Impact of Information and Communication Technology (ICT) on Naga Women; A Historical Analysis

A thesis submitted to Nagaland University in partial fulfilment of the award of a Ph.D degree in History

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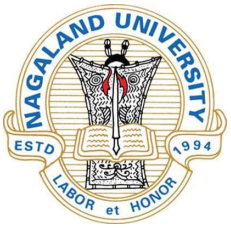

Certificate

This is to certify that the thesis entitled Impact of Information and Communication Technology (ICT) on Naga Women; A Historical Analysis submitted by TSOTALU NAKRO bearing Reg. No. 657/2015 in partial fulfilment of the requirements for the award of Doctoral of Philosophy in the Department of History & Archaeology is a bonafide work carried out by her under my supervision and guidance which is a plagiarism free thesis.

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DECLARATION

I Tsotalu Nakro hereby declare that the thesis entitled ‘ Impact of Information and Communication Technology (ICT) on Naga Women; A Historical Analysis’ submitted by me under the guidance and supervision of Prof. N. Venuh is a bonafide research work which is also free from plagiarism. I also declare that it has not been submitted previously in parts or in full to this university or in any other university for the award of any degree.

This thesis is submitted to Nagaland University in partial fulfilment for the degree of Doctor of Philosophy in History.

Tsotalu Nakro

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LIST OF ABBREVIATIONS

BDS Bachelor of Dental Surgery

BPO Business Process Outsourcing

CSC Common Service Centre

DD Doordarshan

GOI Government of Nagaland

ICIT Institute of Communication and Information Technology

ICT Information and Communication Technology

IT Information Technology

ITAA Information Technology Association of America

ITU International Telecommunication Union

MBBS Bachelor of Medicine and Bachelor of Surgery

MHRD Ministry of Human Resource and Development

MLA Member of Legislative Assembly

MP Member of parliament

NEFA North East Frontier Agency

NE North East

NEN North East Network

NEP New Economic Policy

NGO Non Governmental Organisation

NER North East Region

NIC National Informatics Centre

NIELIT National Institute of Electronics and Information Technology

NIT National Institute of Technology

UN United Nations

UNDP United Nations Development Programme

UNESCO	United Nations educational, scientific and Cultural Organisation
VDB	Village Development Board
WPR	Work Participation Rate
WWW	World Wide Web

Kohima and Dimapur District: Area of the study

ABSTRACT

Information and Communication Technology (ICT) have gained lot of attention in todays's global modern society. With the onset of 21st century, ICT has become an integral part and a potent force in the social, political and economic spheres. ICT is generating new possibilities to tackle problems of poverty and inequality. In India, ICT have been chosen as a facilitator and promoter for social change and to alleviate poverty reduction and gender inequality. ICT is therefore adapted to bring job opportunities and to ease unemployment. India's IT industry is growing so rapidly that today India is seen as an ICT super power. Despite of the huge managements, the participation of women which covers half of human total population is marked by low status in India.

The role of ICT as a promoter for social change has become a subject of historical discourse among researchers and academicians. The present research attempts to look into these intervening contexts where ICT plays an important role in impacting the life of women in Nagaland. Its implementation in the state is in a gradual process of low income, poor infrastructure and slow development growth. Through case studies this thesis unravels various ICT sectors within the state. Primary method was applied to policy makers and stake holders both at private and government levels through interactions and interviews in the selected districts formed the methodology of this study.

Objectives:

1. To analyse the characteristic features of Information Technology and its opportunities created by its rapid growth in Nagaland.
2. To study the historical change in society, economy and polity after the coming of ICT in Nagaland.
3. To examine the impact of ICT on Naga women.
4. To study Nagaland role in ICT in the state/national development.

Methodology:

a) Area of the study

Keeping in view the limited materials and sources needed for the proposed study, the entire districts of Nagaland will be analyzed. However, the state capital Kohima and Dimapur is selected particularly which will be taken as case studies. Both qualitative and quantitative methods will be used.

b) Sources

The study is based both on primary and secondary source. Primary data will be collected through interview and questionnaire methods. Interviews and interactions were done with some top officials working in the ICT sectors. Since ICT is a recent phenomenon in the Nagaland context, there is limited source. Therefore, most of the secondary data had been based mainly from administrative reports, articles, journals, newspaper clippings, pamphlets, internet based sources, published and unpublished books. Since Nagas do not have a written record, early traditional technology are obtained from oral tradition.

Chapterisation:

The dissertation consists of six chapters, including the introduction and the conclusion chapter.

Chapter 1 'Introduction' discusses a brief introduction of the whole dissertation. It highlights the main problems of the study, objectives of the study, methodology, sources and chapterisation for the study. This chapter also covers review of available literature on ICT's. This will review detail information on the subject and their relevance to the current study on technology. It includes the review of relevant books, journals, articles written by various writers from Europe, India, Northeast and Nagas.

Chapter II 'Historical Sequence/Entry of IT in Nagaland' will study the overall overview of ICT development in Nagaland. It will also present the historical sequence/entry of IT that drifted toward the formation of a new socio-technical paradigm. It will summarize the formation, creation, establishment and developments of various IT's sectors in Nagaland.

This study explains the historical and theoretical background of IT in Nagaland since its inception. This chapter looks at the brief history of ICT development, such as: their objective, status of women and their role. Though there are women working in the ICT sectors and other various IT institutes, they are often absent in the high job rank. Field study was done in both government and private establishments to understand more about the women status in ICT. Through this study, this research will try to understand the role of women and the impact of ICT on women in Nagaland.

Chapter III 'Social, Economic, Political and Historical Change', studies the nature of society, economy and polity before and after the coming of IT in Nagaland. This study highlights the traditional Naga society, economy and polity. The traditional Naga society restricts women to involve in outdoor social gathering and perform. This chapter illustrates the changes after the coming of modernity and ICT. The changes, benefits and developments brought about by IT in Nagaland are studied in this chapter.

Chapter IV 'Women, Globalisation and Empowerment' will explains how ICT and globalization have impacted Naga women. This chapter deals on those Naga women who live abroad to analyse how globalization is responding to women. with the rapid rise of ICT, women have become globalised by taking up techno jobs such as users, producers, managers etc. This chapter focuses on how globalisation leads to migration for many women in developing countries. It also studies how the new economy offers women an opportunity to empower themselves from the benefits of technology.

Chapter V 'The New technology and digital divide' studies and presents figures and tables showing the total number/enrollment of male and female accessing ICT. Though the rapid rise of ICT use is applied in every aspects of life yet, female users are found lower than male. The participation of female in technical sector becomes a grave concern not only in Nagaland state but in every country as well. Women are often under-represented in technical skilled jobs. This chapter examine how women can overcome the constraints that prevent their access to IT.

Chapter VI 'Conclusion' summarizes the findings of the study. ICT and women empowerment needs to be strengthened and an important subject to study. This study addresses the problems of women under-representation in ICT. By trying to problematise the issues, one need to understand the traditional cultural role assigned to women. On the other hand, government should put extra effort to encourage women and aware them the vitality of technology in this digital world. This study identifies the problem and suggests positive measures to involve women take the opportunity and benefits of ICT.

CHAPTER - 1

INTRODUCTION

Profile of Nagaland

Nagaland was inaugurated as the 16th state of the Indian Union on 1st December 1963 by the then President of India Dr. S. Radhakhrishnan. Nagaland was created out of the Naga Hill areas of Assam and North Eastern Frontier Agency (NEFA). Nagaland is one of the states in the far North Eastern part of India commonly known as North East (India). It borders the state of Assam to the West, Arunachal Pradesh to the North, Myanmar to the east and Manipur to the South. The state capital is Kohima and the largest city is Dimapur. The state of Nagaland covers an area of 16,579 km sq and lies between 25˚6' and 27˚4' latitude North of Equator and between longitudinal lines 93˚20' and 95˚15' East. Nagaland constitutes 0.5% of the country's geographical area and has 11 (eleven) districts, namely, Kohima as the state capital, Dimapur, Mokokchung, Wokha, Zunheboto, Phek, Tuensang, Mon, Peren, Longleng and Kiphire.

Nagaland is known for its myriad tribes with their rich culture and traditions. Nagaland is a land of diverse tribes, system of governance, cultures, sheer colour and variety. As all the 16 tribes hold their festivals each year, Nagaland is often referred to as 'land of festivals'.

Demography

It has a population of 19,78,502 a per the 2011 census, out of which 1,024,649 are male and 9,53,853 are female The total population growth is 0.58 percent. The population of Nagaland forms 0.16 percent of India. Rural population comprises of 71% while urban population is 28%. The density of population is 119 per square kilometer and the male-female ration is 931/1000.

People

Nagas are an indigenous people and is inhabitated by people of Mongoloid race. The population consists of several 16 tribes having their own distinctive languages and cultures. Majority of the people depend on agriculture for their livelihood. Besides agriculture, the Nagas are also engaged in weaving, rearing of livestock, handicrafts and blacksmith. Rice is the staple food and occupies 70% of the total cultivated area. Nagaland is one of the three states in India where the population is predominantly Christian and officially recognized as a Christian state.

Language

Nagaland is inhabited by 16 major tribes. Ao, Angami, Chakhesang, Sema, Lotha, Chang, Konyak, Yimchungru, Sangtam, Khiamniungam, Kachari, Rengma, Kuki, Zeliang, Phom and Pochury. Each tribe is distinct and unique in character from the others in terms of customs, language and attire. English is recommended as the state language on September 18, 1967 while Nagamese, a kind of pidgin Assamese has become the common linqua.

Literacy

According to 2011 census, Nagaland has a total population of 19, 78,502, out of which 1,024,649 are males and 953,853 are females. Nagaland at present has the total literacy rate of 79.6%. Gender wise, the female's literacy rate is 76.1% and male at 82.8%. literacy rate has risen to 79.55 percent as per 2011 census which is above the national average of 72.98 percent.

Definitions of Information and Communication Technology (ICT)

The attempt to define technology is quiet challenging with various theorists defining the term from different disciplines. The definition of technology is also a subject of debate with various historians propounding different acronym for the concept. People have different interpretations basing on their selected subject. Richard Li Hua (2009) elaborates on the definition of technology interpreted by various theories. To a scientist, technology is the end product of one's research. To an engineer, technology is a tool that can be build better products or solve technical problems. To an attorney. Technology is intellectual property to be protected and guarded. To a businessman, technology is the most important of company asset. The author also define technology as a strategic instrument in achieving economic targets an in the creation of wealth and prosperity of a country. According to Owusa Ansah (2014) ICT refers to all forms of technologies that are used to create, store, share and exchange information. ICT includes technologies like radio, television, telephone, computer etc. Manuel Castells talks about the information

technology revolution which culminated towards the end of the twentieth century which transformed our material culture. He also talks about a new informational, global and networked economy. Information technology is the converging set of technologies in micro-electronics, computing, telecommunications and electronics. According to Subhash Bhatnagar (2000) Information Technology (IT) is often identified as a key to improve the resource allocation process and to more efficiently implement programmes. ICT are indeed generating new possibilities to attack problems of rural poverty, inequality and environmental degradation.

According to Kenneth Kenniston (2003), the Digital Age has brought transparency of government, rationality of markets, universal access to information, formation of new informational communities, availability of life enhancing information to ordinary people and blessings of democracy and prosperity for all the world citizens. The author further elucidates the impact of digital revolution which has far reaching consequences. Information technology revolution is the most rapid revolution as compared to the agricultural revolution and industrial revolution. This is very true because it took at least a century before the printing press touched 50 million individuals. It took 38 years for radio to reach the same number and thirteen years for television. But for World Wide Web, it took only for years to exceed the 50,000,000 mark.

Nancy Hafkin and Nancy Taggart (2001) define Information Technology (IT) as a potent force in transforming social, economic and political life globally. They predicted that without its incorporation into the information age, there is little chance for countries or regions to develop. Showing concern on women, they talk about the digital divide where most women from the developing countries are removed from the information age. Therefore, it is important to let women get access to technology and introduce its

significance from the beginning. It is also necessary to make IT an important tool to lead women out of poverty.

The origin of technology can be traced back to Paleolithic age which is about 35,000 BC years ago where men first discovered stone tools and techniques. The next historical stage shows improvement in technology with the discoveries of copper and bronze (about 3500 BC). The era of stone technology started when wheel was invented during this period. With the rise of Greek and Roman empire (from 600 BC to 400 AD) great contributions was made especially in mathematics and astrology. But the advent of 18th century has made tremendous development in the field of science and technology with the coming of industrial revolution and the discovery of steam engine. In due course of time, men begin to invent new technologies. The invention of modern technology in the 20th century has made far reaching consequences.

Information and Communication Technology (ICT's) have gained lot of attention in today's global modern society. Information Technology has been defined by the Information Technology Association of America (ITAA) as being 'the study, design, development, implementation support and management of any computers to convert, store, process, retrieve and transmit any information'. ICT comprise a complex and heterogeneous set of goods, applications and services used to produce, distribute and transform information. The ICT sector consists of telecommunications, television and radio, computer hardware and software, internet and electronic mail. ICT also includes traditional means like newspapers and magazines, fixed telephone lines, mobile phones.

Information and Communication Technology (ICT) encompasses the collection, capture, processing, storage and transmission of information. Information Technology

includes management of data, networking, manufacture of engineering computer hardware, software design, data base design and administration of system. ICT encompasses a wide term which enables different forms of communication to facilitate information between humans and electronic technologies. Manuel Castells says, 'our societies are increasingly structured around bipolar opposition between the net and the self'. Information Technology gave a new way of system which increases digital and universal language creating new channels of information and communication and in turn gave rise to power, wealth and profit making.

With the onset of the 21st century, ICT has become an integral part and a potent force in the social, economic and political spheres. Technologies have revolutionised the whole outlook of human life and marks the dawn of a new information society. The new network society generates new ways of production, trading and communication. Therefore, Information Technology has become a major engine of growth in many countries which secure linkages to international markets and global production networks as well. For many countries in the early 21st century development is primarily seen as being concerned with economic growth. However, this is only one perspective and others prefer to emphasize development with participation and empowerment in effective developmental practice. In the last quarter of the 20th century, the new technological world gave rise to a worldwide scale of development which become informational, globalised and networking. Our society has become interdependent, powerful, precise and yet, flexible. ICT is often identified as a key to improve the resource allocation process and to more efficiently implement programmes. ICT is indeed generating new possibilities to tackle problems of poverty and inequality. Despite these huge opportunities, women's (which is half of human population) participation in IT growth is considered as low status in Indian context. IT's opportunities

is open to women for entrepreneurship. However, it has become accessible only to the fairly well off and educated sections of the society and the poor people do not get the same opportunities. In the case of India, mass media such as newspapers and magazines, radio and television have a wide reach all over but computer, internet and mobile services are available mainly in the towns and cities. Thus, women from rural areas progress become slow. However, to achieve a true sense of equal opportunities, it is essential to remove the gender inequalities. An infoDev report published in 2003 suggest that in order to harness ICT more effectively for development and poverty reduction, ICT must be mainstreamed as tools and programmes for building opportunity and empowering the poor and women of course.

