flexion creases are qualitative in nature, and thus only the frequencies were computed to satisfy the objectives of the study and only those differences which are at a significance level of $\alpha = 0.01$ were regarded as significant.

5. RESULTS AND DISCUSSION:

TABLE I. Frequency Distribution of Digital Flexion Crease Pattern among Males of Reddy population

Hand	Phalanges	Type of Crease	Reddy Males (n = 211)			
			Digit II	Digit III	Digit IV	Digit V
Right Hand	Distal Phalanx (DP)	Type I (M+D)	85.31	84.36	79.62	78.67
		Type II	2.37	4.27	2.37	5.69
		E	11.37	10.90	17.06	15.64
		E ⁺	0.95	0.47	0.95	-
	Middle Phalanx (MP)	Type I (M+D)	26.07	6.16	10.43	46.45
		Type II	58.29	56.40	75.83	51.18
		E	14.69	35.07	14.22	2.37
		E ⁺	0.95	1.90	-	-
	Proximal Phalanx (PP)	Type I (M+D)	81.52	10.90	37.91	75.83
		Type II	17.54	28.44	31.28	12.32
		E	0.47	60.19	30.81	11.85
		E ⁺	0.47	0.47	-	-
Left Hand	Distal Phalanx (DP)	Type I (M+D)	80.57	82.46	81.52	79.62
		Type II	5.69	3.79	2.37	2.37
		E	12.80	12.32	15.17	17.06
		E ⁺	0.95	1.42	0.95	0.95
	Middle Phalanx (MP)	Type I (M+D)	25.59	5.21	9.00	44.55
		Type II	59.72	58.29	77.73	54.98
		E	12.80	34.60	12.80	0.00
		E ⁺	1.90	1.90	0.47	0.47
	Proximal Phalanx (PP)	Type I (M+D)	78.67	9.00	37.44	72.04
		Type II	20.85	30.33	33.65	15.17
		E	0.47	60.19	28.91	12.80
		E ⁺	-	0.47	-	-

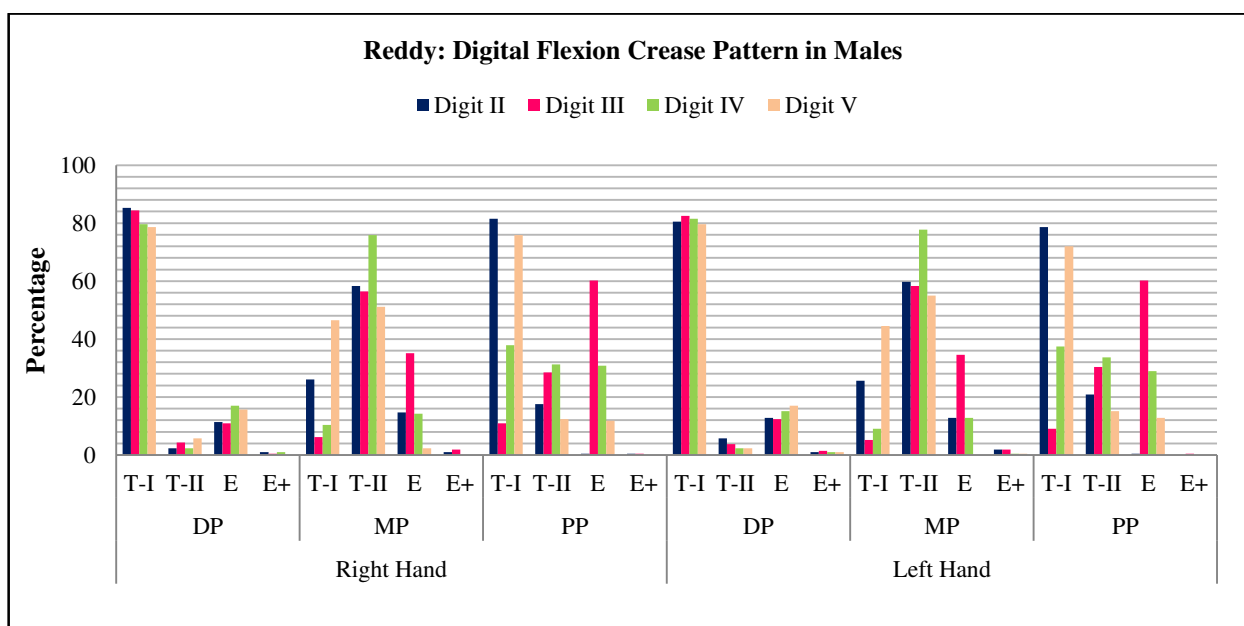


Fig. 2. Digital Flexion Crease Distribution among Males of Reddy from Andhra Pradesh

TABLE II. Frequency Distribution of Digital Flexion Crease Pattern among females of Reddy population

Hand	Phalanges	Type of Crease	Reddy Females (n = 211)			
			Digit II	Digit III	Digit IV	Digit V
Right Hand	Distal Phalanx (DP)	Type I (M+D)	80.00	81.40	77.67	73.02
		Type II	9.30	7.44	6.51	4.65
		E	10.23	10.70	15.81	21.86
		E ⁺	0.47	0.47	-	0.47
	Middle Phalanx (MP)	Type I (M+D)	25.12	5.12	10.23	45.12
		Type II	60.93	59.53	76.28	53.49
		E	13.95	34.88	13.02	1.40
		E ⁺	-	0.47	0.47	-
	Proximal Phalanx (PP)	Type I (M+D)	80.93	9.77	37.67	73.95
		Type II	17.21	31.16	35.35	13.49
		E	1.86	59.07	26.98	12.56
		E ⁺	-	-	-	-
Left Hand	Distal Phalanx (DP)	Type I (M+D)	77.67	80.93	75.81	71.16
		Type II	6.05	4.19	5.58	5.58
		E	16.28	14.42	18.60	23.26
		E ⁺	-	0.47	-	-
	Middle Phalanx (MP)	Type I (M+D)	24.19	4.65	8.84	42.79
		Type II	61.40	60.93	79.53	56.28
		E	13.95	33.49	11.63	0.93
		E ⁺	0.47	0.93	-	-
	Proximal Phalanx (PP)	Type I (M+D)	77.67	7.91	35.35	70.23
		Type II	20.00	35.81	39.07	15.35
		E	2.33	56.28	25.58	14.42
		E ⁺	-	-	-	-

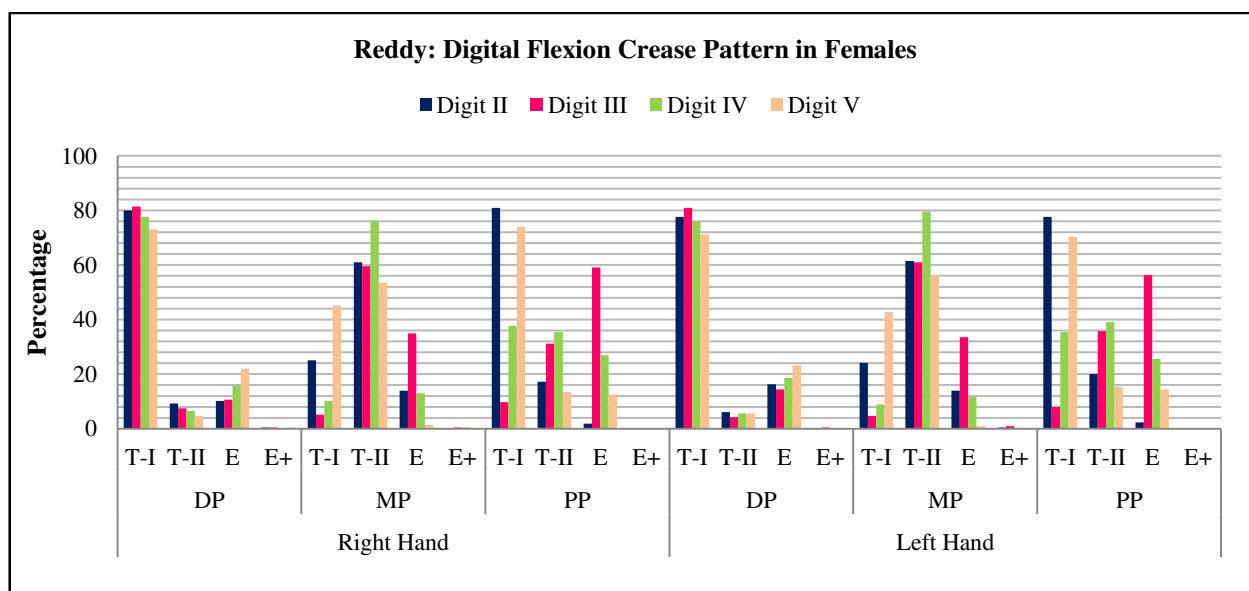


Fig. 3. Digital Flexion Crease Distribution among Females of Reddy Population

The frequency distribution of crease patterns for all the phalanges of 211 male and 211 female of Reddy population are depicted in TABLE I and TABLE II respectively for both the right and left hand.