During late 1990s the birth of World Wide Web (www) brought transformations to the people of North East India in terms of job opportunities and professional development. However, in North-East India there has been little development of manufacturing industry because of the unfavourable geographic conditions and political instabilities. North East needs a well developed and planned system for implementing its badly needed development in all areas. The North East states need to be shaped with new based economy and transform the states in trade and industry, business and engineering through improved communication with better network for use of internet, social medias, teleconferencing etc. Since North East has a limited access to ICT, efforts are needed to improve for increasing rapid growth in IT jobs and services to enable us communicate digitally within or outside our country. ICT and infrastructure needs to be strengthened and made widely available to connect us with the mainland India for easy and speedy communication effectively.

ICT in Nagaland

This study aims to look at how technology has reached Nagaland and the various changes it has brought about in the political, social, economic and religious field. The study will compare before and after the advent of technology in Nagaland. The study will also focus particularly on how women in Nagaland are affected by Information Technology (IT), whether it is empowering them and whether it has brought about any changes in their status or not. This thesis aims to study and examine the effects of the rapid development in technology for the state of Nagaland in general and Naga women in particular.

With the increasing use of technologies our world has become a global village. In this digital generation, ICT such as internet plays a very important role and it is one of the fastest growing sectors. Nagaland known to be a remote state in the far Northeastern part of India is affected by ICT only recently. Development in terms of ICT becomes crucial in the state because of the geographical hilly terrain which becomes expensive and difficult.

Over the years, this sector has gradually evolved using terrestrial, satellite and wireless transmission system. With the setting up of telecommunications, it has become essential for rapid growth and development. North East region has three telecom circles. Assam telecom circle, NE-1 telecom circle Meghalaya, Mizoram, Tripura and NE-2 telecom circle Arunachal Pradesh, Nagaland and Manipur. With the upgradation of Dimapur telecom district into a telecom circle the telecommunication network in the state has grown at a rapid pace. In Nagaland the mobile service providers are Bharat Sanchar Nigam Limited (BSNL), Airtel, Reliance, Vodafone and Idea.

The number of phone users in Nagaland is 53.1 per cent which is higher than the average of NER with 49.3 per cent but is lesser than the national average of 63.2 per cent (Nagaland State Human Development Report, 2016).

Ever since its inception, ICT in Nagaland has yielded enormous benefits to the society at large. Although, ICT is a recent program, it is spreading rapidly in all urban areas with the setting up of various IT departments and inclusion of IT subjects in all schools. The department of Information Technology was created in Nagaland during November 2003 with a view to promote the use of IT and act as a promoter and facilitator in the state and build an IT interface with the rest of the country. ICT had provided with the opportunities, motivation and encouragement woven into network which has become a great forum to interact with business society and exchange views and activities. However, inspite of all these, there is still limited penetration of IT facilities and computer knowledge among the general populace. The state is being deprived of proper internet connectivity which can be regarded as one major setback towards development. Morever, it has created further digital divide in rural areas with poor infrastructures and accessible of internet which remains neglected by the government.

The new digital revolution have impacted more so on the lives of women. The Platform for Action of the Fourth World Conference on women states that women should be empowered by enhancing their skills, knowledge and access to Information Technology. Today women are increasingly placed in technological based economy to promote gender equality and enhance the economic, social and political empowerment. Women populations are however getting lesser advantage in the process of building

information and knowledge in society. According to Komol Singha 'Education and Development of North East Tribal Region', even in terms of education, female literacy remains lower than male (census 2001) and the Naga women have not attained the basic socio-economic and educational facilities even after 57 years of statehood. Nagaland is a patriarchal society. Even today there is not even one women MLA as member of Nagaland Legislative Assembly. Hence it is not surprising that women are still way behind men. However, compared to some parts of India, Naga women are doing much better. In short, Naga women are advancing though a still long way to be at par with men in all spheres of life. Therefore, in order to bring majority of women into the field of technology, ICT can be used as a tool to promote broader equity by increasing women's access to democratic institutions, education, business and income generation. Moreover, policy makers should build an inclusive information society promoting full and active participation of women.

Women Development in Nagaland

Nagaland is a state that does not conform to the general perception of women's status in India. The state has successful achievements in the field of literacy, increasing sex ratio, health and entrepreneur development. The literacy rate of women and the enrollment of girls in the higher education are higher than the national average. In the area of health, the positive achievements are improving sex ratios, absence of female foeticides and low maternal mortality rate. The vast majority of Naga women are engaged in agriculture and allied sectors such as minor forest produce, cultivating cereals and vegetables.

The state policy for empowerment of women has been formulated and a new department has been established. The reservation of seats and earmarking of 25 percent of funds for women in the Village Development Board have been the first steps in the state

for empowerment of women and their participation in the governance. The Directorate of Women Development was created during 2003-04. The main objective was to balance the gender divide and to uplift women, facilitates her self-dependency and safeguarding her rights and privileges. The department works in partnership with Non Governmental Organisation (NGOs) to promote a more active involvement of women in development. The department gives special attention to school and college girls drop outs, disabilities, entrepreneurs, grassroot women leaders, commercial sex workers, victims of domestic violence etc. the department also work with the primary responsibility of addressing the issue of the empowerment of women in Nagaland. More importantly, the department is committed to the cause of mainstreaming and balancing the still existing gender divide and ultimately translating into reality the goals of women empowerment.

Despite of the opportunities, women in Nagaland are under-represented in the ICT discipline. This study aims to raise certain issues and questions concerning Naga women and the impact of Information and Communication Technology (ICT) in their lives. This study attempts and problematises the status and the participation of Naga women in the ICT sector.

Review of literature

Manuel Castells "The Rise of the Network Society" (2000) attempt to study the revolution of technology which began to revolutionize the whole social landscape of human life. According to him these new society had centered around information technologies where the whole economy became globalised and interdependent between state and society. These led to increased individualization and diversification of working relationships, massive incorporation of women into paid labor force and intervention of the

state to deregulate markets. The rise of the network society had a deep impact on the societal sphere. Social relationship between masculinity and feminity undergoes changes where the system of male domination comes under attack as a result of women's transformation. Thus, Castells said gender relationships have become a contested domain rather than of cultural reproduction. New IT converges into a paradigm shift in the 21st century closely related with microelectronic, computer and tele-communication which developed at accelerated pace. In late 1990's marked a new power of communication with developments in tele-communication and information devices. These in turn led to distribution of access capability to mega computers servers in all spheres of life and activity, at home, work, shopping and ultimately everywhere.

Tim Unwin 'Information and Communication Technology for Development' (2009) explains how ICT can make a difference in the lives of the poor and the marginalized which indeed depend on their contributions to economic growth which is also concerned with their access to information. Moreover, in the early 21st century, development is primarily seen as being concerned with economic growth but according to the author development emphasize more on the importance of participation and empowerment in effective development practice.

Sirpa Tenhunen 'Mobile Technology in the Village: ICTs, culture and social logistics in India' (2008) argues mobile phones are the first form of electronic communication technology to be widely used. Since mobile networks are cheaper, communication by phone does not require literacy. In India mobile technology was introduced in 1995 and ever since by October 2006, there were 130 million mobile phones with six million being purchased every month. The author comments that mobile technology like other ICTs facilitates the dispersion of transnational capital. Moreover,

phones contribute to globalization by facilitating a multiplicity of relationships in areas that used to be relatively isolated.

Ng, Cecelia and Swasti Mitter, "Gender and the Digital Economy; Perspective from the Developing World" (ed, 2005) explains how the new economy had created a digital divide. Looking at the current context of ICT's driven globalization, inequalities in power relationships between the poor and rich countries and among different groups exist numerously.

On the other side, they assert that with the introduction of ICT's it has benefitted at large particularly the women population. Though women are embedded within patriarchal contexts, women themselves have negotiated gender relations at the household and community levels. There is no doubt that ICT's have opened up windows of opportunities to a vast number of young women who would have remain unemployed or underemployed despite their relatively high levels of education.

Hafkin, Nancy and Nancy Taggart "Gender Information Technology and developing countries" (2001) looks at digitalized society in the developing countries where women are being affected with a new vision of networking. They points out women in a developing countries used electronic communication for networking to promote their business interest. It democratize access to new communication technologies and supports the empowerment of their organization and networks through the incorporation of computer networking as a tool for coordination, expression and access to information. It also aims to increase women's visibility in the field of information technology.

Vidyavathi K. "Women in Information Technology, enabled services" (2006) comments that at the dawn of the 21st century ICT have revolutionized the functions of our

social and economic spheres. ICT is regarded a great potential to promote development in key social and economic areas where a shortage of capital, knowledge and local capacity obstructs progress. The rise of the internet and communication technologies and the increased focus on core competence and cost reduction has given momentum to information technology enabled services or operations at the globally most optimal location while providing access to customers anywhere in the world.

Usha Sharma "Women Empowerment through Information Technology" (2003) discusses how women are isolated from the mainstream economy and their lack of access to information because of societal, cultural and market constraints. The author is of the opinion that in the context of knowledge sphere, the issues of gender, equality and empowerment of women become even more significant as women have strategic role in incubation and transfer of critical knowledge which often forms the blueprint of survival for communities to adapt and minimize their risk in adverse circumstances. Therefore this network bridges the knowledge gap existing between men and women, builds up awareness among the women communities and their representative leaders and encouraged active participation.

Charulatha Mitra in 'Women's Development Goals, reshaping globalisation' (2003) argues that the rapid growth of ICT's has been facilitated by technological innovation, economic restructuring, reorganization of firm level, production processes, changes in functioning of markets and social and political gains. These defining characteristics of ICT give rise to contemporary knowledge based economies and societies. These shows ICT have potential to create a new better information based society to all men, women, poor, rich, developed and developing world.

Basudeb Datta Ray 'Society, Politics and Development in North East' (ed) 2008, gives a clear picture on the limitations and at the same time the impact of the coming of ICT in North East has limited access to ICT and efforts need to be made for increasing the women participation in policy, regulating bodies and in advocating effective and powerful ways to achieve competitive advantages in the ICT sector. Now ICT is being implemented, citizens enjoy increased income, better health care, improved education and training and better access to job opportunities.

Komol Singha 'Village Development in North East' (2009) commented that in order to shape a new and broad based economy and production in North East, ICT need to play a major role for rapid change. Significant transformation in trade and industry, business, agriculture and food production, health and medicine is possible through the wide use of improved communication technologies like telephone, radio, television and computer generated activities like tele-conferencing internet and satellite. Therefore at school level, ICT should constitute both core as well as elective part of their school curriculum.

D. N. 'ICTs in Rural Poverty Alleviation' (2001) comments that in North East India there has been little development of manufacturing. This has been caused by geographical location which make it difficult to compete with the rest of India. Thus, the author suggest the area where North east could compete is in the provision of IT enabled services like call centers. The combination of IT enabled services based on knowledge centers in the villages run by Self Help Groups (SHG)s could provide a viable way of integrating ICTs in an overall economic development for North East India.

Richard B. Freeman 'The Labour Market in the Information Economy' (2002) explains how the new technologies together with other important changes such as the continued increase in the educational attainment of work force, shift of employment and increased employment of women is producing a labour market that differs greatly from the industrial labour market that characterized the twentieth century. Many workers use the net to search for jobs and many others post their jobs at internet recruitment sites. Many workers apply for jobs online and post their resumes. The ICT allows unions to provide customized services to members to improve the flow of labour and to organize workers over the web.

M. Vijaybaskar and V. Gayathri 'ICT and Indian Development' (2003) says the experience of production, diffusion and use of ICTs in India has been intriquing and complex. Not only does India have one of the fastest growing ICT sectors in the world, it is also home to one of the largest set of civil society experiments using ICTs to empower the marginalised. According to the authors, while diffusion of ICTs in rural areas can improve access to services and information, impacts may be improved through mediation by civil society organizations working towards poverty alleviation. Civil society initiatives can take advantage of the power of ICTs to compel the state to fulfill its obligations to its citizen better.

Rajiv Sagar 'Women and Professional Development in India' (2010) points out that education of girls is vital not only on grounds of social justice but also because it accelerates social transformation. Education has a direct impact on women empowerment as it creates awareness about their rights, their capabilities and their choices and opportunities available to them. With the low literacy rate, women often lack the necessary infrastructure and skills opened up by the ICT's. The author is of the view that if gender

sensitive, ICT have enormous potential to increase women's enterprises and the participation of poor women in the ICT driven information economy.

Illa Joshi 'Asian Women in the Information Age' finds Asia has been generating a lot of commercial interest in both domestic and multinational companies. However, men are considered the first beneficiaries of innovations while women take over the positions vacated by them. Therefore, in order to encourage women take up the opportunities, the author recommended the introduction of microcredit programmes, training on IT, awareness campaigns through women's organization etc.

Robert Schware and Subhash Bhatnagar 'Information and Communication Technology in Development' (2000) opines that Information Technology is often identified as a key to improve the resource allocation process and to efficiently implement programmes. ICT are indeed generating new possibilities to attack problems of rural poverty, inequality and environmental degradation.

Janine Moolman, Natasha Primo and Sally Jean Shackleton in their journal 'Taking a byte of technology; women and ICTs' (2007) argues that technologies themselves should be the tools for women's empowerment. They lament that while ICTs offer vast opportunities for human development, it is also one of the key contributing factor to social and economic disparities between different groups. The gender divide is one of the most significant inequalities created by technologies. Throughout the world, women face serious challenges that limit or prevent their access to the benefits of ICT. It is therefore essential that technology must be easy to use and accessible. It must also be affordable and the user must be empowered and skilled.

Gail Smith 'Women working on the Internet: New Frontiers for Exclusion' (1998) said that lack of access to hardware is a major obstacle for women's organizations wanting to gain access to e-mail and WWW. However, ICTs provide a way for women to work together across the boundaries and to mobilize quickly and effectively. This momentum will tied up women and ICT only when they can harness the opportunities in the pursuit of substantive equality. Changes to policy and legislation are important steps in achieving this real quality.

Joy . V Fuqua in her article 'Visions of Technology, Gender and Knowledge Production' (2013) researched women's relationship to computer technologies in the early part of the 21st century which shows women use and engage with computer and information technologies. However, the author also brings out the digital divide discourse where women are systematically excluded from digital technologies. The author also examines how corporations and universities recruit women for positions in ICT production. This programme aims of increasing female student's participation in computer science. The author also explores how women centered spaces are created and set up by the universities to facilitated women's sense of inclusion in ICT.

Margaret Zunguze in her article 'Do ICT's Really Empower Rural Women'? (2007) analyse ICT's relevance to women's everyday life. Though ICT are made accessible to all communities, there are several gendered factors that limit women's access- time constraints, low income, low education, language and low literacy. Hence, gender needs to be addressed as projects should be designed for maximum participation. According to her, empowerment is achieved when women become aware of their subordinate position, identify the power structure and try to overcome these constraints. Men are found quick to operate technology tools while women were apprehensive at first

and needed encouragement. But once they got familiar with the technology, they become more sustained users and regular attendees. Thus, ICT proved to be instrumental in mobilizing community participation and enhancing information and communication.

Anita Gurumurthy 'Promoting Gender Equality? Some Development Related Uses of ICT by Women' (2006) explains, ICTs have facilitated the building of a more inclusive public sphere enabling the aged, the disabled and the discriminated to communicated, to network and to reach policy makers. Networking had also enable women's organizations to mobilize international public opinion against discriminatory and unjust actions. Various women's organizations had come to the forefront in promoting women's rights through strategic use of ICT. Information such as email, online newsletter has also enabled to promote the agenda for gender equality. In some cases, the intention of an organisation was to give women enough rights to compete effectively in a male dominated ICT market to secure stable and well paid jobs.