Type I pattern or small number of creases such as mono and double creases had the highest frequency in the distal phalanx of the four digits and the proximal phalanx of the second and fifth digit for both right and left hand.

Type II or higher number of creases with triple and more number of creases occurs most frequently in the proximal interphalangeal area. The occurrence of triple creases is minimal in the distal as well as in the proximal phalanx.

Extra creases are most frequently encountered in Digit III followed by digit IV then digit II and lastly digit V. The occurrence of extra creases is maximum at the proximal and metacarpo-phalangeal areas. Similar results were indicated among Japanese by Aue-Hauser et al (1980) [2]. A comparison of the creases patterns between right and left hand reveals that there is no significant difference with respect to right and left hand or handedness. However mono and double creases tend to be more frequent in right than left hand while triple creases are encountered more in left as compare to right hand. The difference observed between the sexes as depicted in TABLE I and TABLE II was also statistically non-significant. Although, there is a uniform tendency that males have more low numbered creases than females however there is a predominance of high numbered and extra creases among females. Extra+ creases shows higher incidence among males.

The typical patterns of volar digital flexion creases in particular digits of the right as well as left hand can be best seen in Fig. 2 for males and Fig. 3 for females. The incidence of extra + creases are extremely rare and generally restricted to the mid-phalangeal area of the digits. It has been deduced that E+ occurs mostly in the middle phalanges followed by distal phalanges and then proximal phalanges and with respect to digits, it shows a tendency to occur in the order of digit III > digit II > IV > V.

6. CONCLUSION:

This research study reports the incidence pattern of volar digital flexion crease among Reddy population of Andhra Pradesh. It can be concluded that volar digital flexion creases in humans can be classified and exhibit anthropological variability among different population groups. It can be utilized in cases of global humanitarian, medicolegal missions and criminal authentication to conceal forensic identification of unknown criminals or suspects. However, the characteristic need to be investigated and studied thoroughly in varied population groups and further research remain absolutely necessary in this direction so that the exact reason for the incidence and occurrence of digital flexion creases may be known in different ethnic groups which ultimately aids in advancement in science and technology.

7. ACKNOWLEDGEMENT :

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Identification of active principle from the leaf extracts of *Melia Azedarach* L., *Andrographis Paniculata* and *Azadirachta indica* through bioinformatics tools

¹Dr. S. Sivakumar, ²S. Vijayalakshmi,

¹Associate Professor, Department of Biochemistry, Sri Sankara Arts and Science College (Autonomous), Enathur, Kanchipuram, India.

²Project Student, Department of Biochemistry, Sri Sankara Arts and Science College (Autonomous), Enathur, Kanchipuram, India.

Email - sivabio@gmail.com

Abstract: Medicinal plants are nature's gift to human beings for leading healthy life. Bioinformatics is the convergent field of biology and computer science. Researchers in scientific disciplines are finding difficulty to identify the active principle of medicinal plants which are the need of the hour for the development of side effect free chemotherapy. In the present study, biochemical and bioinformatics tools were utilized to identify the active principle in the leaf extracts of *Melia Azedarach* L., *Andrographis Paniculata* and *Azadirachta indica*. The GC-MS analysis of leaf extracts of *Melia Azedarach* L., *Andrographis Paniculata* and *Azadirachta indica* reported eleven novel natural compounds. The chemical structures of these eleven compounds were retrieved from PubChem database. With the help of molecular docking studies along with known drugs and disease targets, one active principle was identified. The final result was also supported by the molinspiration tool and Lipinski's rule of five. The identified active principle is 3-Cyclohexen-4-ol-1-one, 3-tridecanoyl from *Andrographis paniculata*.

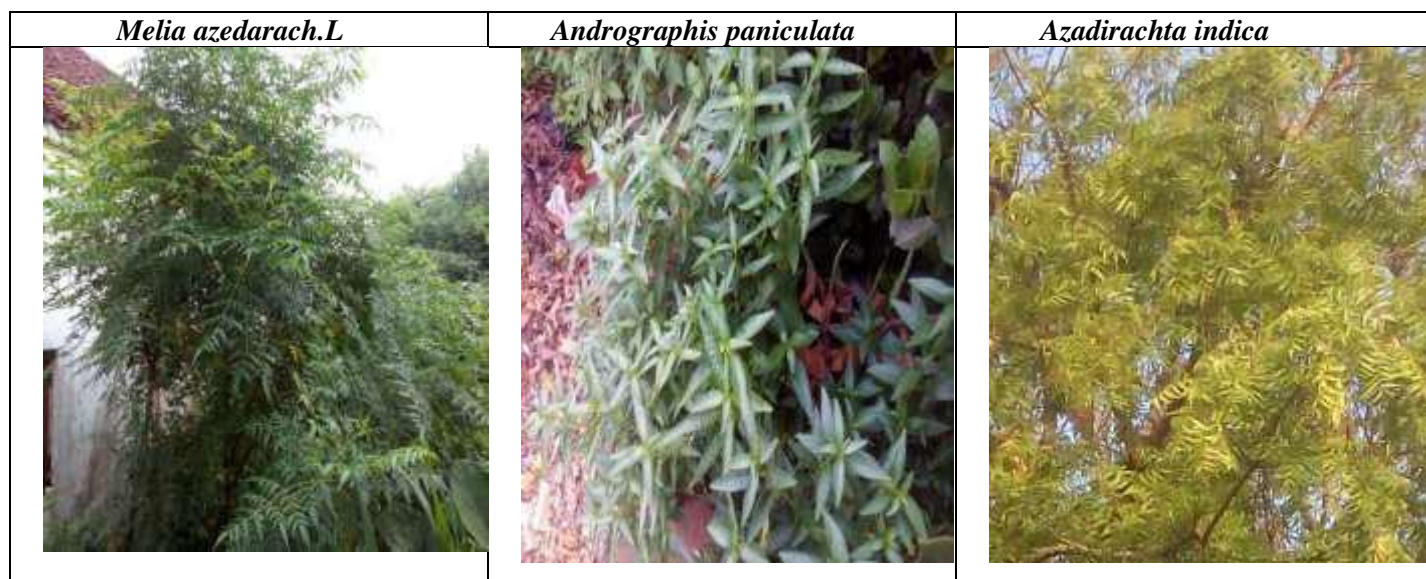
Key Words: *Melia Azedarach* L., *Andrographis Paniculata*, *Azadirachta indica*, GC-MS, Molinspiration.

1. INTRODUCTION:

Medicinal plants are rich source of novel drugs that forms the ingredients in traditional systems of medicine, modern medicines, food supplements, folk medicines, pharmaceutical intermediates, bioactive principles and lead compounds in synthetic drugs. Medicinal plants are part and parcel of human society to combat diseases, from the dawn of civilization. *Melia Azedarach* L., *Andrographis Paniculata* and *Azadirachta indica*, are few important medicinal plants used in traditional treatment methods.

2. LITERATURE REVIEW:

Medicinal plants have been used to cure many number of diseases. Though the recovery is slow, the therapeutic use of medicinal plant is becoming popular because of its inability to cause side effects. Plants have been used in traditional medicine for several thousand years. Since time immemorial, men has been using plant extract to protect himself against several diseases and also to improve his health and life style.



TAXONOMY

<i>Melia azedarach.L</i>	<i>Andrographis paniculata</i>	<i>Azadirachta indica</i>
Kingdom: Plantae	Kingdom: Plantae	Kingdom: Plantae
Division: Magnoliophyta	Division: Angiospermae	Division: Tracheophyta
Class: Magnoliopsida	Class: Dicotyledoneae	Class: Magnoliopsida
Order: Sapindales	Order: Tubiflorae	Order: Rutales
Family: Meliaceae	Family: Acanthaceae	Family: Meliaceae
Genus: Melia	Genus: Andrographis	Genus: Azadirachta
Species: M. azedarach	Species: Paniculata Nees	Species: Indica

3. STUDY OBJECTIVES:

In the present scenario, the need for basic scientific investigation on medicinal plants used in the indigenous system becomes imminent. Three medicinal plants are selected for the present study namely *Melia azedarach*, *Andrographis paniculata* and *Azadirachta indica*. Neem is an important aromatic herb, which is routinely grown as traditional medicinal herbs in India. The leaves of this plant are traditionally used for the treatments of leprosy, skin problems, skin ulcer intensive warms, anorexia, eye problem, epistaxis and biliousness. *Melia azedarach* commonly called as chinnaberry and kattu vembu (tamil) and it occurs in several parts of India. The leaves of the plant mainly used in leprosy, scrotula, antihelmintic, antilithic, diuretic, and resolvent. *Andrographis paniculata* has been used for centuries to successfully treat respiratory diseases, skin, infections, herpes, dysentery, fever, sore throat, and lower urinary tract infections.

4. MATERIALS:

Leaves were collected from the *Melia azedarach* L, *Andrographis paniculata* and *Azadirachta indica*, in the place of Mamandur village, Thiruvannamali District, Tamilnadu. It was ensured that the plant and trees were healthy and uninfected. The leaves were washed under running tap water to eliminate dust and other foreign particles and to clean the leaves thoroughly and dried. The leaves were identified and authorized by Miss V.Jeevitha, PG Assistant in Botany, Government Higher Secondary School, Mamandur, Thiruvannamali District, Tamilnadu.

5. METHOD:

About 20grams of the plant sample powdered were soaked in 100ml ethanol individually. It was left for 24hours so that alkaloids, flavonoids and other constituents if present will get dissolved. The ethanol extract was filtered using Whatman No.1 filter paper and the residue was removed. It was again filtered through sodium

sulphate in order to remove the traces of moisture and subjected to GC-MS spectrum Analysis. The structure derived from GC-MS analysis, were used for molecular structure in PubChem database. List of targets and drugs retrieved from drugbank database. Protein structure for the targets predicted from CPH model. All the targets and drugs were docked using PatchDock online tool [1]. To identify best drug, molecular properties of the drugs were determined using molinspiration tool [2]. By using Lipinski's Rule of Five, best drug is determined.

6. RESULTS AND DISCUSSION:

Plants have been an important source of medicine with qualities for thousands of years. Mainly on traditional remedies such as herbs for their history it has been used as a popular folk medicine. Cassia italica has medicinal values; methanol leaf extract of this plant was analyzed using Gas Chromatography-Mass Spectrometry, while the mass spectra of the compounds found in the extract was matched with the National Institute of Standards and Technology (NIST) library [3]. The retention time, compound name and peak area of GC-MS analysis of *Melia azedarach* leaves were represented in table-1. There are seven chemical compounds were identified through GC-MS analysis of *Melia azedarach* leaves.

The retention time, compound name and peak area of GC-MS analysis of *Andrographis paniculata* leaves were represented in table - 2. There are six chemical compounds were identified through GC-MS analysis of *Andrographis paniculata* leaves.

The retention time, compound name and peak area of GC-MS analysis of *Azadirachta indica* leaves were represented in table - 3. There are seven chemical compounds were identified through GC-MS analysis of *Azadirachta indica* leaves.

Table - 1: Table for GC-MS analysis of leaves extracts of M. azedarach L.

Peak No.	RT (Min.)	Compound Name	Peak Area	Peak Area (%)
1	15.2	3-Isopropyl-6,7-trimethy;cyclo[4.4.0.0[2,8]]decane-9,10-diol	4142944	6.40
2	15.86	3a,9-Dimethyldodecahydrocyclohepta[d]inden-3-one	8615360	13.31
3	16.53	4-Hexen-1-ol,6-[2,6,6-trimethyl-1-cyclohexenyl]-4-methyl-,[E]-	11175808	17.27
4	16.93	Naphthalene, decahydro-1,1,4a-trimethyl-6-methylene-5-(3-methylene-4-pentenyl)-, [4aS-(4a α ,5 α ,8a β)]	13920304	21.51
5	17.04	Bicyclo[9.3.1]pentadeca-3,7-dien-12-ol,4,8,12,15,15-pentamethyl-, (1R,3E,7E,11R,12R)-	8000976	12.36
6	17.61	c-Himachalene	13409344	20.72
7	18.45	3-Oxatricyclo[20.8.0.0(7,16)]triaconta-1(22),7(16),9,13,23,29-hexaene	5456864	8.43
		Total	64721600	100.00

Table - 2: Table for GC-MS analysis of leaves extracts of A. paniculata

Peak No.	RT (Min.)	Compound Name	Peak Area	Peak Area (%)
1	11.58	3-Cyclohexen-4-ol-1-one, 3-tridecanoyl-	20168064	44.77
2	15.36	Methyl-7-methylhexadecanoate	7191264	15.96
3	17.36	Nor-diazepam, 3[[N-hydroymethyl]aminocarbonyloxy]-	6418400	14.25
4	20.14	Propanoic acid, 2	5445888	12.09
5	24.18	5H-Cyclopropa[3,4]benz[1,2-e]azulen-5-one,2,9,9a-tris(acetyloxy)-3-[(acetyloxy)methyl]-1,1a,1b,2,4a,7a,7b,8,9,9a-decahydro-4a,7b-dihydroxy-1,1,6,8-tetramethyl-, [1aR-(1aa,1bb,2b,4ab,7aa,7ba,8a,9b,9aa)]-(9CI)	3210768	7.13
6	27.41	Phorbol 12,13-dihexanoate	2618720	5.81
		Total	45053104	100.00

Table - 3: Table for GC-MS analysis of leaves extracts of *A. indica*

Peak No.	RT (Min.)	Compound Name	Peak Area	Peak Area (%)
1	5.7	Formyl colchicine	2444336	8.13
2	5.91	2,3,5,6,7,8,9,10-Octahydro-1-phenyl[p-bromophenylimino]-1-H-cyclohepta[e][1,4]thiazepine	2941824	9.79
3	6.57	Benzeneacetonitrile,a[[4(dimethylamino)-2,5-dimethoxyphenyl]methylene]-4-nitro-	3249808	10.81
4	7.31	Yohimban-16-carboxylic acid, 17-hydroxy-,methyl ester,[16a,17a]-	4451616	14.81
5	7.97	Quinazolin-4[3H]-one, 3-[3-methoxyphenyl]-2-[2-phenylethenyl]-	5196544	17.29
6	8.34	3b-Vincamine	5769584	19.19
7	8.68	4,8-Diformyl-N-acetylcolchicinol methyl ester	6006016	19.98
		Total	30059728	100.00

Figure-1: Docked complex of Acetylcholinesterase and rampril from PatchDock Server



Pyridoxine, Mebendazole, Phosphatidylserine, Vinblastine, Griseotulvin, Vitamine E, Ramipril and Phenelzine are the drugs retrieved from PubChem database. List of targets retrieved from drugbank are Pyridoxal kinase, Glutamic decarboxylase, acetyl cholinesterase, protein kinase c delta, Protein kinase c eta, Tubulin alpha -1a chain, tubulin beta chain and tubulin delta receptor. The field of molecular docking has emerged during last three decades and now is becoming the integral part in drug discovery and development area [4]. From the docked scores, vinblastine and ramipril were selected because of high score 6648 and 6086 respectively for molinspiration study through which best drug will be selected for suitable target. The docked complex of acetylcholinesterase with rampril is shown in figure-1.