Kathryn Mc Nicoll in her 'Development in Practise' (2010) survey the impact of ICT on South African women. The author comments that women are passive recipients and most women are illiterate and do not have time to learn technologies. Therefore, mobile phones are more useful than computers and found out to be more potential to enhance communications. Whereas there are section of women controlling ICT and using them to their advantage. These are educated women and encouraged to make the best use of ICT in their daily lives. They have become the mentors to other girls.

Aramanzan Madanda, Consolata Kabonesa and Grace in their article 'Challenges to Women's Empowerment through ICTs' study show ICT consist of wide range of constraints. Male members have more skills and greater access than female members.

While women are engaged in basic applications and email use, men are dominated in professional skills. Hence, greater participation in decision making among women must take into account if ICTs are to contribute to women empowerment. Moreover, ICT should be contextualized within the broader parameters.

Loubna H. Skalli 'Communicating Gender in the Public Sphere: Women and Information Technologies in the MENA (2006) discusses how women are shaping, impacting and redefining the public sphere by producing alternative discourses and images about womanhood, citizenship and political participation in their societies. The author argues that women have been involved in shaping the public sphere despite the often institutionalized norms of exclusion and marginalization. Women also use different mediums such as radio, newspapers and periodicals, magazines on the internet to articulate their needs and multiply the opportunities of creating alternative discourses.

Dr. Ajailiu Niumai in her journal 'Globalisation and Naga Women: A sociological Perspective' examines how a wider communication and connectivity definitely enhances sharing of ideas, skills, knowledge, goods and services in Nagaland. However, she critiques that wider expansion is exploiting the indigenous culture and infiltration of alien cultures which serves as a threat to Naga customs, values and tradition. Hence, there is a need to carefully examine the impact of globalization and formulate policies to tackle the problems. On the other hand, globalization has opened up possibilities for Naga women to realize their aspirations and dreams. It has also been observed that some of the literate Naga women have accessibility to technology such as the internet and media and have been utilizing its potentialities. Therefore, the author is of the view that if this trend continues and if their rights and equalities are properly implemented, women's status in the Naga society may change for a better in the near future and bring about gender equality.

Rekha Pande in her article 'Looking at Information Technology from a Gender Perspective: the Call Centers in India' (2005) explains that information and communication are playing an increasingly important role in economic and social development. The writer however, lament that though ICT has brought about in many opportunities, it has not really challenged the gender division of labor in the workplace or at home. Moreover, globalization has only widened gender disparities and feminisation of poverty. Therefore, the writer suggest that in order for the world to be able to advance in the quest for sustainable development, peace, justice and gender equality, it is fundamental for everyone to have greater participation to decisions and to develop their capacities.

Rekha Pande in her article ' The Social Costs of Globalisation: Restructuring Developing World Economies' looks at the social costs of globalization to disadvantaged women as the Indian economy restructures. As global intervention is proceeding at breakneck speed, the process is uneven and reinforces existing imbalances because poorer countries and people have less opportunity to participate in the expanding global economy. As a result our country is marked by widening income disparities, economic growth disparities and human capital disparities. In such scenario it is the women who are negatively affected. The author further explains that globalization has increase choices of trade only for those who have money and access to market. Due to these existing inequalities, women are disadvantaged from the benefits. In the shift from welfare development to economic development the worst hit have been women because a large of them are in the informal sector. Moreover, women lose control gradually over the means of production in which they had a traditional right due to the introduction of modern technology. Globalisation has only widened gender disparities and increased the feminization of poverty.

Jayanta Parida in her article 'Globalisation and its Impact on Women-An Assessment' (2011) emphasised on India New Economic Policy of 1991 which have intensified the process of globalisation. The forces of globalization have intruded into every sphere of human life, urban and rural, male or female, poor or rich. It has brought large women into the mainstream workforce over the last 20 years because of the spread of global capitalism. The author opines that since women are not homogeneous group, the impact of globalization differs from women to women. To some women it has opened up windows of opportunities for women, resulting to improved status and esteem. It has brought freedom to women and freedom of choices. On the other hand, there are poor women working in low skilled jobs like garments, food processing, toys, jewellery etc who have no control over their work. These women come from poor uneducated family forced to work under pressure with serious health and social implications. Therefore, globalization has not affected all the women groups in the same way. Because of differing level of capacity and knowledge, the impact of globalization is felt differently.

Ruth Pearson in her journal 'Moving the goalposts: Gender and globalization in the twenty-first century' talks about globalization as the beginning of new millennium. Globalization of trade and investment is accompanied by a rapid growth of financial flows across borders. The integration of world financial markets has become a very significant feature of the modern world economy. New technologies like computer and tele communications have facilitated the spread of new services without time and distance constraints. Looking at globalization from gender perspective, the author explains majority of the women are employed in global market such as clothing, sportswear, electronic, data entry, call centres etc. She opines that most women are still largely confined to lower paid

occupations with little security, less power of bargaining over working hours. Therefore, women's employment has been a key feature of recent changes in global production.

Y. Gurappa Naidu in his article 'Globalization and its Impact on Indian Society' (2006) highlight the impact of globalization on Indian economy. According to the author, globalization has direct impact on the Indian economic reforms which led to the adoption of New Economic Policy. The author also emphasized on the Indian agrarian structure where 74% of the India's population lives in villages and their livelihood mainly depends on agriculture. Further on, the author critically analysed how globalization resulted in the neglect of agriculture that affected the rural society in terms of employment conditions, income, education and health status. The villagers are affected by a reduction in the fertilizers and chemical subsidies.

The author also explains how globalization had a little impact Indian women despite being a global phenomenon. Even after globalization, the existing social and economic institutions unfortunately have not considered the crying needs of women. They are considered more as a burden than a potential force.

Problem of the study.

This study tries to problematise the status of Naga women accessing technological tools and involving in the ICT sector. No doubt, Information Technology (IT) has become a potent force in transforming social, economic and political life globally. Without its incorporation in this age, there is little chance for countries to develop. On the other, it has also created a digital division where women were affected the most. Therefore if these technologies are not linked directly to our economic and social developments, then women will become more marginalized. Thus, IT can prove to be an

important tool in meeting women's needs and can lead women out of poverty. The limitation of this study is that there is a scanty material for the study of women and ICT.

Objectives:

1. To analyse the characteristic features of Information Technology and its opportunities created by its rapid growth in Nagaland.
2. To study the historical change in society, economy and polity after the coming of ICT in Nagaland.
3. To examine the impact of ICT on Naga women.
4. To study Nagaland role in ICT in the state/national development.

Methodology:

a) Area of the study

Keeping in view the limited materials and sources needed for the proposed study, the entire districts of Nagaland will be analyzed. However, the state capital Kohima and Dimapur is selected particularly which will be taken as case studies. Both qualitative and quantitative methods will be used.

b) Sources

The study is based both on primary and secondary source. Primary data will be collected through interview and questionnaire methods. Interviews and interactions were done with some top officials working in the ICT sectors. Since ICT is a recent phenomenon in the Nagaland context, there is limited source. Therefore, most of the secondary data had been based mainly from administrative reports, articles, journals, newspaper clippings, pamphlets, internet based sources, published and unpublished books.

Since Nagas do not have a written record, early traditional technology are obtained from oral tradition.

Chapterisation:

The dissertation consists of six chapters, including the introduction and the conclusion chapter.

Chapter 1 'Introduction' discusses a brief introduction of the whole dissertation. It highlights the main problems of the study, objectives of the study, methodology, sources and chapterisation for the study. This chapter also covers review of available literature on ICT's. This will review detail information on the subject and their relevance to the current study on technology. It includes the review of relevant books, journals, articles written by various writers from Europe, India, Northeast and Nagas.

Chapter II 'Historical Sequence/Entry of IT in Nagaland' will study the overall overview of ICT development in Nagaland. It will also present the historical sequence/entry of IT that drifted toward the formation of a new socio-technical paradigm. It will summarize the formation, creation, establishment and developments of various IT's sectors in Nagaland.

This study explains the historical and theoretical background of IT in Nagaland since its inception. This chapter looks at the brief history of ICT development, such as: their objective, status of women and their role. Though there are women working in the ICT sectors and other various IT institutes, they are often absent in the high job rank. Field study was done in both government and private establishments to understand more about the women status in ICT. Through this study, this research will try to understand the role of women and the impact of ICT on women in Nagaland.

Chapter III 'Social, Economic, Political and Historical Change', studies the nature of society, economy and polity before and after the coming of IT in Nagaland. This study highlights the traditional Naga society, economy and polity. The traditional Naga society restricts women to involve in outdoor social gathering and perform. This chapter illustrates the changes after the coming of modernity and ICT. The changes, benefits and developments brought about by IT in Nagaland are studied in this chapter.

Chapter IV 'Women, Globalisation and Empowerment' will explains how ICT and globalization have impacted Naga women. This chapter deals on those Naga women who live abroad to analyse how globalization is responding to women. with the rapid rise of ICT, women have become globalised by taking up techno jobs such as users, producers, managers etc. This chapter focuses on how globalisation leads to migration for many women in developing countries. It also studies how the new economy offers women an opportunity to empower themselves from the benefits of technology.

Chapter V 'The New technology and digital divide' studies and presents figures and tables showing the total number/enrollment of male and female accessing ICT. Though the rapid rise of ICT use is applied in every aspects of life yet, female users are found lower than male. The participation of female in technical sector becomes a grave concern not only in Nagaland state but in every country as well. Women are often under-represented in technical skilled jobs. This chapter examine how women can overcome the constraints that prevent their access to IT.

Chapter VI 'Conclusion' summarizes the findings of the study. ICT and women empowerment needs to be strengthened and an important subject to study. This study addresses the problems of women under-representation in ICT. By trying to problematise the issues, one need to understand the traditional cultural role assigned to women. On the

other hand, government should put extra effort to encourage women and aware them the vitality of technology in this digital world. This study identifies the problem and suggests positive measures to involve women take the opportunity and benefits of ICT.

CHAPTER TWO

HISTORICAL ENTRY OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN NAGALAND

The philosophy of technology is highly interdisciplinary. It consists of insights from different kinds of technologies from a variety of humanities, social science, natural science, sociology, psychology, engineering science etc. The term technology itself refers to many concepts which is therefore impossible to give a clear cut definition. The term is generally accepted to mean all devices, networking components, applications and systems that allow people to connect and interact in the digital world. Technology has existed for half a century and is one of the fastest growing philosophical disciplines. The term "Information Technology" evolved in the 1970's.

The last quarter of the twentieth century witnessed the fastest growth of a new information society, economy and polity which revolves around new digital knowledge. It becomes a prerequisite for every nation to be a part of this new society to tap the potentials of the emerging opportunities. Following the development, every nation adopted new policies and initiatives to harness ICT for better economic growth. The developing countries at large invested huge investment in ICT development to eradicate poverty, illiteracy, unemployment and social inequalities.

HISTORICAL DEVELOPMENT OF ICT

According to Roy Sumit, ICT encompasses the collection, capture, processing, storage and transmission of information, data, sound in relation to economic, social, political and scientific among individuals, groups, public and private institutions.

The first commercial computer was developed in 1951 by John Eckert and John Mauchly. For the next twenty five years, mainframe computers were used in large corporations to do calculations and collecting information. Then followed by super computers used in science and engineering, mini computers came to the scene which was first developed in the 1960's and early 1970's 1980's then micro computers in 1973 by Mars Kutt.. The scientific, industrial and technological developments dates back to 1940's with the invention of the telephone by Graham Bell in 1876, radio by Marconi in 1898 and vacuum tube by De Forest in 1906. However, the major technological breakthrough in electronics took place during Second World War and its aftermath. The first programmable computer and the transistor came into the scene in the twentieth century which diffuses widely accelerating into a new paradigm. The transistor was invented in 1947 and the micro processor in 1971 which was a giant leap forward transmitting information everywhere. Thus, by the early 1990's not only the whole technological systems change but its social and organizational interactions as well. In 2000, technologies were made available for universal coverage, personal communication which later led to the creation of the internet which became the most revolutionary technological medium of the information age.

The creation of information technology revolution led to a new economy which emerged in the last quarter of the 20th century on a world wide scale. This new economy became informational, global and networked. It is the historical linkage between the knowledge-information base of the economy, its global reach and the information technology revolution that has given birth to a new distinctive economic system. With the invention of modern digital technology, the whole world underwent a drastic change each of them contributing new information system. With the initial invention of computer probably the first generation computer function on vacuum tubes serving as the circuitry and the magnetic drums serving as the memory till the fourth generation which began in 1971 till the present day has made far reaching consequences. Till then, development of ICT has made a massive advancement in all aspects of life. Usage of ICT tools is increasing each year and there is high rise of demand needed for economic growth of a country. ICT has become an essential source for a nation towards prosperity and equality.

Mobile phone is considered as the most predominant form of ICT tool and the most used technology apart from other technologies. According to GSMA real time intelligence data, today, there are 5.27 billion people with a percentage of 67.03 that have a mobile device in the world. In India over 500 million used smart phones as of December 2019.

AN OVERVIEW OF INDIA ICT

In India, before independence radio was used by the colonial for communication. Until independence, broadcasting was limited to mainly news and current affairs which were still a new medium and its uses were yet to be explored. (Ghosh, A. 2006). Soon, radio became a mass media and began to spread to rural areas in the early 1960's. After

independence, communication network began to slowly grow along with the need to unite the country. Radio became the major engine of communication for reaching information to the people. Soon after Rajiv Gandhi became the Prime Minister in 1984, he gave a call to lead India into the twenty first century based on the new technology, professional management and human resource development. (Ghosh, A. 2006). He stressed on the inclusion of science and technology to combat social and economic problems and formulation of New Policy on Education.

Indian policy on IT focuses on approaches to overcome challenges in education, health, skilled development, financial inclusion, employment generation, governance etc. At present, India is ranked in 48th in ICT in the world. The National Policy on Information Technology, 2012 seeks to achieve two goals:

1. To bring the full power of ICT within the reach of the whole of India.
2. Harnessing the capability and human resources to enable India to emerge as the Global hub and Destination for IT and ITES services by 2020.

This policy is therefore on deployment of ICT in all sectors and providing IT solutions to the world. The policy also aims to attain these goals through coordinated action of both the central and state governments. The government of India took keen measures for the growth of IT industry starting from the early 90's. During the last two decades the Indian IT industry is growing rapidly and it is considered as the fastest growing industry. The Indian economy has achieved a growth rate of around 8% over the decade. The Indian IT industry is a USD 100 Billion industry (2011-12) with 80% of the revenues coming from exports. The Indian IT and ITES (Information Technology Enabled Services) sector employs over 2.8 million skilled people. Moreover, in India today more than half of the

population live in rural village and 40% live below the poverty line. Therefore, the Indian government is compelled to use ICT as the main engine of growth and agent of transformation in the 21st century. The annual growth rate ranges between 20-22% in IT services and nearly 55% in IT enabled services such as BPO and call centres'. (Somesh K. Mathur, 'Indian Information Technology Industry: Past, Present and Future & A Tool for National development'). IT sectors is considered as one of the fastest growing sectors. More so, in the learning process, ICT has become fundamental where people can connect and discover the world around.