Molinspiration results were represented in table-4.

Table-4: Molinspiration results of drugs

Sl. No.	Compound name	MillogP	TPSA	natoms	Mw	Non	noHNH	nviolations
1.	Pyridoxine	-0.55	73.58	12	169.18	4	3	0
2.	Mebendazole	2.89	84.09	22	295.30	6	2	0
3.	Phosphatidylserine	-2.65	171.70	25	385.31	11	4	1
4.	Vinblastine	5.56	154.11	59	810.99	13	3	3
5.	Griseotulvin	1.57	71.08	24	352.77	6	0	0
6.	Vitamine E	9.04	29.46	31	430.72	2	1	1
7.	Ramipril	2.40	95.94	30	416.52	7	2	0
8.	Phenelzine	0.45	38.05	10	136.20	2	3	0

From the molinspiration results, according to Lipinski's rule of five, Ramipril drug found to obey all the four conditions. Thus, it is selected as best drug and the compound similar to Ramipril from the plant extract is 3-Cyclohexen-4-ol-1-one, 3-tridecanoyl from *Andrographis paniculata*.

7. CONCLUSION:

Ramipril is a prodrug belonging to the angiotensin-converting enzyme (ACE) inhibitor class of medications. It is metabolized to ramiprilat in the liver and, to a lesser extent, kidneys. Ramipril is a potent, competitive inhibitor of ACE, the enzyme responsible for the conversion of angiotensin I (ATI) to angiotensin II (ATII). ATII regulates blood pressure and is a key component of the renin-angiotensin-aldosterone system (RAAS). The 3-Cyclohexen-4-ol-1-one, 3-tridecanoyl is the best active principle to treat the disease hypertension, congestive heart failure, nephropathy, and to reduce the rate of death, myocardial infarction and stroke in individuals at high risk of cardiovascular events since it is similar to Rampril. The practical usage of this plant extract is possible only after the confirmation through wet lab studies and clinical trials.

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Effect of Socio- Psychological factors on Academic Achievement of
Scheduled Tribe Students : A case study

Sonali Chakraborty Kumbang

Research Scholar, Assam Don Bosco University,
Guwahati, Assam, India

Abstract: *Academic achievement has always been a crucial point and main centre of educational research despite varied statement about the aim of education. The justification of measuring academic achievement is based on the fundamental assumptions of psychology that there is differences within the individual from time to time, place to place, situation to situation, one class to other class. When the school climate is unfavorable, its psychological sickness spills over to teachers and make them dissatisfied and affect their work behavior. National Sample Survey revealed that school-related factors are responsible for at least 22-25 percent of non-participation of children in primary schooling. In India, the Gross Enrolment Ratio (GER) for the secondary stage is only 48%, while the figure for China is as high as 69%. Further, education has not reached evenly among the sub-castes/ tribes.*

This paper examines the cause of low academic achievement in scheduled tribe children who are lagging behind others in spite of various special incentives and facilities provided by the Govt. Necessary data for the study has been collected from the secondary schools of Dhemaji district which has a dominant portion of scheduled tribe population. The problem under investigation focuses on the influence of personality traits, family factors, socio-economic status and school factors on the selected sample. In spite of all facilities, there are drawbacks and limitations at the developmental process, implementing and proper management of it. As such an in depth study in this regard is likely to highlight many factors related with educational backwardness of Scheduled Tribe students.

Key Words: *academic achievement, psychological sickness, scheduled tribe, socio-economic status.*

1. INTRODUCTION:

Academic achievement represents performance outcomes that indicate the extent to which a person has accomplished specific goals that were the focus of activities in instructional environments, specifically in school, college, and university. School systems mostly define cognitive goals that either apply across multiple subject areas or include the acquisition of knowledge and understanding in a specific intellectual domain.

Academic achievement has always been a crucial point and main centre of educational research despite varied statement about the aim of education. Not that other aspect of educational objectives are to be gained but the fact remains that academic achievement is the unique responsibility of all educational institutions established by the society to promote a wholesome scholastic development of pupil. Academic achievement of an individual is so far considered to be influential partly by his ability to adjust to his environment, and partly by his special abilities, intelligence and aptitude which are integral part of his personality and partly by the intensity of drives and motives which serve as the impelling force for his activities. In refers to the degree of level of success and that of proficiency attained in some specific area concerning scholastic and academic work. In view of authors such as Goods (1953). Biswal and Aggarwal(1971) there seems to be considerable similarities in as much as all of them place emphasis on knowledge attained or skill developed in academic subjects and usually originated by test scores.

The justification of measuring academic achievement is based on the fundamental assumptions of psychology that there are differences within individual from time to time, place to place, situation to situation, to situation to situation, one class to other class. Besides there are individual differences and also individual of same age group, and of same potential ability, usually differ in their academic proficiency whether measured by Standardized Achievement Tests or by teachers' grading or by marks obtained in tests or examinations. In many studies, performance in various courses, such as mathematics, reading and other areas has been linked with yet another aspect of performance in the classroom verbal behavior of high achieving and low achieving children. It is generally assumed that the students who

showed better or higher performance in the starting classes of their studies also performed better in future academic years. From the last two decades it has been noticed significantly that there is great addition in research literature and review material relating to indicators of academic achievement with much emphasis on this dialogue, whether traditional achievement measures of academic performance are best determinants of future academic gain at university or higher level or innovative measures.

Among many research studies conducted on academic achievement, it is not very surprising to observe that socio-economic status is one of the main elements studied while predicting academic performance. Considine and Zappala (2002) observed that children from those families having low income make known more subsequent models in terms of learning outcomes, low literacy level, low retention rate, problems in school behavior, and mostly display negative attitude towards studies and school. It is also assumed that children's learning outcome and educational performance are strongly affected by the standard and type of educational institution in which students get their education. There are many factors which influence the problem of the child's academic backwardness and they depend on the physical, genetic, psychological, social, economic and other fields. Academic backward children are the children who require specific approach towards education and the students are able to improve their knowledge on the issues and study the problem from all sides. It is found that a peaceful home environment, quality of maternal care, relationship between the parents, the extent to which reading books is a habit among the family members all play a significant role in a child's academic achievement.

2. REVIEW OF LITERATURE:

Srivastava (1969) studied reading ability of four groups of 150 boys each representing four categories (under, over, low and high achievers) and found that in comparison with high achievers, under achievers and slow readers as their comprehension are related, lack the capacity to derive much meaning from what they read and found that under achievers had a poor stock of words and consequently lacked the power of expression.

Rao (1970) found out that factors of intelligence, socio-economic status, study habits etc. with the scholastic achievement relates more strongly to their intellectual level than to any other characteristics. There was a negative but low correlation between study habits and scholastic achievement, but a substantial positive correlation between socio-economic status and intelligence.

Nagpal's (1979) study revealed that academic adjustment was an important factor of over or under achievement. Under achievers reported a greater number of emotional problems typical to youth. Non-intellectual factors related to acquisition of knowledge resulted in over and under achievement.

John and Abraham (1981) in their study identified the non-intellectual variables which discriminate between achievers and under achievers as optimism-pessimism, goal perception, delayed gratification, self-effort, attitude towards teachers and attitude towards academic work.

Kumar (1983) in his study about educational experience of scheduled castes and tribes, found that a kind of double administration by the welfare officers of the SC and ST department and the inspectorate of schools has ruined these schools, no one is bothered about teacher absenteeism, lack of mid-day meals and the absence of facilities.

Mohapatra (1983) in his study about school climate in the secondary school of selected tribal districts of Orissa found that the Orissa government's task force on education set up to prepare its Vision-2020 document, presents a gloomy picture of prevailing conditions in tribal-dominated areas of Orissa.

Jha (1988) found discrepancies mainly in general conceptions and socio-psychological factors among the four responding groups. He found that teachers and parents seemed to have a different conception of under achievement in gifted youngsters. They tended to overlook the importance of peer relationship, psychological environment and social environment in children's achievement.

Ambedkar Research Institute (1991) conducting various survey and studies on socio-economic status of SC/ST, research in specific and general areas to undertake ethnographic and anthropological studies on castes and sub-castes pertaining to reservation policy, undertake evaluation study to assist the research scholars (M.Phil/Ph.D) and also to examine the impact of Government welfare schemes implemented by both Central and State Government. These studies are necessarily only for planning and designing but also on overall development of these communities on different period of time.

NCERT (2002) in its project sponsored by UNICEF studied the educational problems of tribal children, aims at mapping the existing provisions for primary education in the tribal areas as well as their utilization by the recipient population. It has been carried out in seven DPEP States viz. Assam, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Orissa and Tamil Nadu. The aspect studied include educational infrastructure and facilities available, status of teachers in tribal areas, status of curriculum and teaching learning materials, use of tribal language, status of school enrolment, school drop-out, monitoring, evaluation and community participation.

Govt. of India Annual Report (2001-02) focuses on plight of education of minority community and states that the percentage of SC/ST student enrollment in all classes are increasing but, there are drawbacks/limitations at the developmental process- in the level of policy making, implementing and proper management of it. However, majority of tribal population are still far away from educational accessibility due to poverty and backwardness, social

discrimination and exploitation, lack of awareness, lack of political will, faulty education system, absence of realistic approach and non-implementation of education of education policies for the progress of tribal communities.

Different researches regarding scholastic backwardness in general have taken up various studies. However, a comprehensive, yet concise research work focusing those closely related socio-psychological variables in low academic achievement could not be located even in the world research scenario. Hence, much work needs to be done with reference to each variable and its interaction with each other, as suggested by the theories as well as the empirical findings of the earlier researchers. This study aims at a new perspective, with an earnest attempt to satisfy the need of presenting an epidemiology of the condition, and the factors related to it. Hope the findings of the study would equip the professionals with the information about the required strategies in alleviating the condition of low achievement. Conclusively, this is a study, which is in its nascent stage but could be of use to various others who are related to the condition of low academic achievement.

3. STATEMENT OF THE PROBLEM:

The problem under investigation focuses on the influence of personality traits, family factors, academic achievement, socio-economic status and school factors on academic low achievement of scheduled tribe children. Hence, the study is entitled,

“Effect of Socio-Psychological factors on Academic Achievement of Scheduled Tribe Students: A case study”

4. OBJECTIVES OF THE STUDY:

Following are the major objectives of the present investigation.

- To compare each of the Psychological and Social variables of Under Achievers and Normal Achievers in various school subjects studied in secondary level.
- To obtain a reasonably dependable and generalizable perspective of the problem under investigation.
- To test mental ability and achievement level of Scheduled Tribe students of the study area.
- To find out the discrepancy between potential and actual achievement of the Scheduled Tribe children of the selected study area.
- To find out the discrepancy between intelligence test scores and achievement test scores.

5. HYPOTHESIS:

The study has been designed around the major hypothesis that each of the independent variables selected for the study will significantly discriminate between underachievers and normal achievers performance in various school subjects studied in the Secondary Level.

Selection of Variables (Independent and Dependent Variables)

Following Psychological and Social variables have been used as **Independent Variables**.

Personality traits which consists of 3 basic Gunas i.e. Enlightened (Sattawic), Dynamic(Rajasic), and Lethargic (Tamsic), each and every person is a combination of these three gunas.

Emotional intelligence which consists of - Emotional stability, Self-motivation, Empathy, Self-awareness, Managing relations, Integrity, Self-development, Value orientation, Commitment, Altruistic behaviour.

Socio-Economic Status which consists of – Socio-Cultural Component, Economic Component, Possession of Goods and Services, Health Component and Educational Component.

Dependent Variables –

The following variables are used for the purpose of classification of students into different categories namely –

- (a) Schedule Tribe Children and Children of General Categories.
- (b) Achievement in English, Mathematics and Science subjects studied at secondary level.

6. METHODOLOGY:

Methodology is the plan, structure, and strategy of investigation conceived as to obtain answers to research questions and to control variance. Sociologists draw on a variety of both qualitative and quantitative research methods, which enables the researcher to control unwanted variance.

Secondary education is in most countries the phase in the education continuum responsible for the development of the young during their adolescence, the most rapid phase of their physical, mental and emotional growth. Here, the present study aimed at studying the effect of Socio-Psychological variables on educational achievement of Scheduled Tribe children at the secondary level. The problem under investigation focuses on the influence of personality traits, socio-economic status, family factors, academic achievement of tribal students.

For collection of relevant data for the study the investigator used a variety of psychological tests, such as –

- 1) **Socio-Economic Status Scale (Urban and Rural)** developed by Dr. Ashok K. Kalia, Professor of Education, Maharshi Dayanand University, ROHTAK (Haryana) and Dr. Sudhir Sahu, Assistant Professor, Vikramaditya College of Education, Morkheri, ROHTAK(Haryana).
- 2) **Personality Assessment Profile (PAP-DPD)** developed by Dr. Upinder Dhar, Vice-Chancellor, JK Lakshmipat University, JAIPUR(Rajasthan) and Dr.Sapna Parshar, Assistant Professor, Institute of Management, Nirma University, AHMEDABAD(Gujrat) and Dr. Santosh Dhar, Professor, JK Lakshmipat University, JAIPUR(Rajasthan).
- 3) **Emotional Intelligence Scale (EIS-HPD)** developed by Dr. Anukool Hyde, Assistant Professor, Shri Vaishnav Institute of Management, INDORE(M.P.) and Sanjoy Pethe, Lecturer, Nirma Institute of Management, AHMEDABAD(Gujrat) and Dr. Upinder Dhar, Vice-Chancellor, JK Lakshmipat University.

All the above mentioned psychological tests were applied on the randomly selected sample of population covering five different secondary schools in Dhemaaji district which has a large population of schedule tribe people. The investigator also used a **School Schedule Questionnaire** which contains detailed information about the particular secondary schools visited for collection of primary sources of data.

The secondary data are related to infrastructural bases of tribal schools from the official website of SSA and also from the Office of the District Inspector of Schools in Dhemaaji district.

Administration of the tools:

On the selected sample, the investigator applied the four types of questionnaire one by one in a single sitting in the respective schools. Here, the Socio-Economic Status Scale (SESS) having 40 questions, Personality Assessment Profile having 95 questions divided into three parts, Emotional Intelligence Scale having 34 questions and Questionnaire on skills in Maths, Science and English containing 30 questions. It was observed that maximum number of students responded to all the questions without the effect of mental fatigue.

7. RESULTS AND DISCUSSION:

From the collected responses of the sample population, following results and findings were available —

Socio-Economic State Scale (SESS-UR)

The purpose of this scale is to measure socio-economic- states of the family. The scale is composed of 40 statements on different dimensions of socio-economic position.

Sl.No	Name of the School	Component scores				
		I	II	III	IV	V
1	Kerokoni Adarsha High School	5	5	4	4	3
2	Lalung Tinali High School	6	4	5	3	4
3	Surjyadoi Adarsha High School	7	3	4	3	4
4	Nilakh High School	6	3	3	4	3
5	Sissimukh High School	5	3	3	3	3

Here →I → related to family type, parents

II→ Income source,

III→Materials and land resource

IV→health status

V→type of schooling, occupation of parents

Personality Assessment Profile (PAP)

Here questions are presented with a list of certain attributes in three sections, which are to be answered against five alternatives.

Sl.No	Name of the School	Attributes of Personality		
		Sattwa Guna total 32	Rojo Guna total 27	Tamo Guna total 37
1	Kerokoni Adarsha High School	26	23	31
2	Lalung Tinali High School	22	21	30
3	Surjyadoi Adarsha High School	28	25	30
4	Nilakh High School	29	25	32
5	Sissimukh High School	25	23	30

Emotional Intelligence Scale (EIS)

Here some statements are given which are to be answered against five alternatives.

Question are related to the mental state and opinion.