Globalisation was first used in 1960's in the western countries while in India it was used in 1990's. The government of India adopted the New Economic Policy (NEP) in 1991. After its introduction, globalisation has spread to every spheres of human life.

Historical Development of ICT in Nagaland

The present chapter is intended to introduce the historical advent of technology and its various roles in the modern complex society in Nagaland. It provides an account of the development of ICT and technology enabled services in Nagaland. It covers the main features, historical development, future potentials and risks. This chapter clearly demonstrates the entry and establishment of technological institutes and departments dealing with both government and private accordingly from its beginning. With these ambitions in mind, this chapter is organised in accordance with the following structures each covering major areas where technology play a central role. Each areas consists of several short compilation like case studies describing their historical set up, their objectives, problems, impact and development of how far technology has come in those particular area. The study also examines the growth performances of Nagaland in ICT

sector. From the field work analysis, the study transpires that the emergence of ICT in the state is due to collaborative efforts on the part of the government and private initiatives. The study further looks at the major development of ICT and give justification to the Department of ICT who took the key role to escalate information both within and outside the state. The department was created to promote the use of IT and build an IT interface with the rest of the country.

Nagaland is located in the outskirt of India which is landlocked and poorly connected from the mainland India and advanced countries of the world due to which economic development remains difficult. Nagaland being isolated from the mainland India and the rest of the world, Naga people live lives of alienation from technology when developing countries were progressing rapidly with technology. Poor economic infrastructure is a hindrance to the entire development making the road to development slow and weak. Inspite of all that, Nagas have adapted very well to the new changing world of ICT, even better than some states of India. Though the history of ICT is a very recent discipline in the Naga context, and regardless of all inherent difficulties, it is progressing rapidly atleast in the urban areas. However, in the rural areas, there is limited input of ICT thus, creating digital divide between the towns and villages. As a matter of fact, the department of Information Technology and Communication (IT&C) located in Kohima is playing an important role to transform the whole state of Nagaland into a modern state. Sincere efforts have been made to improve public services in efficient and transparent manner. In order to reach out to the far flung districts and villages, the department has set up Common Service Centre (CSC's) across the 11 districts providing easy access to e-services and e-governance. With the advent of technology in the state, the Nagas have finally managed to run at par with the other nations. Gradually, Nagaland has

continued to chart new developmental paths for itself and has adapted unique model in many respect. In the field of technology, Nagaland has shown high levels of achievement and plays a vital role in transforming agrarian economy into a modern industrial economy. The state government has been consistently laying emphasis on the development of science and technology as a major instrument for achieving national goals and self reliance and socio-economic development. Consequently, Nagaland is gradually connecting to the rest of the country virtually.

The government of India adopted the NEP in 1991 with the objective to open the Indian economy with the rest of the world and enter into the field of globalisation. This new economic policy intensified the forces of globalisation in every sphere of human lives. With the passage of time it has impacted the urban or rural, literate or illiterate, male or female, poor or rich. Thus, the new policy has also impacted the North East Region though only to a marginal extend because of pre-existing poor economic development and geographical isolation.

In spite of the huge management, participation of women in the ICT sectors remains limited. In Nagaland, female enrolment in various ICT institutions remains lower than the male, which is in keeping with fewer women an employee in other government sectors. This is obviously due to various factors like literacy and education, social and cultural norms which overall constrained women's access in technology.

The department of science and technology was created in 1991in Nagaland to utilise the benefits of modern technology. Likewise, the department of Information Technology was introduced in November 2003. It was created to promote the use of IT and build an interface with the rest of the other country. Besides, the above projects, Capacity Building,

e-District Mode Project, Software Technology Park of India, National Information Infrastructure etc... are created. The main goal of the department is to equip e-governance and e-business services to transform citizen centric services. The department had also launched the National Digital Literacy Mission Scheme on 18th December 2014 at Dimapur which became the first state in North east Region. The state of Nagaland became the first state in the country to complete the pilot project at Peren District for National Information Infrastructure connecting 86 villages on a wireless ring network on 6 January 2017. Nagaland state has also been awarded for outstanding performance in e- governance by the Computer Society of India in 2017. The award was recognised as a top performing state from among the North Eastern states in the field of IT and e-Governance which was given for the first time.

Table 2.1 Year of Entry of Information and Communication Technology (ICT) in Nagaland

Sl. No.	Name of the Department	Year of creation
1	Khelhoshe Polytechnic, Atoizu	1972
2	National Informatic Centre	1989
3	Department of Science and Technology, Kohima	1991
4	Government Polytechnic, Kohima	1994
5	Institute of Communication and Information Technology, Mokokchung	2003
6	Department of Information Technology and Communication, Kohima	2003
7	National Institute of Electronics and Information	2004

	Technology, Kohima	
8	National Institute of Technology, Chumukedima, Dimapur	2009
9	Infinity Infomatic Private Limited (BPO)	2016

1. Khelhoshe Polytechnic Institute

The Institute was established on 14th September 1972 as Nagaland Polytechnic Atoizu, the first Polytechnic in Nagaland. The Government of Nagaland, Directorate of Technical Education manages the education system. Later, on 26th April 1984 it was renamed as Khelhoshe Polytechnic Atoizu. The institute offers courses on civil, electrical, mechanical and automobile engineering. During the first three decades the academic and examination system was under Assam University. But henceforth it is manned by the State Council of Technical Education-Nagaland. Civil Engineering course has an intake of sixty students while the other three courses have an intake of thirty students for a period of three years. The directorate of higher and technical education Nagaland select the students basing on merit.

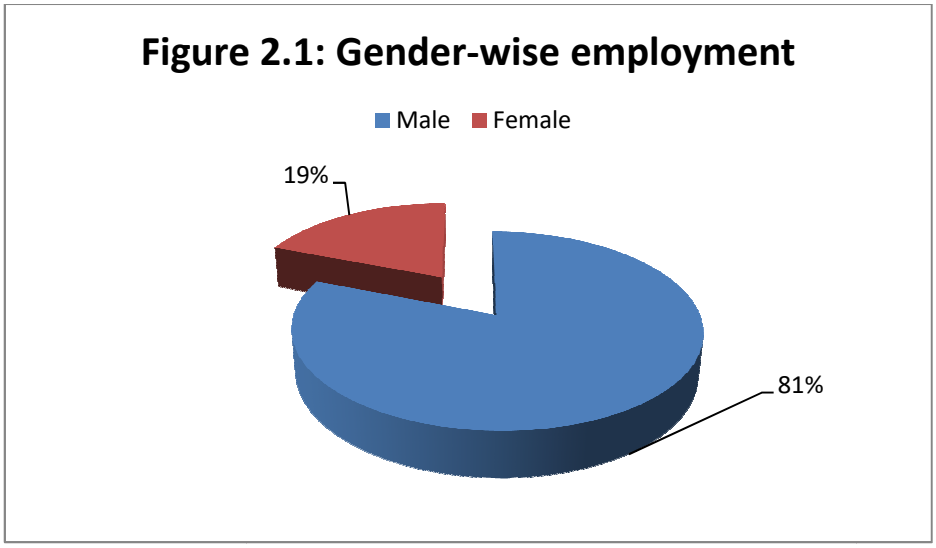
2. National Informatics Centre (NIC), Kohima

In 1975, the Government of India strategically decided to take effective steps for the development of information systems and computer based decision support system in government departments to facilitate planning for social and economic development. Following this, National Informatics Centre (NIC) was established by the government of India in 1976 partnered under the Ministry of Electronics and Information Technology (MeitY). NIC was introduced with an objective to provide technology driven solutions to central and state governments. It was also developed for the improvement of socio-economic stability of the country. It provides services to the citizen for interaction with their government through a holistic digital landscape and it ensures technology enabled services to reach the unreached. NIC also provides nationwide ICT infrastructure to support e-governance services across the 36 states and 708 districts.

National Informatics Centre was established in the year 1989 at Kohima. The NIC is the main science and technology organisation of India's Union government. NIC played a pivotal role in steering e-governance enabling the improvement and transparency in government departments. Situated in a far corner of the North East, Nagaland is considered to be one of the most remote states in the country. The inaccessibility of the interior terrain makes any efforts at development difficult to achieve and the people of Nagaland have been long deprived of the facilities of modern technology. It is in this context that the presence of National Informatics Centre (NIC) in Nagaland acquires significance. NIC had pioneered in bringing the IT-Based culture to Nagaland way back in early 90s with its Nation-wide satellite-based computer communication network (NICNET). It provides e-

mail services, internet access, file transfer facility, office automation and development of computer-based Management Information System (MIS) etc. Community Information Centres was set up in 2000 to stretch the arm of NIC in 52 blocks which has reached to the grassroot level making Nagaland a global village.

From the 52 blocks, there are 27 employees out of which 5 or 19 percent are women employees and the rest 81 percent are male. This is represented in the figure 2.1 below:



3. Nagaland Science and Technology Council

Nagaland Science and Technology Council was created in 1991 with a handful of officers in Kohima. It was formed and registered as a society on 6th August 1999 under the Nagaland Societies Registration Act of 1983 along with the rest of the country. The council is supported by the Department of Science and Technology, Government of India. The Council is headed by the Chief Minister as the President and the Minister in charge of Science and Technology as the Vice President. The executive body is headed by the Secretary, Science and Technology as the Chairman and the senior most Scientist as the

Member Secretary. The purpose for the creation was to gainfully utilise the benefits of modern science and technology and for the development of the state. It has then been carrying out a number of activities and projects to promote Science and Technology in the state. The council also seek to uplift the economic status of the rural population through the interventions with Science and Technology and to advocate in bringing the latest technology for socio-economic development. The council carried out yearly programmes such as Science Popularization Activities, Entrepreneurship Development Programmes and Technology Demonstration. In addition, Research and Development projects covering studies on the natural resources and its utilization, biotechnology, remote sensing applications and identifications are carried out.

4. Government Polytechnic, Kohima

Initially known as Women Polytechnic Kohima, it was established in the year 1994 catering to only women candidates in Modern Office Practice and Fashion Technology courses. Later, in the year 2002, it was renamed as Government Polytechnic Kohima and a new course in Computer Engineering was introduced and made a coeducational institute. The sole purpose of establishing this institute is to provide technical education at Diploma level to the local youths so as to create workforce in engineering and technician fields. Courses offered:

a. Computer Science and Engineering
b. Fashion Design and Apparel Production
c. Modern Office Practise

The institute also offers free courses on Community College, Community Development through Polytechnic, Gandhi Institute of Computer Education and Information Technology.

Government Polytechnic, Kohima Building

5. Institute of Communication and Information Technology, Mokokchung

The institute was set up in the year 2003 with a view to gather to the needs of the people of the state to provide with the emerging technology knowledge and to uplift the community with technology facilities. It is administered by the Directorate of Technical education and is funded by the State Government. The institute is equipped with the latest technology machineries to mould the students into experts in their own respective fields. The institute at present offer three diploma programmes in the areas of Computer Engineering, Information Technology, and Electronics and Communication Engineering. ICIT also offer skills training course for the rural community. The institute is vested with the responsibility to provide proactive leadership, innovativeness and entrepreneurial abilities. Their main mission is also to encourage the participation of women and offer opportunities to access with technical education. Their main objective is to produce

engineers and consultancy, to impart training on skill development for the underprivileged youth, to be a centre of research and development in the field of technology and to gain recognition in both national and international level. ICIT is one of the technology centres which is at par with the rest of the country providing well equipped and well maintained facilities to the students and faculties as well.

6. Department of Information and Communication Technology (IT&C), Kohima

The Department of Information Technology and Communication was created during November 2003. The Department was created with a view to promote the use of Information Technology (IT) and act as a promoter and facilitator in the state and build an IT interface with the rest of the country and the world. The vision of the Department is to make the state a destination for investors both within and outside the country and to initiate the people to take advantage of this technology through e-governance and providing IT enabled services to the state which shall aim at facilitating in providing a SMART (Simple, Manageable, Responsive, Transparent) government to the people. The department formulate IT policy and provide technical support to the government. It also promote IT enabled Citizen Centric services and organised various IT events. The Department implemented the State Wide Area Network which provides information connecting the state capital, district headquarters and block headquarters. It aims to act as a backbone network for data, voice and video communications throughout the state. The main functions of the department is formulation of IT policy, planning and coordination of IT programme, technical support to government departments, pro-active promotion to IT enabled citizen centric, geographical information system and e-governance.

The department of Information and Communication Technology is playing an important role to transform the state of Nagaland into a modern state. The department is now bringing the latest state of the art technology through e-governance and ICT based technologies. Efforts are been made to improve electronic public service delivery to every citizens in transparent, efficient and cost effective manner. Due to this, Nagaland was awarded for outstanding performance in e- governance by the Computer Society of India in 2017. The award was given in recognition of being the top performing state from among the North Eastern states in the field of IT and e-Governance which was given for the first time.

Under the initiative of the department IT & C various projects were implemented across the towns and districts for initiating e-governance in the state.

1. State Wide Area Network (SWAN)

   SWAN envisage to provide a state wide information highway connecting the state capital, district headquarters and block headquarters. It aims to act as a backbone network for data, voice and video communications throughout the state.

2. State Data Centre (SDC)

   SDC aims to consolidate services, applications and infrastructure to provide efficient electronic delivery of government to government, government to citizen and government to business services.

3. Common Service Centre (CSC)

   CSC act as a delivery point for the citizens to access communication especially for the benefit for the remote areas. CSC are now covering all the districts in Nagaland and has 220 common centres.

4. State Portal & State Service Delivery Gateway (SP&SSDG)

This mission helps the citizen to access all information pertaining to the government of Nagaland. It also act as a middle way for exchange of information between various departments. Some main objective of this network is to provide easy access anywhere to government services and to reduce administrative burden. Online application form for Nagaland competitive exams, student's scholarship, application for birth and death for the department of Economics and Statistics, verification of mark sheets are some important achievements.

(Source: Annual Administrative Report, department of IT&C)

Department of Information and Communication Technology, Kohima Building

7. National Institute of Electronics and Information Technology (NIELIT)

NIELIT was commissioned in October 2003 by the Government of India. It became operational in 2004 under the administrative control of NIELIT, New Delhi. NIELIT was set up to facilitate Information Technology and offers training program to improve employment opportunities which will contribute to the growth of IT industry in the region particularly in Nagaland. It also strives to achieve excellence in the field of Information, electronics and Communication Technology. The institute also collaborates with prestigious institutions and government to impart computer knowledge. The objective of the institute is to produce industry-employable professionals through skill development programmes and promote entrepreneurship in ICT sector. The institute facilitates excellence in teaching, training and other professional activities. A special feature of NIELIT is that it offers both formal and informal sector courses. This feature caters the need to those students from different subject background and not only from science discipline. The institute offers various courses in computer and IT related fields. The institute has trained more than 8000 trainees and many of them are employed in various private and public sectors.

8. National Institute of Technology (NIT)

National Institute of Technology, a premier institute of higher learning is one of the thirty NIT's in India, established by the Ministry of Human Resource and Development (MHRD). It was set up by the Government of India in 2009 primarily for enhancing the scope of technical education in the North East states of the country. The Institute started functioning in 2010 under the mentorship of NIT Silchar. In 2012 a permanent campus

came up in Chumukedima, Dimapur with excellent facilities. The institute facilitates research at various levels and to make the students competent to face global challenges. The institute also strives to provide excellent training and placement opportunities to pre-final and final year students respectively. The institute offer undergraduate, postgraduate and doctoral programmes.

1. **B. Tech Programmes**
    a. Electrical and Electronics Engineering
    b. Electronics and Communication Engineering
    c. Computer Science and Engineering
2. **Postgraduate Programmes**
    a. VLSI Design
    b. Computer Science and Engineering
    c. Power systems Engineering
3. **Doctoral Programmes**
    a. Physics, Chemistry and Sociology

9. Infinity Infomatic Private Limited (BPO)

Nagaland has the largest BPO in the North Eastern states with 400 seats which was commissioned on 27th Jan 2017. The BPO is a collaborative effort of the Information and Communication Technology of Nagaland. It is a private company and it is working with clients from the USA. The state of Nagaland was given 400 seats. The company employs both men and women and the selection is done purely on experiences and eligibility. Total working hours is 9 hours and minimum job qualification is 12 standard. Presently, 67 are employed out of which 29 are female and 38 are male. The state government established the centre with a view to bring employment opportunities and also to emerge the state with

IT and globalisation at par with other global countries. Most of the women employed are between 20 and 27 years of age and are mostly graduates.

Some other means of technology

Television

'The invention of television goes back to the origins of electricity, the electromagnetic spectrum, the electron tube, the recording of sound and image and the communication'. (Pursell, C . 2005). In 1900, the term "television" was coined by Constantin Perskyi. While during the 1920's, many individual inventors in the United States tinkered with TV, in India it was launch in 1950 and regular daily broadcasts begin in 1965. Beginning of 1980's saw the advent of color television in India. Television today plays a major role and has a vast impact on the society.

Television is an effective medium of communication. Current affairs and recent news are telecasted which creates interest and influence people largely. Television in Nagaland is supported by Doordarshan studios in Kohima and Dimapur. Doordarshan is an English channel owned and operated by Prasar Bharati. It was officially launched on 15 August 1992 with its headquarters in Dimapur. It has entertainment serials, programmes, news and current affairs, social programmes and film programmes. DD Nagaland is available to 96.7% of the population of Nagaland. Television is the most popular medium of information around the world. It is also considered a major source of communication, entertainment and learning among all age groups. It has become an integral part of our lives.

Radio

With the invention of radio in 1895 by Guglielmo Marconi, radio has always proved a feasible source of communication. All India Radio Kohima was commissioned on January 4, 1963 as the 36th station in the country. At present, it has a full fledged office complex and runs 16 news bulletins. AIR Kohima is the only medium which integrates the 14 dialects of the state. The use of local languages in many programs has promoted enthusiasm among the people. It has celebrated 50 years of broadcasting in Nagaland in 2013. Though with the advent of rapid technology like internet which passes information within a second, radio did not lose its relevance and is still playing an important role in catering the needs of the people. It is one of the powerful means of communication among the uneducated especially in the rural areas. It is considered as one of the best medium of diffusing communication in the remote areas. Radio is playing a significant role and has a positive impact in rural areas where there is no easy access to internet and electricity. It is also considered as best practices that can help illiterate gather the day to day information.

Telephone

Telephone exchanges have been established in 46 towns and three villages in the state. During 1980-81 Nagaland had 2223 telephone connections which increased to 25,193 during 1999-2000. In 2004, there were 32,549 telephone landline subscribers. Among the districts, the highest and lowest were Kohima and Tuensang with 107.88 and 8.20 respectively.

Shri. Atal Bihari Vajpayee, Former Prime Minister of India launched mobile phone services in the state capital Kohima in October 2003. Since then mobile technology is playing a major role of communication connecting to every far flung villages. Today

mobile phones have become the most user friendly mode of technology and integral part of human lives. It is emerging as an important tool of development. People use mobile phones to download, chat, talk, connect to people across the globe etc. As such it has brought people closer together given access to all over the world.

Newspaper

Nagaland Post is one of the first and the oldest English newspapers founded and edited by Geoffrey Yaden. It started its first publication on 3 December in 1990. Nagaland Post is also the highest circulated newspaper. Newspapers that are in circulation in the State are shown below with the year of establishment:

Sl. No.	**Name of the Newspaper**	**Year of starting**
1	Nagaland Post	3 December in 1990
2	Nagaland Page	29 May, 1999
3	Eastern Mirror	August 2002
4	Morung Express	14 September 2005
5	Nagaland today	29 August 2018
	Vernacular/Local Dialect Newspapers	
6	Tir Yimyim	8 October, 2003
7	Capi	
8	Sumi Zumulhu	2 September, 2011
9	Nagamese Khobor	1 December, 2013
10	Ao Milen	1933

CHAPTER THREE

SOCIAL, ECONOMIC, POLITICAL AND HISTORICAL CHANGES IN NAGALAND

This chapter will discuss Naga traditional technology and explores the continuity and changes brought about by the rapid advent of modern technology. This study will also examine the application of ICT in the Naga society, economy and polity, its benefits and problems. The term 'technology' refers to many concepts and phenomena. It includes different kinds of technology from prehistoric elements to contemporary digital system. With these ambitions in mind, this chapter is organised accordingly to the following categories each covering major areas where technology plays an important part in the Naga society.

Original Naga people belong to multi-ethnic tribes. Each tribe has its distinct language and boundaries. The Naga people are bound by strong ties of loyalty to their village and clan which define their identity within specific boundaries of ethnic and linguistic space. (Chakraborty, 2012). Traditional Naga society comprised of villages which is the prime political unit and each village is clustered with autonomous political structures. The clan, family and village representatives always play a vital role for administration development. There was little or no contact among the tribe. The modern Village Council on the other hand function as the highest authority and play a major role in all decision making and administration. Naga village society is traditionally dependent upon agriculture as their main means of livelihood.

Traditional Naga Technology

Traditional technology is a type of technology that is based on any indigenous product and culture. It also means techniques that utilises indigenous methods that are often of ethnic in origin. It is of paramount importance to study how technology had a tremendous impact on the Naga society in the past and the present society. Most of the traditional tools and weapons are still in use today. 'In traditional Naga technology, natural resources constituted a major element of their technological input' (V. Nienu). Agriculture is the main aspect of sustenance. Every man is a potential artist. They built giant gates, log drums, supersized beds, and large storage containers carving out from tree trunks. Nagas are self-reliant and could built their own houses, weave and carve household articles. The art of tattooing, pottery and weaving are considered as women's work while metal work, basketry and wood carving are done by men. They are skilled artisans and build morung and village gates. Besides, most of the men folk know how to manufacture and use weapons like shield, spears, arrows, dao's and agricultural tools like spades, dao's, sickles, axes and various bamboo implements. In Naga society 'dao' is the most versatile and useful implements of all. It is a multipurpose and most essential tool for the Nagas.

Basketry

The art of basketry is an age old traditional practice of Nagaland. Basket making is not a profession but it is a common undertaking of men to meet life daily needs. Nagas are known for their skilled in basket weaving. Traditionally, basket crafting is known by every man in the village. Every tribe has different style of basketry which varies from shapes and sizes though the purpose remains almost the same. We see every household have a basket

hanged on the wall or ceilings of their home even now. People still used baskets for different purpose and for decoration too. Most of the baskets are made of bamboo since bamboo is locally available. Naturally, the forests of Nagaland are rich in bamboo and cane. Bamboo continues to play a predominant role in every walk of life, ranging from agricultural tools and implements to shelter, food and livelihood. Nagas produce various bamboo products in different shapes and sizes meant for different purposes. The size varies from giant size to small size. Usually, the giant shape size is meant for paddy storage. Some baskets are made for essential purpose to carry firewood, water containers, grains, vegetables etc. Multipurpose storage baskets, rice beer storage, winnower, sieve, paddy drying mat, trays, mugs, vessels, spoons, plates, headgear, furniture etc are manufactured widely by the Nagas. Bamboo is also used for fencing walls and wall of houses. Even at present, bamboo is used mainly for handicrafts and traditional uses. Bamboo, for the Nagas is the most versatile and used raw materials like the dao is for implement.

Bamboo crafts are still in vogue today. However, with the invasion of technology, basket weaving is confined only to some artisians. Nagas now make chairs, tables, sofas, trays, cups, plates and flower vase designed with painted floral patterns and human figures. The products are readily available in the market.

Weaving

Weaving is an age old traditional culture practised by the Nagas. Knowledge of weaving among the Nagas goes prehistorically to more than 3000 years, as evidenced by the recovery of spindle whorls from the archaeological excavations in Purakha (Pochuri area) from the level where radiocarbon samples were recovered and dated to around 800 BC. (Nienu, V. 2015). In the patriarchal Naga society, weaving falls under the exclusive

domain of women. Weaving form an integral part of women's life and it is considered as a part of household chores. Every Naga women in a village knows how to weave from an early age. They are trained to weave at a young age and it is considered as important part of womanhood. Women weave intricate Naga shawls, mekhela (wrap around), waistcoat, bags, stoles, cushion covers etc. Training is not necessary as they begin to learn from participating in assisting their mother or elders. Traditional loin loom weaving is a common practise and is often owned by every household. During the traditional period, weaving is mostly done from home grown cotton. Weaving involves simple tools which are done manually. The process of weaving involves cleaning the cotton and removed the seeds, the cotton are then rolled gently by hands using a spindle. This traditional bamboo spindle is a primitive type of technology which is done without any mechanical adjustment. Naga textiles are dyed traditionally from indigenous materials obtained from the forest. The cotton handloom industry is entirely dependent on old traditional method most commonly called the 'backstrap' loom. This method is considered as one of the oldest methods of weaving. However, with the advent of modernity, readymade cotton yarns are easily available in the market. Weaving forms an important part of economic sustenance. Many women weave to support their siblings for educational needs. Unfortunately, over the years, loin looms are slowly disappearing because raw materials like cotton are not widely cultivated and natural dyes are scarce and expensive. Moreover the process itself is tedious as raw materials have to be collected from the forest and spend days to weave which are time consuming.

It is however, enlightening to know that this indigenous cultural practise is still continuing and in vogue. The government is also taking the initiative to preserve and promote the traditional weaving technology. Traditional loinloom festivals are held every

year to promote livelihood through traditional art of weaving. The government has also recognised it as an extension of the Hornbill Festival of Nagaland while the central government recognised it as the National Occupational Standards (NOS).

Tools and implements

Naga traditional tools and implements are locally made from indigenous materials easily available such as bamboo, wood, iron etc. Naga traditional tools and implements are all operated manually. Traditionally, Naga farmers manufactured a wide range of tools and implements such as dao, spade, axe, saw, sieve, winnower, sickle etc. Almost all the male members know how to manufacture and repair their own tools. The traditional tools and technology used by the Nagas are suitable since these tools are easy to make, use, economical, available and sustainable. Most of the tools are used for agriculture purposes like cutting trees, bushes, grasses and clearing forest and fields. Different tools and implements are used in connection to different operations such as ploughing, sowing, weeding, harvesting, irrigation, land clearance, etc. For example, Dao is a multipurpose tool and a weapon and is used mostly to clear forest and field and for cutting trees, bushes, grasses and meat. Spade is mainly used in weeding and ploughing.

Information and Communication Technology (ICT) in Nagaland

The advent of ICT has brought tremendous advancement in all spheres of human life. The media of mass communication like radio, television, newspapers, magazines, mobile phones etc, are nothing short of a revolutionary change. These new technologies have made the society more mobile and interactive. It has also paved the way for doing things more easily, cheaper, faster and profitable. In the past, radio, television, newspapers,

magazines etc served as the major medium of communication but today we have digitalised means of media and communication giving the society a distinct advantage.

Today, television is seen in almost every household in town. However, in the village, TV set is a rare sight. Newspapers are greatly facilitated by the new technologies that offer efficiency, speed and reliability. For instance, newspaper is made available through online services from mobile phones which reduce cost, time and distance especially to the people from remote districts. This online service makes it possible to access the daily newspapers from anywhere in the world. Nagaland mass media are catching up gradually with the explosive information and communication technologies. Internet is currently the most important driving force to bring a social change in Nagaland as well. Consequent, to the advent of mobile phone in 2003, the number of phone users in Nagaland has increased tremendously. According to 2011 India census, number of phone users in the state is 53.1 percent which is higher than the average of North East Region (NER) with 49.3 percent but is less than that of the national average of 63.2 percent. Presently, the amount of landline use in Nagaland is quite low owing to the increased use of mobile phones. The table below shows the number of phone users in Nagaland.

Table 3.1 Mobile and Landline Users 2011, Nagaland

Households	**Total Phone users**	**Landline users**	**Mobile phone**	**Both**
399965	**212381(53.1)**	**5200(1.3)**	**194383(48.6)**	**12799(3.2)**

Source: Census of India 2011 recorded in Nagaland State Human Development Report, 2016

Following the setting up of ICT department in 2003, there was rapid progress in Nagaland in e-development. Some of the essential projects taken up by the department are mentioned below.

1. Nagaland became the first state to take over State Portal and State Delivery Gateway core infrastructure project.
2. Nagaland is the only state in the country where the State Data Centre is run by the IT&C department without engaging private Data Centre Operator (DCO).
3. Nagaland is the only state where the department acts as Service Centre Agency (SCA) for running Common Service Centre (CSC) without engaging private companies. There are 220 CSC covering the 11 districts.
4. Nagaland is now ranked number one in India in the e-district Mission Mode Project.
5. Nagaland is the first state in North Eastern region to implement Aadhar based Biometric Attendance system in state civil secretariat.
6. Nagaland became the first state among the seven selected Indian states to commission the National Information Infrastructure (NII) pilot project on 6 January, 2017 in 86 villages in Peren district.
7. Nagaland has the largest Business Process Outsourcing (BPO) in North East region with a seating capacity of 400 commissioned on 27th January 2017.

   (Source- Nagaland State Human Development Report,2016)

Despite the fact that Nagaland achieves better performance than the other North East states, the quality of infrastructure is still below standard. Nagaland is facing the problems of lack of infrastructure, poor ICT policy, financial constraints, political instability, etc. Therefore, proper attention is needed to upscaled the development process

and to improve prompt and proper investment during the implementation stage. The government have to stress on quality workmanship and monitor strictly for improved development.

Naga Society before the advent of ICT

Before the advent of technology, Nagaland was a landlocked which revolves around the villages. Naga's are an aboriginal people of present Nagaland and the village used to serve as his world. They belong to multi ethnic groups and each group has its own distinct language. Naga villages are usually located on a hill top and engage themselves in agriculture which is the major occupation for sustenance. Traditionally speaking, every Naga is a potential artist and self-reliant. The art of pottery and weaving are considered as women's work while basketry, woodcarving and metal work is considered as men's work.