Sl.No	Name of the School	Strongly Agree	Agree	Un certain	Disagree	Strongly Disagree
1	Kerokoni Adarsha High School	8	10	02	12	14
2	Lalung Tinali High School	10	8	04	14	11
3	Surjyadoi Adarsha High School	12	8	04	11	12
4	Nilakh High School	8	12	16	12	10
5	Sissimukh High School	11	10	02	11	14

School Questionnaires on skills in Maths, Science and English

Scoring Table

Sl.No	Name of the School	Part A Maths 10 Questions	Part B English 10 Questions	Part – c Science 10 Questions
1	Kerokoni Adarsha High School	6	5	7
2	Lalung Tinali High School	7	6	6
3	Surjyadoi Adarsha High School	5	4	5
4	Nilakh High School	4	4	5
5	Sissimukh High School	5	6	5

Part A → It measures the performance of basic arithmetic operations and solve problems that involve fundamental concepts on arithmetic.

Part B → The questions of this tests are of two main type –(a) Sentence Correction,
(b) Construction skill in writing

Part C → Questions are related to life science, physical science, technology, and computer.

All the above mentioned result table shows that there is variation in response to all the questionnaires applied on the sample population. Again, among the different sample schools selected for the study, response in one questionnaire was very good but same sample of students performed not so well in another type of questionnaire and in some questions the student replied “uncertain”. Regarding performance in school subjects, the investigator found good response in Science and Maths but poor response in English.

8. CONCLUSION:

Academic achievement is an index as well as an affair that has its roots from nervous system to neighborhood and only a thorough and comprehensive assessment would be able to point out the detrimental factors that are responsible for the dilemma of academic low achievement. Hence, all possible care has been taken to be sensitive to investigate all the needed information, so as to give a consolation to the inner cry of many, who are associated with this silent childhood disability. In India, one of the major problems presented in schools by teachers and in the clinics by parents is, that 39% of the normal and 44% of the disturbed, 12 to 16 years old are reported to have scholastic backwardness. From the present investigation, collected responses for the sample population also supports this fact. This study aims at a new perspective, with an earnest attempt to satisfy the need of presenting an epidemiology of the condition, and the factors related to it. Hope the findings of the study would equip the professionals with the information about the required strategies in alleviating the condition of low achievement.

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CONCEPT GRAPH INSPIRED KEYWORD EXTRACTION USING GRAPH CLUSTERING

¹ Vijay Chetry, ² Sourish Dhar

¹ Assistant Professor, Computer Science, Pune Institute of Business Management, Guwahati, India

² Assistant Professor, Computer Science and Engineering, Assam University, Silchar, India

Email – ¹vijay.chetry@pibm.in, ²dharsourish@gmail.com

Abstract: Keywords of a document are key elements that are used to effectively find and describe a document in a search process.

This paper describes a hybrid approach for extracting keywords from a single text document. It identifies candidate keywords using lexical analysis method. The approach uses the notion of conceptual graph which is a graphical representation of knowledge and is used to represent the lexical relation of words (tokens) of the document. A graph clustering is performed using WS4J (WordNet Similarity for Java) to find similar meaning of the source nodes of the graphs and to cluster those graphs that satisfies the similarity criteria. The final set of keywords is selected based on some statistical features TF-ICF (similar to TF-IDF but on a single document) of the candidate keywords. We use single document for extracting keywords and evaluate its effectiveness in terms of match with the author assigned keywords for that document. The result of its effectiveness is measured in terms of “precision and recall” as well as web search accuracy.

Key Words: keyword extraction; wordnet; conceptual graph; clustering.

1. INTRODUCTION:

The internet is a huge collection of entertainment, research and much more varying information. Now a day's people need to be more precise about what to fetch rather than going through the bulk of irrelevant results. Keywords make this process easy for users to find their intentional result.¹⁷

Keywords are the most important and the smallest unit of bag of words¹⁶ that are sufficient enough to briefly summarize and describes the content^{1, 3, 10, 15, 19}. It can be used to represent a document uniquely in a large repository. Keyword extraction is a method which tries to identify these keywords from a source using different feature calculations^{5, 7}. Web search engines uses these methods to find key terms from the user queries to make the search effective^{11, 17}. Keywords must have some properties to make them effective such as; the keywords extracted must be good enough

h to represent the entire document in a collection, the number of keywords must not be too many or too less, the keywords extracted must provide accuracy and efficiency¹⁵.

2. LITERATURE REVIEW:

Formerly, keyword extraction from documents was done manually because the size of the document collection was less which is known as manually assigned keywords. Gradually the size and availability of documents increases electronically and the task of extracting keywords became complex², as such effective automatic keyword extraction system came into existence that can extract keywords which can match the author assigned keywords^{8, 13}. The comparison of automatic keyword extraction is done with manually assigned keywords because it is believed that author assigned keywords are most effective and describes the theme of the document. Several approaches have been proposed for extracting keywords from documents. The existing methods can be broadly classified into four categories, they are,

A. Simple statistics method:

In this method the static features of the document are considered such as, term frequencies, term co-occurrence frequency, etc.

B. Linguistic method:

This method tries to find the keywords using the linguistic features of the documents by analyzing the lexical and semantic nature of the document contents.

C. Machine learning method:

This method trains its system and tries to find the keywords based on the trained features. It is basically a learn and extract process.

D. Hybrid method:

This method is defined as the combination of various methods defined above or a different approach that does not falls under the mentioned methods.^{8, 14}

In this paper a new keyword extraction algorithm is described. The algorithm described in this paper uses concept graph to capture the semantic nature of the text and performs clustering to group similar terms. In section II, the problem description is discussed, section III discusses the proposed work, section IV shows the experimental results and section V discusses the conclusion and the future work.

3. STUDY OBJECTIVES:

Due to rapid growth of internet the amount of data stored in it increases simultaneously. As such searching of data in internet becomes more complex and tough. While searching a particular data in internet which is a mammoth sized database the user may or may not efficiently get the relevant information back from internet. Because of its immense collection of data manually retrieving the intended data becomes quite impossible and time taking therefore automated system is used.¹⁸

The problem becomes intricate because of the complexities of the natural languages¹⁸. Web search is carried through web search API that takes users query and processes it by extracting keywords. These keywords are matched with the document keywords. Those documents whose keywords are relatively matched are assumed or are the data that the user is actually seeking from the web¹¹. The author assigns keywords based on his/her understanding about the theme of the document. So, the automated system must match with the authors view about the document which is the most problematic and complex part of the system development.

4. METHOD:

The proposed method is based on an assumption that in a document the nouns provide the most important information about the document as well as the verbs that are used to describe those nouns. So the weightage is given on these two assumptions only.

The proposed algorithm is a combination of three techniques, which are:

A. Concept Graph:

Concept Graph is a graphical representation of the logic which is based on the semantic nature of the text. It forms a network of words in a text by semantically analyzing the text contained in the document.

Figure below shows a simple graph based on four concepts.

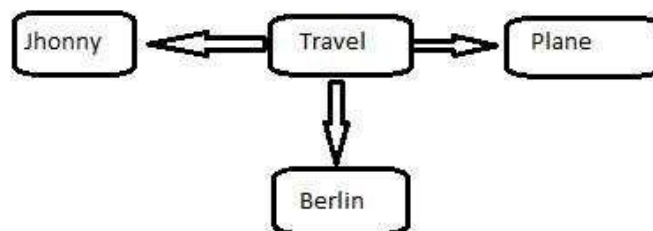


Fig. 1: Concept Graph

A concept graph is a directed graph $G(V, E)$ where V is the set vertices and E is the set of directed edges. In the above graph each rectangle denotes a concept (vertex) and the directed arrows are edges that denote a relation. The concept graph captures the semantic behavior of text, so the vertex "Travel" at the centre is the source and the rest of the vertices are the destinations describing that "Travel" is the action that is performed by the rest of the edges i.e., "Jhonny", "Berlin", "Plane" and this relation is shown by the directed edges.^{6, 9}

B. WordNet:

WordNet is a large English dictionary that stores the English text based on their lexical features. It categorizes the different part of speeches into intellectual synonym sets known as synsets. Each synset shows a different concept

which is inter-connected based on lexical and conceptual-semantic relations. WordNet is used to discover synonyms and semantically-related words.⁴

C. Frequency of a word:

It is defined as the number of occurrences of a particular word in a document. This technique works on an idea that the term that has appeared the most number of times in a document is more likely to express the document precisely.