The first event that change the world of the Naga's forever was the advent of the British in 1832. (Chasie, C.1997). Before the arrival of the British, the traditional Naga society revolved around his village, clan, khel and family. Every Naga tribe have their own dialect which belongs to the Tibeto-Burman family. There was little or no contact within the tribes and little commerce between neighbouring villages. Agriculture is the mainstay of the Nagas. The central feature of Naga traditional style is the feast of merit'. This tradition is done only by a wealthy married man where he fed the whole village in the form of ceremonies and festivity. This is also considered as the most honoured ceremony where the rich did not look down on the poor and the poor did not hate the rich. In the writings of Verrier Elwin, Naga society presents a varied pattern of near dictatorship and extreme democracy. A system of hereditary chieftainship existed among the Semas and Changs. The Konyak have powerful Anghs (chief) whose word is law, the Aos have bodies of

elders and the Angamis, Lothas, Rengmas and others practised democracy. With the advent of the British in Nagaland, the Naga society ushered into a new generation which led to a profound changes. This built up a sense of belonging among diverse tribes and sowed the seeds of a common Naga identity (Chasie,Charles, 2005).

Impact of ICT on Naga Society

In Nagaland too, the effects of ICT are all pervasive and increasing all the time. Today, ICT has the power to transform a society. With the onset of the 21st century, ICT has become an integral and a potent force in the social, economic and political spheres. The advent of ICT has transformed the social landscape of human lives. It has become part of society's every functioning and providing widespread mobility. It plays an important role to bring sustainable development and allows people to connect across the borders instantaneously. In essence, ICT application and utilisation has virtually removed all borders and boundaries of countries and people. The rapid growth of ICT has become a driving force that gradually changes many aspects of a human society in terms of knowledge, social interaction, international mobility, employment opportunities, education and entertainment. Vidyavathi. K (2009) referred ICT development as the digital revolution and its potential for poverty reduction, increased social inclusion and the creation of a better life.

At the dawn of a new era of technological revolution, human culture is greatly influenced by the profound impact of ICT. With the emergence of World Wide Web in the 1990's, it brought transformations to the people of North East India as well. ICT had provided enormous opportunities, motivation and encouragement. The aim of North East Indian states was to bring pilot project to all the states which will bring ICT education in

all school level for general awareness. Consequently, ICT are transforming education creating new possibilities, lifelong education and distance learning all over the North East Region Consequently, our Naga society has also undergone tremendous changes due to the increased introduction of technology. With the setting up of Science and Technology department in 1991 and the department of Information Technology and Communication (IT&C) in 2003 both at Kohima, it is not surprising to see the rapid pace of change in Naga society. Before 2000, internet service was unheard of in Nagaland. It was in 2001, when the first internet connection was made available in Nagaland by the Bharat Sanchar Nigam Limited (BSNL) network. Half of Naga population now use internet at home, work, school, leisure etc. The spread of smart phone has made it all, easier and accessible.

The impact of ICT on Naga society has been incredibly strong which is undeniable. This technological change is unifying the society worldwide and turning it into a global village. Although, the advent of ICT in Nagaland is very recent, we have witnessed remarkable development in all aspects of our life. Previously existing technologies like television, telephone, radio, videos cassettes, etc are now replaced partially by the rapid evolution of modern digital technology. The new modern technology has transformed our society drastically from the way we think, learn and interact digitally. It has created more employment opportunities, better health care, better communication and improved the living standards. The new era of technology revolution is drastically changing the Naga society. With the advent of mobile technology in Nagaland in 2003, ICT gave a new way of system creating new channels of communication which increased scope of markets, profits and investment among the Nagas. Department of IT&C are taking full initiative to facilitate e-services to the government and to the citizens. The department is providing various services which include online civil exam applications, student's scholarship, Indian

passport application, online shopping, Microsoft digital learning, issue of various certificates etc to reach out to the remote areas. Thus, we see our society is becoming increasingly dependent on ICT which is on the edge of a paradigm shift.

It was until the arrival of the British in the 1830's, Naga traditional society began to witness gradual changes in almost all segments of the society. However, soon after the dawn of ICT, it has eased the flow of information via telephone and internet. Thus virtual communication is developing among the society though not always. ICT is also increasing social mobility leading to cross borders not only within Nagaland but across the globe. The emergence of ICT are opening passageways for transformation and providing fresh opportunities for the benefits of the Naga people. Technology had cut down cost, distance, time and cultural barriers. In the present Naga society we see there is increasing ease of people movement across the state and country.

Impact of ICT on the Economy

Agriculture

Nagaland is a predominantly agricultural economy with 71.14 percent of the population dependent on agriculture. Agriculture is still considered one of the significant contributors to the Gross State Domestic Product and is the largest employer of the workforce in the state. The Nagas knowledge of cultivation dates back since time immemorial. Hitherto, it was just a way of life for survival. Most of the Naga villages are located on a hilltop and the surrounding areas covered with mountainous forest. The cultivation is entirely dependent on the nature's climate, seasons, rainfall etc. Inspite of all that, the traditional Naga economy was self reliant. Rice is the staple diet and rice cultivation takes up about 70 per cent of the net cultivated area. Terrace rice cultivation is

mostly practised in Kohima and Phek districts for decades now. However, with the government financial inducement, terrace cultivation is spreading to other parts of Nagaland as well. In addition to rice, maize, potato, pulses, soyabean, sugarcane, cotton, gram, linseed and wide varieties of fruits and vegetables are grown in the state. During the 1950's, agriculture was the main activity of survival of the Nagas when almost 96.5 percent was dependent on agriculture. Though the dependency for employment on agriculture declined to 70 percent in the 1970's and to 65 percent by 2000, it still continues to be the main source of livelihood particularly for the villagers. (Nagaland State Development Report, 2004). Shifting and terrace cultivations remain the prevailing forms of land use practice in the state.

Gradually with the advent of modernity, Nagas begun to adopt different occupation besides agriculture. Poultry farming and livestock rearing are common practice among rural village people. In the recent years, new agricultural crops such as rubber, oilseeds, sugarcane, coffee and other horticulture crops are making a significant move towards production for commercial purposes. Other significant activity includes forestry, tourism, insurance and small scale cottage industries. Nagaland has seen gradual changes and improvement in the economic livelihood of the people in the last 57 years of its statehood. Although the state gets high rainfall, it suffers from excessive surface runoff due to the hilly and mountainous topography nature of the kind. This results in water scarcity for irrigation during winter. Since 2009, UNDP in partnership with the Government of Nagaland, has been assisting farmers in 70 villages to adapt sustainable agricultural practices to enable them to earn regular income from their farms.

Infrastructure development

It has been more than 57 years since Nagaland achieved its statehood in December 1963. However, lack of infrastructure has remained the major bottleneck for the state all round development. The state is experiencing poor infrastructure and limited connectivity which is hindering the socio-economic development. At the same time, inadequate and poor quality of road infrastructure is becoming a major stumbling block for access to health service, education and other public facilities. In statistical terms of road infrastructure, road connectivity and power supply to more than 75 percent of the villages have been achieved. However, the road conditions are very bad and power supply very unreliable. Per capita income of the people has also gone up. Based on Nagaland State Development Report of 2017, total additional length of 14377 km road construction was done during 2013-14. In spite of that, development in the rural areas still continues to be a key challenge.

Industrial development

In the industrial field, Nagaland has not made any progress. Even the few industries like the Sugar Mill in Dimapur, the Pulp and Paper Mill in Tuli, the Plywood Factory at Tuli have stopped functioning because of the Supreme Court order banning felling of trees in 1997. The state is finding new potentials in other areas like agro-food processing, development of various bamboo products, honey, horticulture products, sericulture etc.

Workforce

As per 2011 census, the total workforce constitutes 49.24 percent of the total population of Nagaland. During 2011, 59.26 percent were engaged in agriculture and allied activities, 1.28 percent in household industry and 38.95 percent constitutes other workers. Government employees constituted 9.37 percent of the total workforce in 2011. The Work Participation Rate (WPR) among males increased from 47.3 percent in 2001 to 56.18 percent in 2011. Among females it increased from 42.5 percent to 43.81 percent during the same period. The gender disparity in terms of WPR both in rural and urban areas has been declining over the last two decades.

Traditional Naga Political Institutions

Naga traditional life revolved around the villages. The family, clan, *khel* and village form an important political unit. Village forms the highest political unit. Each village have their own political system of governance based on their customary laws. Their traditional laws are responsible to maintain law and order, provide justice and to run village administration. Khel is another distinct feature of Naga institution that brings together every village men. The decision of law and order depends on the consent and approval of each khels in the village. Every Naga tribe functions under supreme village head/institutions. The form of governance differs from tribe to tribe and might be autocratic, aristocratic, republican, democratic or monarchic in nature. For instance, Semas and Changs follow a system of hereditary chieftainship which is monarchical. Whereas the Konyaks practised autocratic government where the Anghs or kings rule whose word is treated as law. The Aos had bodies of elders and symbolise a republican government and the Angamis, Lothas, Rengmas and others practised democratic system. Each village had

their own government comprising of village elders chosen by the male members to look after the village administration and some had chiefs/kings or warrior/wealthy man to command. Traditionally, Nagas did not have any form of formal judicial courts and all decision was taken based on common consensus of the whole community. It all depends on the responsibility of village chiefs/elders.

Traditional means of communication like verbal communication, beating of drums, shout, runners, etc are the common mode for disseminating information among the villagers. However, communication skill differs from culture to culture or village. Among the people of Chakhesang, usually the eldest person from the village called as *'nasheo'* will shout at the specific point to pass the information like bandh, festivals, death etc. Any information will be discussed among the village men and goes with the majority opinion before passing the information. As such, the decision is made final and every villager is expected to follow strict measures accordingly. Secondly, village regulations are discussed with the woman local physician known as 'nüshopü' who is regarded as the most honest.

With the arrival of the British in the village in 1944, this traditional means of communication begin to change. Within a passage of time, British appointed 'Dobashis' as interpreter and 'Goanburas' as the village head. They became as the mediator between the village and the British and also given the responsibility to gaurd the village. After India's independence in 1947 and the departure of British, village political scenario underwent a gradual process. The introduction of Village and Area Council Act, 1978 brought about many changes in the village development.

Impact of ICT on Naga Political institutions

The arrival of the British in Nagaland in 1832 changed the traditional Naga political institutions although the British also recognised traditional leadership. Initially, the tribal courts were set up and judges were appointed from reputed persons within the tribe. The British also appointed 'Gaonburas' meaning village elders and 'Dobashis' meaning bilingual who acted as interpreters to assist the British officials in their administration. This political setting continued till Naga achieved its statehood in December 1963. With the attainment of statehood, Nagaland experienced a milestone which was marked by a modern democratic development. This political evolution gave the Nagas the opportunity to evolve for peace, stability, investment and develop economically. Thus, towards the making of the state for a better society, the new modern political institution has brought tremendous positive changes in various dimensions of life. Today, the Village Councils and their subsidiary Village Development Boards (VDB's) are established in every village and functions as decentralised governing unit. Since the Indian pre-independence and even post independence period, the Nagas enjoy traditional form of local governance which is mentioned in the Article 371-A of the Indian constitution. However, as stated by Charles Chasie, after the post independence period, the Naga traditional institutions slowly began to disappear and symbols of authority were destroyed. The system of electing leaders, alien to most Naga tribes has only further confused the Naga people.

In this age of information revolution, ICT have greatly benefitted every level of societies in the world enhancing development in every country. Even in Nagaland, which is located in a far flung and isolated geographical area, the effect of modern technology is no exception. As stated by Charles Chasie, one of the modern experiences of democracy in

Naga society is the emergence of media. Nagaland is playing a significant role in disseminating information to the public through media like newspaper, internet communication and all other social media. The impact of ICT on political development in Nagaland is therefore playing a momentous role in strengthening the process.

Traditional and modern means of communication

Communication is a dynamic process that has shaped the growth and development of human history over centuries. Communication involves different forms which include the interpersonal, group, public, mass communication etc. Slowly and gradually, it continues to evolve and develop modern types of communication with the growth of technology. With the rise of technological revolution, today we have many new means and forms of medias. During the primitive era, people used different methods to communicate with one another. The Greeks and the Romans has runners to run between them and carry information like laws and military orders. Some societies of Africa communicated through sound. They beat drums with a specific sound to say of any danger approaching or dead of their chiefs. The Americans Indians used smoke signals, drumbeats and torches to communicate. Then during the Middle Ages, people used pigeons to send messages. Slowly, our society begins to transform with the invention of printing press, telegraph, telephones, radio, television, computers and internet which make easier for us today. In the rural villages during the ancient times, communication has promoted peaceful existence, understanding and self awareness. The rural means of communication is still the epitome of rural development.

Slowly and gradually, with the rise of ICT there has been developmental growth in the rural village as well. Initially, before the advent of modern technology, typewriter was

used for typing out necessary information. Colony representatives were appointed to deliver the notice to every khel. Every village 'Goanburas' also deliver the message in their own respective colonies verbally. Information is also announced in the loudspeaker. With the arrival of radio in the late 1960's, newspapers in the 1970's, television in the 1980's and computers in the mid 1990's (Chasie, C. 2005), Nagaland witnessed profound changes in every aspects which further culminated to globalisation and e-governance. After the advent of computer and mobile technology, even the rural village had experienced many positive changes. Now, social medias particularly mobile phone act as the major platform for disseminating information.

Traditional education system in Nagaland

Naga education before the introduction of modern western education was confined to 'home, dormitory and recreational platform' etc which was informal in nature and act as the main medium of learning. It was mainly oral and taught on attaining knowledge on humanity. People were taught according to the needs of the community. Home is considered as the most important seat of learning. Parents teach their son's how to make basket, plate, spoons, build house, farming etc while daughters are taught how to cook, weave cloth, pound and winnow paddy husk.

The institution of Morung act as a central institution in imparting education besides other social activities. Morung is actually a male dominated institution. Men were taught on discipline, culture, respect, work etc. They are also taught on basket making, craft making, farming and other economic activities.

Impact of ICT on education

With the introduction of the western education during the 1930's, the traditional system of education has lost. Education was rather slow until Nagaland attained statehood in 1963. With the advent of modern technology, education system has undergone drastic change in terms of teaching and learning. Though Nagaland is considered a landlocked located far from the developed mainland India, yet Nagaland literacy rate stands very high at 80 percent (2020 report). Literacy rate among Nagas has leaped from 66 % (2001 census) to 79 % (2011 census). The Annual Status of Education Report (ASER) 2013 shows that the enrolment of children in the age group of 6 to 14 years in schools in Nagaland is as high as 96 percent. Over the years there is steady increase of schools and higher secondary institutions in Nagaland. The number of schools increased from 614 in 1962-1963 to 2622 in 2013-2014 (Nagaland State Human Development Report, 2016). There are 61 degree colleges, 11 professional colleges, 3 polytechnic institutes and 23 theological colleges in the state. Literacy rate increased from 20.20 per cent in 1961 to 79.55 per cent in 2011.

Based on 2001 and 2011 census, report shows male literacy rate is higher than female with 71.77 in 2001 and 82.75 in 2011. Female literacy stood at 61.92 in 2001 and 70.01 in 2011. However, over the past few years, the gender gap in education is narrowing. More girls are enrolling in the schools and colleges as well. The government is giving assurance to make education easier for both rural and urban areas. Free education is given in all government institutions upto elementary level.

Today ICT has given a paradigm shift from traditional education to digital teaching and learning. ICT has made education simpler and easier, effective and productive. The use

of ICT tools in teaching and learning process has become very critically important for knowledge acquisition. ICT provides both an opportunity and a challenge. Nagaland because of its geographical location, the state often lags good internet connectivity. However, the state is credited for 80% literacy rate. In Nagaland, in most schools and colleges teachers are applying ICT tools as teaching aid to improve the effectiveness of education. Computer subject are made mandatory from high school. The aim is to provide opportunities to build their ICT skills and make them learn through computer aid.

CHAPTER FOUR

WOMEN, GLOBALISATION AND EMPOWERMENT

This chapter is divided into two parts. The first part elucidates the role of women in ICT and its impact in women living in Nagaland. How ICT is impacting women lives and how women are responding to the opportunities of ICT is explained in detailed. The second part of the study deal on those Naga women living abroad. This is specifically done to study the impact of globalisation on Naga women and also to know how ICT is empowering the Naga women.

The present chapter intends to study the role of Naga women and their participation in ICT. The study will present the impact of ICT on Naga women. The study will also emphasise on a profile of both boys and girls studying science, engineering and other technical courses. The objective of the study is also to identify the status of ICT and its impact on women in Nagaland. In order to assess women's access to ICT, field work was conducted in the state capital Kohima, Dimapur, Mokokchung and Atoizu in Zunheboto. Since the advent of ICT in Nagaland is very recent, every ICT sectors like educational, business and governmental department was taken into study. Structured questionnaire format were supplied to every sector and institute. This questionnaire analyse the total enrolment of both male and female employees, designation and job role. The enrolment of both male and female students in four educational institutions were chosen for the study. Detail information about the number of students admitted in the four institutions for the past 5 years to reflect demographic profile of male and female was collected. This study

was done particularly to compare and analyse how Naga women have responded to the use of technology.

The result shows that more men were enrolled in both science and technology field and engineering. After the higher secondary school, more male chose to continue engineering and other techno skilled studies while more female choose generic arts subject rather than professional techno career. From the analysis, it is also clear that the number of women in ICT is small and limited. However, it has been observed in due course of time the women will strive to go into ICT, if given the opportunity to get a better job. The below table show the figure of both male and female students enrolled in the engineering subject. This will show the status of women in Nagaland taking up engineering and other technology studies and thereby involving in high profile ICT jobs in the long run.

Women's Access to Information Technology Education and Training

Science and technology or engineering education is determinant of women's chances for equal participation in IT. It is also the prerequisite for work in the ICT sector as computer programmers, engineers, system analyst, graphic designers etc. In Nagaland, there are institutions that offer ICT courses as part of a degree and for special certificates. However, these courses are not all leading to a degree, some courses are only for one month for special certificates and other five year courses are for degree. Moreover, in all the schools from standard V to standard X, computers subject is made mandatory so as to develop and teach the sophisticated IT applications. Girl's students are also taking advantage of these opportunities these days.

The table below shows the number of male and female students taking up various engineering and other IT courses.

National Institute of Technology (NIT), Chumukedima

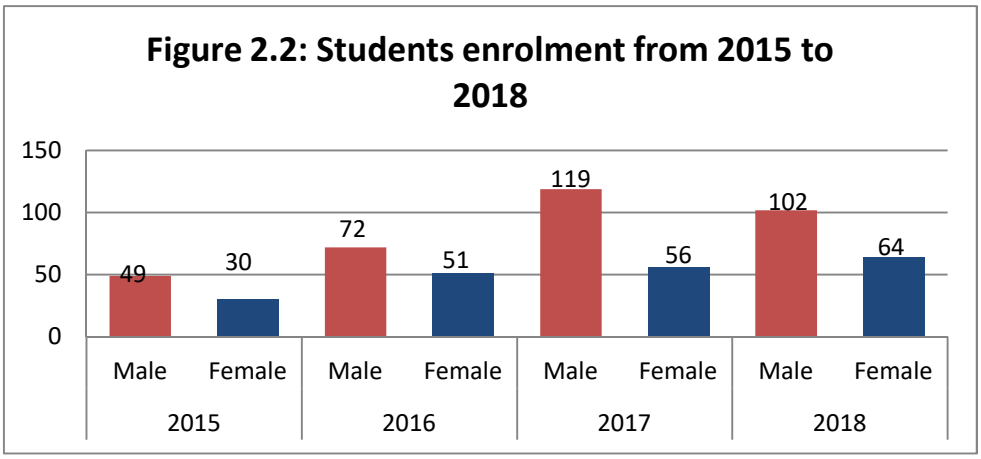
NIT offers bachelor and masters programmes in Engineering such as electrical engineering, electronic engineering, computer science, power systems etc.

Table 4.1: Students enrolment in National Institute of Technology (NIT), Chumukedima

Year	Students Enrolment		Total
	Male	Female	
2010	60	15	75
2011	67	14	81
2012	70	5	75
2013	55	10	65
2014	61	13	74
2015	41	7	48
2016	64	20	84
2017	98	20	118
Total	**516**	**104**	**620**

The above tabulation shows that during the 8 years period, the overall percentage of male enrolment was 83.22% and female was 16.77% that in terms of proportion is 4.9 male to 1.2 female. Moreover the statistical data shows that more females take up electrical and electronic engineering course while men choose computer science subject.

Table 4.2: Students enrolment in Government Polytechnic Institute, Kohima



The institute offers diploma courses on computer science and engineering, fashion design and modern office practise. The above figure represents the total number of both male and female for the past four years. The result shows female enrolment is below male in all the years. Moreover, the institute offers reservation to female candidate yet their participation is below standard. However, the figure shows female enrolment has been increasing each year though gradual. Therefore, it is evident that female participation rate will increase in the future if given the opportunity.

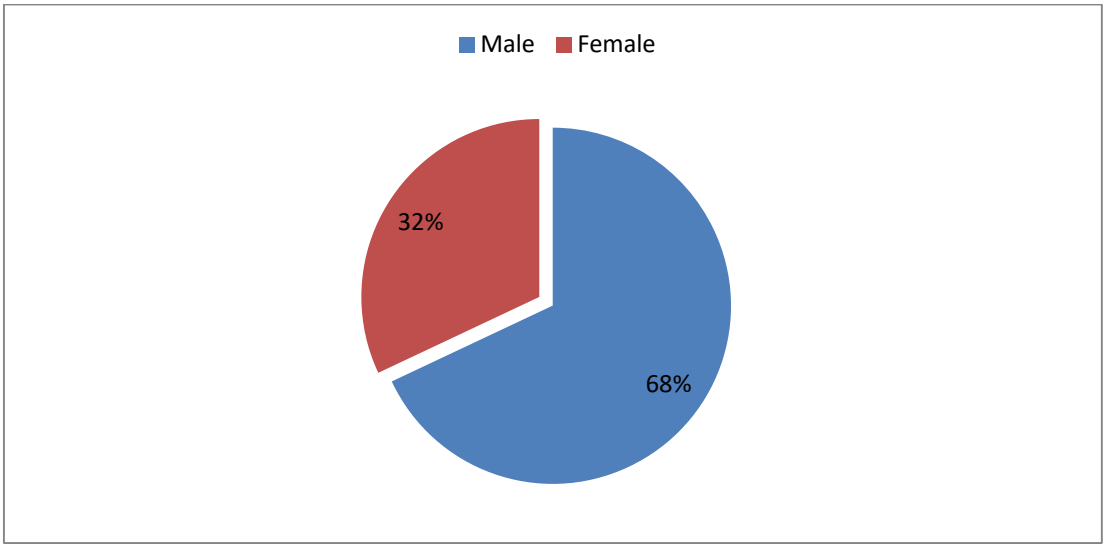
Table 4.3: Students enrolment in National Institute of Electronics and Information and Technology (NIELIT).

Year	Students enrolment	
	Male	**Female**
2014	1227	922
2015	1860	1246
2016	2193	1898
2017	2683	1968
2018	2544	2584

NIELIT offers 23 various courses in the field of IT and related discipline. The table above shows the total enrolment of both male and female for the past five years. As the figure clearly indicates female enrolment is lower than male in the first four years. The result also shows that female are more interested taking up short computer course and other diploma courses rather on bachelor courses. Female enrolment is very poor in computer hardware and engineering courses. However, as indicated in the tabulation, female enrolment is steadily increasing every year inspite of the low number. Therefore, we can assume that ICT is impacting women in Nagaland.

Table 4.4: Profile of Male and Female employee in National Institute of Electronics & Information Technology (NIELIT)

Sl.no	Gender	Designation
1.	Male	Joint Director/Scientist
2.	Male	Technical Officer
3.	Male	Deputy Director/Scientist
4.	Female	Engineer
5.	Male	Senior Technical Assistant
6.	Female	Assistant Engineer
7.	Male	Assistant Engineer
8.	Male	Senior Technical Assistant
9.	Male	Senior Technical Assistant
10.	Female	Teaching Faculty
11.	Male	Teaching Faculty
12.	Male	Teaching Faculty
13.	Male	Teaching Faculty
14.	Female	Teaching Faculty
15.	Male	Junior Teaching Faculty
16.	Female	Junior Teaching Faculty
17.	Male	Junior Technical Assistant
18.	Male	Junior Technical Assistant
19.	Female	Junior Technical Assistant
20.	Male	Junior Teaching Faculty
21.	Female	Junior Teaching Faculty
22.	Male	Junior Teaching Faculty
23.	Female	Junior Technical Assistant
24.	Male	Junior Technical Assistant
25.	Male	Junior Technical Assistant

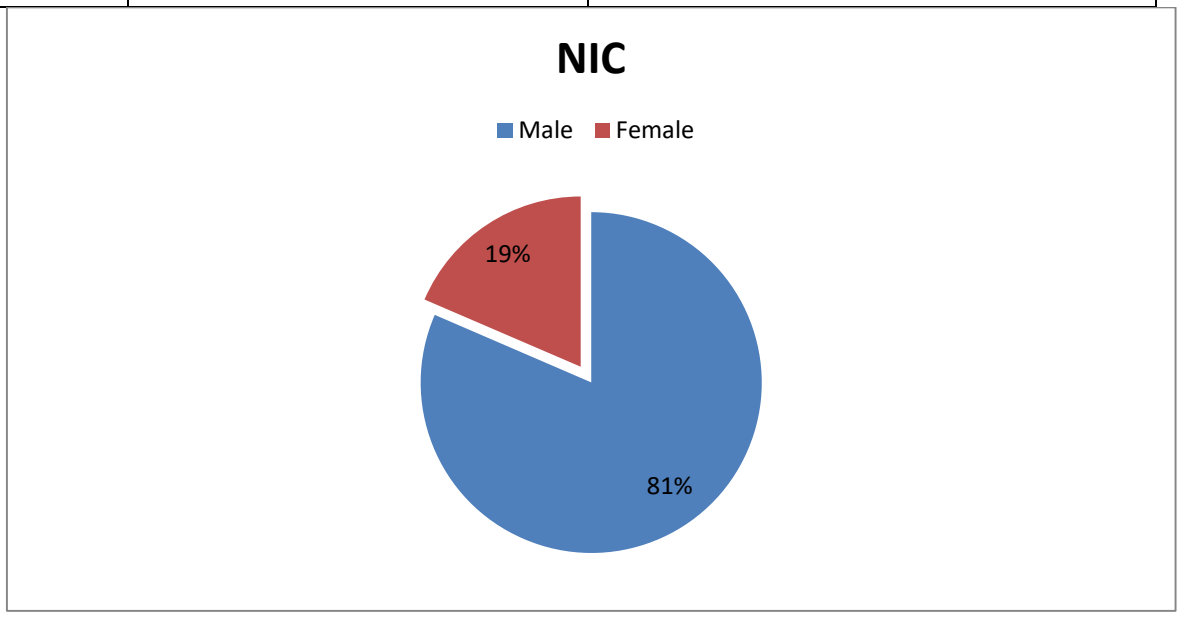


The above data illustrates the number of male and female technical employees in NIELIT. Out of the 25 employees, only 8 are female. The data also shows only male employees occupies in the higher positions as Directors, Deputy Directors and Senior Technical Assistant. The female are mostly engaged as Junior Technical Assistant.

Table 4.5: Profile of Male and Female working in National Informatics Centre (NIC), Nagaland.

Sl.No.	Gender	Designation
1.	Male	Senior Technical Director
2.	Male	Technical Director
3.	Male	Technical Director
4.	Male	Technical Director
5.	Male	Principal Systems Analyst
6.	Female	Principal Systems Analyst
7.	Male	Senior Systems Analyst
8.	Male	Senior Systems Analyst
9.	Female	Systems Analyst

10.	Female	Systems Analyst
11.	Male	Scientific Technical Assistant
12.	Male	Scientific Technical Assistant
13.	Female	Senior Secretariat Assistant
14.	Male	Technical Director
15.	Female	Senior Systems Analyst
16.	Male	Technical Director
17.	Male	Senior Systems Analyst
18.	Male	Technical Director
19.	Male	Principal Systems Analyst
20.	Male	Principal Systems Analyst
21.	Male	Technical Director
22.	Male	Senior Systems Analyst
23.	Male	Senior Systems Analyst
24.	Male	Principal Systems Analyst
25.	Male	Scientific Technical Assistant
26.	Male	Scientific Technical Assistant
27.	Male	Scientific Technical Assistant



The above table and figure shows the working profile of male and female employed in the department of National Informatics Centre (NIC) in Kohima. NIC was established in Nagaland in 1989 for providing e-governance in government department to facilitate planning and programme implementation to further the growth of economic and social development. The table shows only 5 women are employed out of the 27 employees. Moreover, no woman occupies as a technical director which is the highest position in the department. The statistical data clearly shows women in Nagaland are far behind men in ICT.

Table 4.6: Profile of Male and Female working in the Department of Information Technology & Communication (IT&C), Kohima.

Sl. No.	Gender	Designation
1.	Male	Director
2.	Male	Additional Director
3.	Female	Senior Program Officer
4.	Male	Senior Program Officer (2 numbers)
5.	Male	Deputy Director
6.	Male	Program Officer (2 numbers)
7.	Female	Program Officer (2 numbers)
8.	Female	Superintendent
9.	Female	Stenographer
10.	Female	Assistant Stenographer
11.	Male	Upper Divisional Assistant(UDA)
12.	Male	Technical Assistant
13.	Male	Lower Divisional Assistant (LDA)
14.	Female	LDA (2 numbers)
15.	Male	Storage Specialist
16.	Female	Network Specialist

17.	Female	Junior Specialist (5 numbers)
18.	Male	Junior Specialist (4 numbers)
19.	Female	Portal Coordinator
20.	Male	Project Engineer (2 numbers)
21.	Female	Project Engineer
22.	Male	Documentation Officer
23.	Female	Project Manager
24.	Female	Accountant
25.	Male	Technical Assistant

The above data indicates the number of male and female working in the department. In comparison to other IT sectors, we see there are more women which is quite remarkable. However, there are still more male employee than female, the proportion being 19:18. Moreover, it is the males who occupy the higher positions.

Table 4.7: Profile of the teaching staff in Khelhoshe Polytechnic Institute, Atoizu in Zunheboto.

Sl. No.	**Gender**	**Designation &subject taught**
1	Male	Principal
2	Male	Maths
3	Male	Civil Engineering
4	Male	Electrical Engineering
5	Male	----------
6	Male	Physics
7	Female	Mechanical
8	Male	Mechanical
9	Male	Electrical
10	Female	Chemistry
11	Male	Automobile

12	Female	Civil
13	Male	Humanity
14	Male	Automobile
15	Male	Mechanical
16	Male	Electrical
17	Female	Computer
18	Male	Civil
19	Male	Automobile
20	Male	Humanity
21	Male	Mechanical
22	Male	Maths
23	Male	Physics
24	Male	Electrical
25	Male	Civil

Figure 4.7 shows the total number of male and female teaching in Khelhoshe Polytechnic Institute. Out of 25, only 5 are female which clearly indicate female employment in the technical subject is underrepresented.