E.g., “The World Wide Web serves needs of billions users. Each of them accessing the World Wide Web might have their own interest and would expect the web to respond to the specific requirements.”

Frequency of World is 2

Frequency of Wide is 2

Frequency of Web is 3

Since above three words have the highest frequency they are more likely to be keywords.^{1, 19}

The proposed techniques process is outlined in the figure below:

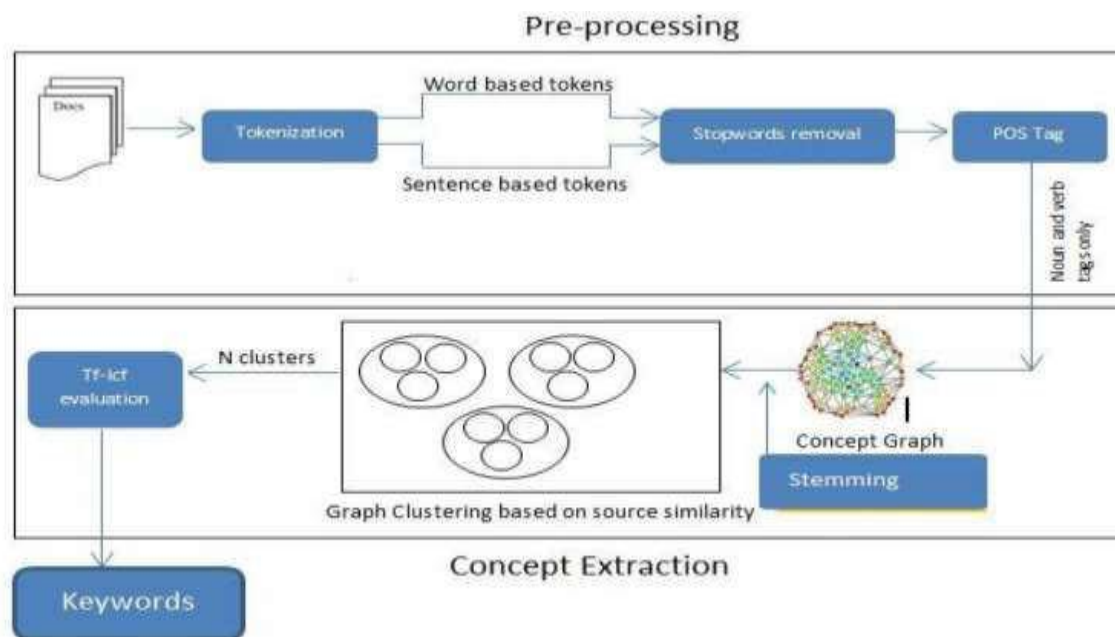


Fig. 2: Proposed flow chart

The proposed technique has two phases:

1) **Pre-processing:**

In this phase the document is passed through three different stages where the document is filtered and their part-of-speech is extracted. Following are the different modules of this phase.

a) *Tokenization:*

Tokenization is a method of breaking the document text into some individual units. This unit may consist of individual words, sentences or phrases which are known as tokens.²⁰

In our proposed method we have used two types of tokenization, one is individual word based tokenization and the other is sentence based tokenization. The motive of word based tokenization is to derive the statistical behaviour of the text and the motive of sentence based tokenization is to derive the semantic nature of the text.

b) *Stopwords removal:*

In Natural Languages (NL) there are some set of words that are used as a part of the text but they do not contribute or convey any useful information in computation. These words often appear frequently in the document and as they are not so important they can reduce the effectiveness of the feature generation therefore these words are removed while processing the text²⁰. Example of stopwords: the, of, and, a, in, to, without, see, unless, etc.

There does not exist any pre-defined or fixed set of stopwords. In NL computation the list of stopwords can be made as per the result requirements. In our proposed method we have used 400 English language stopwords manually.

c) *POS(Part Of Speech) tagging:*

In NL computation part of speech plays a vital role because it allows us to define our priorities on what set of words should be considered for processing. There are eight parts of speeches in English language which are: verb, noun, adjective, adverb, pronoun, preposition, conjunction, interjection. Part-Of-Speech (POS) tagging or word category tagging is a process of identifying words that corresponds to a particular part of speech based on their definition also on their contextual relations with adjacent words. Each word is assigned a tag that shows their corresponding part of

speech. For e.g., “Motive of a keyword extraction method is to find keyword” is the sentence to be tagged then POS tagger gives the following output.

Output: [motive_NN, keyword_NN, extraction_NN, method_NN, find_VB, keyword_NN].

Where _NN is a noun tag and _VB is a verb tag.^{20, 21}

In our proposed method we have used Stanford POS tagger 3.2 and tagged the text using english-bidirectional-distsim tagger trained file (from <http://nlp.stanford.edu/software/tagger.shtml>). The word which comes with the tags of nouns and verbs from POS tagger becomes our top priorities and the other tagged words will simply be discarded.

2) Concept extraction:

The considered output of the POS tagger now becomes the set of candidate keywords. This phase is responsible for capturing the semantic nature of the tagged text in the document. It uses the concept of graph to represent the semantic network of the tagged document content. It consists of three stages:

a) Concept Graph:

The input for this stage is the individual phrase tokens. The sentence that does not contain any verb is not considered for further processing. The phrases are tokenized on word basis and are processed one phrase each at a time. The verb of the sentence represents the source and the nouns in the sentence represent destination as described in section II-A. If a sentence contains more than one verb then multiple graphs based on the number of verbs present in the sentence will be constructed. In this way a graph based representation of the text is constructed for the entire document.

b) Graph Clustering:

Grouping of similar terms is known as clustering. In our proposed method we named the clustering method as graph clustering. Generally, in clustering the individual terms (words) which are same based on some features are clustered together but in our proposed work we have performed clustering of graph.

The clustering process is performed solely based on the similarity of the source nodes of the graph. The similarity measure is calculated using the WS4J (WordNet Similarity for Java) API (downloaded from <https://code.google.com/p/ws4j/>). In WS4J we have used Wu-Palmer method of finding similarity between words which uses synset depth to find similarity. The source node of each graph is compared with the source node of other graph and if the similarity measure is found to be more than 0.7 (which has been taken manually for better accuracy) then the two graphs are considered that they reflect the same semantic behavior though the graph contents may appear differently and are grouped in the same cluster. In this way n numbers of clusters are made for the entire input text.

c) Term frequency-Inverse cluster frequency (tf-icf):

Term frequency-inverse cluster frequency is the similar concept as term frequency-inverse document frequency (tf-idf). Tf-idf calculates the importance of a word to a particular belonging document in a huge corpus of documents^{12, 14, 19}. The importance of a word increases if it is frequent in its belonging document but is rare in the corpus.

In the same way tf-icf provides a weight to the terms of the clusters in such a way that higher weights are given to the terms that are frequent in its cluster but appears none or rarely in other clusters.

Term frequency is the frequency of a term in that particular cluster.¹⁴

$$tf_{ij} = \frac{n_{ij}}{c_j}$$

Where,

n_{ij} is the frequency of the term i in cluster j .

c_j is the size of cluster j .

Inverse cluster frequency is the frequency of a term in its non-native cluster.

$$icf_i = \log \frac{c}{\{c: t_i \in c_j\}}$$

Where,

c is the total number of clusters

$c: t_i \in c_j$ denotes the frequency of the term t of cluster i in cluster c_j (where $j=0$ to N)

Hence,

$$Tf-icf = tf_{ij} * icf_i$$

After completion of weight assignment the clusters are scored so that the keywords come from the highest weighting clusters. The clusters are weighted based on the term frequencies of the term present in that cluster along the document. The highest scoring clusters are selected and among those clusters a minimal set of keywords are selected based on their tf-icf weights the higher tf-icf more important the term is. In this way a set of 6-8 keywords are selected.

5. EXPERIMENTAL RESULTS:

After the completion of the process and selection of system generated keywords we have compared and analyzed them with the author assigned keywords of 50 documents set to check the systems accuracy. We have gone through three kinds of tests which are shown below:

A. Keyword extraction using full body text of the document:

Table 1: Precision and recall values

Set No.	Precision	Recall
Set 1	0.823529	0.485
Set 2	0.642857	0.471905
Set 3	0.809524	0.50619
Set 4	0.555556	0.595
Set 5	0.730769	0.615769
Set 6	0.689655	0.615172
Set 7	0.84375	0.546563
Set 8	0.605263	0.549737
Set 9	0.631579	0.511579
Set 10	0.6	0.484667

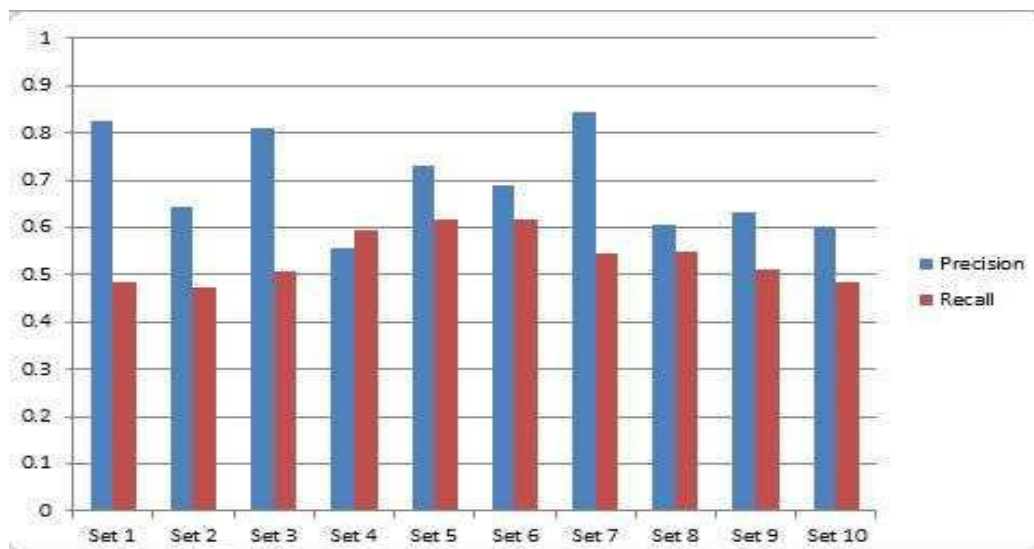


Fig. 3: Precision and recall representation

B. Keyword extraction using abstract text of the document:

Table 2: Precision and recall values

Set No.	Precision	Recall
Set 1	0.487179	0.425128
Set 2	0.421053	0.416579
Set 3	0.416667	0.445833
Set 4	0.552632	0.538684
Set 5	0.354839	0.548065
Set 6	0.25	0.484375
Set 7	0.448276	0.492069
Set 8	0.538462	0.499231
Set 9	0.388889	0.497222
Set 10	0.342857	0.362286

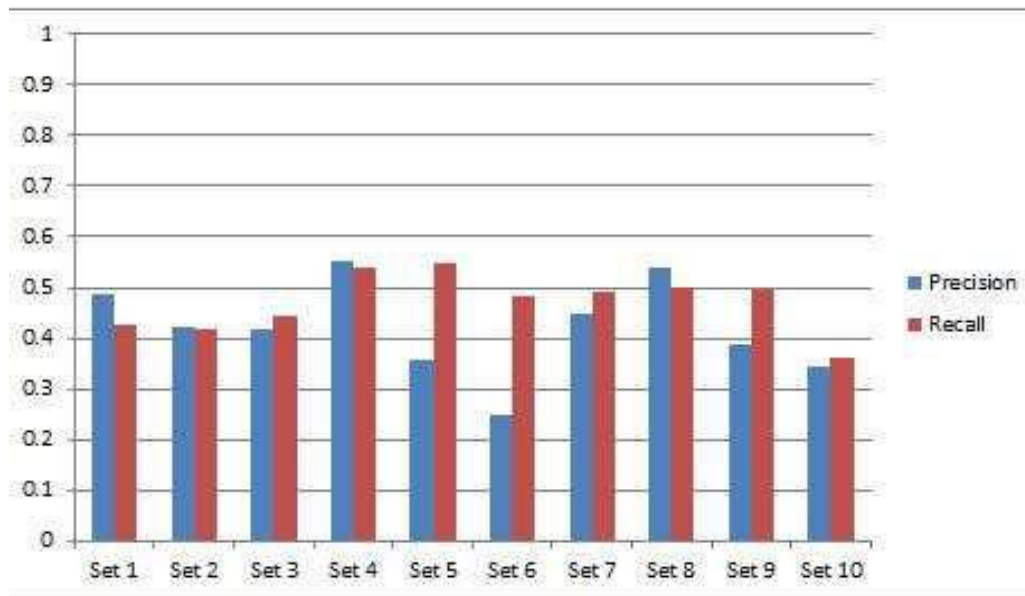


Fig. 4: Precision and recall representation

C. Web search API result:

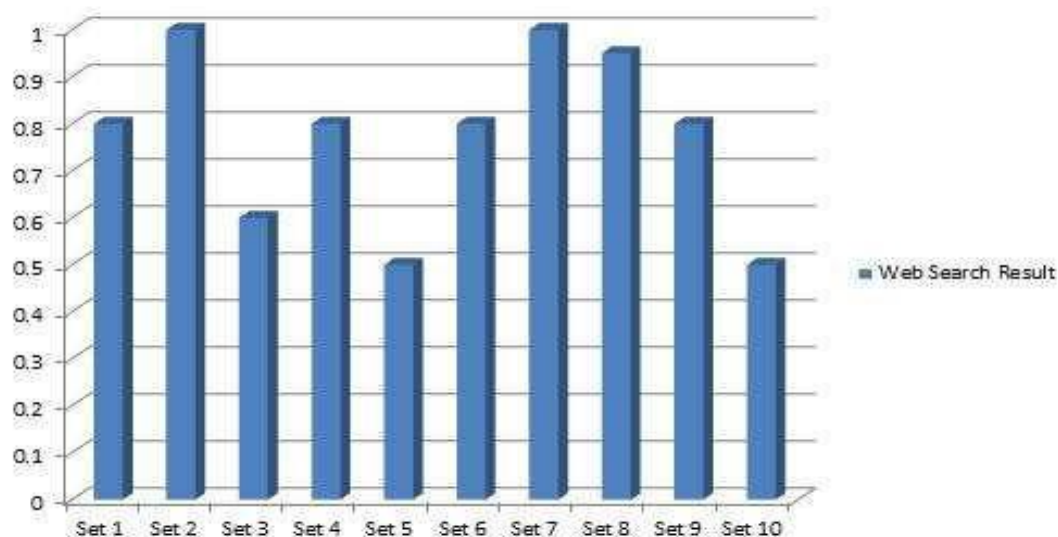


Fig. 5: Web search accuracy result

Result Evaluation Parameters^{10, 16}:

Precision = True Positive / (True Positive + False Positive)

Recall = True Positive / (True Positive + False Negative)

11. CONCLUSION:

In NL due to complexity of languages and different word senses the task of NLP becomes too tough. Automated keyword extraction is a challenging task where a system has to closely match the authors view.

Tf-Idf is considered as the most efficient method for keyword extraction if the task is to be done in a corpus^{3, 12}. It is not applied in a single document scenario. In our proposed method we tried to capture the semantic behavior of the text using concept graph and tried to apply the most efficient method to extract the keywords. As can be seen in the figures of the results in the above section the proposed method has shown good results in comparison with manual (author) keywords.

The keywords extracted from the abstract section have also achieved some level of accuracy with author's keywords. So, if more emphasis is given in capturing the word senses, purely capturing the semantic, lexical and morphological behavior of the text from abstract portion then rather than going through the entire document only the abstract would be sufficient enough to extract the effective keywords.

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