ICT and Economic Empowerment

In recent years, there has been a major concern on 'empowerment' as a development process not only among women groups but also among multilateral agencies. Women's empowerment and ICT have been the subject of global discussions and debates over a period of time. Conferences on women are held across the countries to discuss women's inclusion in the information society. ICT is a tool for women's economic empowerment in this technological millennium. Women's empowerment is assumed to be attainable through political mobilisation, consciousness raising and education. Over the

past few decades, information and communication technologies have played an important role as a key solution for comprehensive development, poverty elimination and the empowerment of groups discriminated against in society (Nikulin, D. 2016). It has been observed that ICT's have improved the economic status of women around the globe. This digital revolution has changed the way we work and connect with each other. Though ICT prove a challenge to those underprivileged women, ICT in one way offers opportunities to those who can use it. Likewise, in Nagaland itself ICT is progressing the lives of women from being illiterate to literate and being poor to be rich. For example, small farmers are able to advertise their agricultural crops online and other media and sell them. They are now selling processed food items like pickle, dried vegetables, fruits, meat products etc. within and outside the state. There is increased potential for women to take the opportunities of using ICT and becoming self-reliant. ICT has proven to be women friendly. It has enabled married women with many other household responsibilities to work from home. One very significant impact of ICT on women in Nagaland is that it is providing women, even in rural area the access to global markets rapidly. Women weavers and craftswomen could now sell their varieties of woven materials and crafts around the world through e-commerce. Another positive aspect is that it exposes the rich cultural heritage of Nagaland to the foreigners. It is not only empowering women economically but it is also transforming traditional gender roles of man being the sole bread winner. Number of women working in ICT related employment is increasing gradually these days.

Keeping in mind the research objective of this thesis, I have tried to analyse, if or how ICT is impacting and empowering the lives of Naga women. To do this, I conducted a study in Dimapur by which there are around 60 online stores dealing mostly with clothing which are owned by women only. Most of these women are highly educated and export

their products outside the state and country as well. It gives them the opportunity to access and learn technical know-how to operate internet banking, computer, smart phones and other technological tools making them technologically literate. From the analysis, it has been observed that ICT has a positive effect on female participation in the e-commerce sector. The results also confirm that the use of ICT exerts a positive influence on women even in Nagaland. It is increasing women economic independence, income equality, self confidence and self-reliance.

Naga women farmers and vegetable vendors play a key role in actively contributing to the economy of the state. Apart from providing a livelihood, women also play a huge role in contributing towards women economic empowerment. On a careful analysis, these women act not just as a trader but play a bigger role in the economic activity of the Naga society. In Nagaland like most of the other North East states, markets are usually run by women. They sell organic home grown and reared fruits, vegetables, flowers and poultry which are in high demand in the market. Most of the women are the bread winner of the family and offer immense contribution to the sustenance of society.

This chapter attempts to look at how globalisation has affected Naga women. The case study in Nagaland conducted with a sample data of 20 women participants who are living abroad. Data collection was conducted through questionnaire by e-mails and through telephonic conversation. Some data collection was conducted by face to face interviews with individual women living abroad during their visit to Nagaland. Interviews were recorded with the participants consent. The participants included those women who had migrated to foreign countries for jobs, studies or for marital reason. Among them, some had settled down permanently abroad while some had not.

Demographic characteristics were taken into consideration for the sample data: age, marital status, occupation, purpose of staying abroad and knowledge of ICT. The results suggested that women can gain empowerment by actively participating in ICT, if given the opportunities to participate in various job openers and IT projects. It also revealed that women must not remain confine within their comfort zones but must expand their activities in order to enhance their status. Globalisation has given women the opportunities to increase their skills, self respect and financial stability. They have experienced lots of negative aspects that marginalise women from the society. They claim being in a foreign country is an eye opener, which improved their knowledge and understanding of the opportunities ICT provides and its limitations for the under privilege women of Nagaland.

ICT and Globalisation

Globalisation refers to the phenomenon that emerged in the 1970's which has revolutionised reorganisation of production, movement of industries across borders and spread of financial markets. This resulted in flexible production methods and integration of production into global commodity and production chains. The process of globalisation increased the mobility of capital and steadily decline costs of transportation, computing and communications. Globalisation represents the most recent trends in the creation of one world. It deals with processes that transcend not only across national boundaries but rely on worldwide free flows of capital, communications and manufactured goods from region to region. (Seth, R. 1999). Globalisation has also been described as the gradual elimination of economic borders and concomitant increase in international exchange and transnational interaction. (Mehta, A. 1999). Globalisation has permeated the vision for a shared universal values, goals and measures to advance society and restructured economy for better management. In contemporary phase of globalisation, it has served to extend and

built relationship marked by world economy, blurring of national borders, and creation of a new era of borderless nations. It ties together nation of states and other actors and links of national market and global market through free flow, collective security and labor movements to transform the world. The new wave of globalisation provide people's participation in the economy which ushers in new values of human rights, competition for more production, generate employment and bring about equity in the society. It will break social barriers and facilitate equality, particularly the gender equality. (Seth, R. 1999).

Globalisation presents a very positive picture in terms of empowerment and its impact on the women working outside the country. The data analysis showed that globalisation is an enabling factor to most women even though, not at the higher profile, it still provides benefits to women's personal income for family support. Technological developments are rapidly changing and women have to keep up with the pace of the way they learn, work and communicate. Over the times, Naga women were regarded subordinate and subjugate to men. By our Naga tradition, women were expected to be confined to household chores and menial chores while men were given choice and encouragement even to pursue higher education. However, this stereotype is more prevalent among uneducated parents. Nevertheless, with the dawn of globalisation, it has done away with inequality across the nations and human lives. And not surprisingly, it has impacted women too at large. Globalisation has thus accelerated people's communication and transnational information exchanges which in turn, benefitted women to overcome the barriers of the past. Globalisation also enhanced liberalisation for economic growth, employment and social status. Globalisation is creating and increasing job opportunities especially to developing countries. The spread of globalisation has been immensely beneficial to both men and women in Nagaland even though it is of recent phenomenon.

Information and Communication Technology (ICT) is the key instrument of contemporary globalisation and transnational relationships with far- reaching consequences for transforming society. It is an instrument for advancing traditional goals of economic, social and political development in the frame of globalisation. The spread of global electronic network has generated an unprecedented global flow of information, products, people, capital and ideas. This advancement has made information and communication fast and easy. Email is a free service, internet is cheaper than the traditional telephone. Costs of transmission of digital information anywhere in the world have also fallen dramatically. Today, ICT is the fastest growing industry in the world and is poised to become the largest global industry. Global spending on ICT is projected to grow from US$ 2.2 trillion in 1999 to US$ 3 trillion by 2003 – providing many niche opportunities for service providers in developing countries. Establishment of national ICT infrastructure and policy framework are prerequisites for them to participate in the emerging global ICT business.

The year 1975 was declared a 'year of women' by the United Nations. Since then there is increased concern for women empowerment in the society. Women empowerment is becoming a global issue in the recent decades. The force driving contemporary globalisation is information and communication technology (ICT) enabling instant communication over space and time, collection, storage, processing and transmission of digitalized information-text, sound, graphics and vision with far-reaching implications for inducing cross-border transnational relationships. (Sumit, R, 2005). With the revolution of technology the whole world by the onset of 21st century was centered around information technology. These marked the basis of a new society which globalized the world economy leading to increased individualization and flexibility in management. These further on resulted to a greater globalization of integrated market and manufactured centre. Manuel

Castells define the new information society as a new system which connects universally and leading to the emergence of a new digital language. Thus, under contemporary globalization, the major force of ICT enables instantaneous transmission and flow of information within and across borders. New opportunities suffice to diffuse ICT and stimulate development. Undoubtedly, ICT can enable instant access to market and events in different corners of the globe at best competitive prices. In this regard, it calls the developing nations to adopt ways that can minimize socio-economic costs and adopt potential benefits of ICT. ICT become the major force in these contemporary globalized societies which is a challenge and a unique opportunity to accelerate development and usher in structural change and the information age. Concrete policies on ICT are essential to stimulate innovation, production and diffusion, with emphasis on efficiency, productivity, and in particular employment and training, through the 'digitalized' and 'non-digitalized' sectors. This analysis is centred in developing nations like India and major South Asian country which captures the potential of new technology.

Since globalisation is opening up the Indian economy suddenly increased at a very high speed, during the past decades, advances in information technology have facilitated a global communications network that transcends national boundaries and has an impact on public policy, private attitudes and behaviour, especially of children and young adults. Everywhere the potential exists for the media to make a far greater contribution to the advancement of women. The Indian IT industry is becoming more competitive making inroad into the international markets. India will compete with china in future in global market. India's strength is clearly in software and china's in hardware. Studies in mid 1990's reveal that India was able to furnish a very large English- speaking, skilled labor force and educational establishments. The industry is creating job opportunities for highly

skilled and qualified young graduates. The salary levels are among the best across industries within the country and have and have been growing at a healthy annual rate of 16-21 percent. Unlike India other Asian region is experiencing difficulties with the surfacing of new political conflicts between different nations. There exists strong intraregional trade within East Asian economic countries like china and Taiwan, South and North Korea, Japan and African economics, which provides a firm basis on which they compete and in the world economy and embrace globalisation. Now, East Asia captures a positive upturn and rapid recovery to establish its foothold in the world economy. Indeed the region emerged in 2003 as the most dynamic in the world.

Globalisation unfolds changing relationships between domestic and foreign social groups and new patterns of alignments with implications for development. The relatively 'closed' nature of an economy, such as India's and East and South Asia protects it from internal shocks but also inhibits sharing the gains of external booms from the bigger global world.

Globalisation and Women Empowerment

Globalisation involves the expansion of global linkages, the liberalisation of trade and currencies, dominated by western culture life, increased international travel and immigration, and proliferation of information technologies leading to the interdependence of nations and eventually a single global community (Kaplan, D. 2009). In the present era of globalisation, ICT is seen as the engine of the new technology which has the potential for transforming social, economic and political life. ICT has opened the opportunity that can access to global markets, enabling direct foreign investment and e-commerce. It has particularly improved the lives of women of developing countries while feminist theories

argues that in developed countries it has created digital division and marginalised poor women from rich. Accordingly, several projects were aim to bring IT in the North East and to Nagaland as well for technological transformation. Globalisation has unique characteristics defined by technological advances. The goal of achieving equality, development and peace progress depends largely on active participation of men and women in all facets of economic, social and political life. Globalisation has opened up new employment opportunities for women. The global pursuit of profits has enhanced employment opportunities for women where previously they did not exist. This global opportunity has facilitated some degree of economic independence for women which generated self esteem that comes from such independence. Globalisation has also created associations of women and also strengthen their networked for mutual support and resources. This networking affirms women's equality and facilitates instantaneous communications with the outside world. It also lessens isolation for women in remote and secluded areas and allows rapid mobilization and provides support on a global basis. In many countries women candidates are prefer more than men for some certain jobs needed in a global economy. Women are chosen by the multi nationals for assembly production because they will be ready to work at a lower wage than men would accept, which is due to lack of employment opportunity in other industries. It was also found that women workers are more energetic, active, cheaper yet, more loyal to the management. These ranged from manufacturing, where they were regarded as nimble, docile and more able than men to perform repetitive tasks, to services including everything from data entry, to domestic and several services. From the 1970's, an unprecedented number of women workers from developing countries entered both the formal and informal labor force to service the global economy, with the phenomenon coming to be known as feminization of labor.(Hafkin, N

& Nancy, T. 2001) Within the last two decades, women's participation in paid employment in developing countries have risen significantly around the globe. Moreover, globalisation has created a tremendous impact on the lives of women in developing nations. In India itself globalisation has opened up broader communication lines and brought more companies as well as different organizations. With new jobs for women, there are opportunities for higher pay which raises self confidence and brings about self reliant. This provides opportunities for not only working men but also women who are becoming larger part of workforce.

The new revolution of Information and Communication Technology creates new possibilities for economic growth and women employment. This technology has globalised the whole modern society. Women are now beginning to use the internet for e-inclusion, to overcome the constraints of seclusion, e-campaigns to mobilise online and e-commerce to reach markets and to get women views known. An increasing number of female workers have become the preferred labor supply in the export-oriented production of cheap manufactured goods in such sectors as textiles, apparel, electronics, leather products and food processing in one developing country after another. With the effects of globalisation, women are contributing to increased national product and welfare to generate income for the household as well. They contribute substantially to production for the domestic and international markets both directly and indirectly. In formal sector women are employed in textiles, food processing and clothing. A large proportion of Indian women are employed in manufacture of textiles and clothing which have a comparative advantage and achieve a trade surplus with industrialised countries. In developing nations, certain types of work, such as garment assembly is considered to be an extension of female household roles. There are claims where women gains autonomy over their own wages and a feeling of

independence with globalisation. Women are also becoming the breadwinners in most households and young daughters are supporting their parents and fellow siblings. By now, the association between export-oriented manufacturing and women's increased share in paid employment is well established, supporting the view that the feminization of paid employment in the developing world is mainly caused by the shift to export orientation. It has also been suggested that the majority of women workers rated their access to employment in the garment factories in positive terms because of its improvements compared to what life had been like before. With the effects of globalization, women are also seeing access to new social networks in the factory floor, have greater voice in household decision-making, the respect received from other family members, including their husbands, and sense of self-worth and self reliance as well as greater personal freedom and autonomy. Most women earned at least as much as, and many earned more than, the legal minimum wage and they also enjoyed more benefits than in alternative forms of employment.

Surveys reveal that although the share of women in software professionals was low at 19 percent in 1999, it is still an increase from just 10 percent in 1993. In IT enabled sector, women accounted for 37 percent of jobs. This is projected to rise to 35 per cent by 2005.[i] Thus, women stand a better chance of reaching high and seniority positions in this industry. The IT enabled services have created job avenues for women and also increase their share in employment. We see most of the call centers and back office services, especially data entry operations are predominantly run by women throughout the world.

Women are now organizing to enter, challenge and change the operation of financial markets, the use of new technologies and the formulation of economic policy at national and international levels, so that globalisation meets human needs. Women have

been emphasizing that micro finance institution need to provide complementary services such as business training and market advice. Women are still very much in a minority among internet users. However, they now realized they should begin to use IT for creative ways in order to globalise themselves with the societal being. To overcome these constraints, e-inclusion, e-commerce, and e-consultation were made known for mobilizing women's rights.

It has been argued that, globalisation which resulted from the information technology has benefited women in developing countries at large. Women themselves have negotiated gender relations at the household and community levels. Women are now playing important roles and participating in trans-networking services as employers, employees, entrepreneurs as well as social activist on the internet. It documented the opportunities and challenges to encounter in the global digital economy and includes women's groups in policy dialogues for assessing the significance of globalisation. The IT enabled services that are projected to expand in the coming years are also expected to create more jobs avenues for women and to increase their share in employment. The call centers and back office services, especially data entry operators for instance are predominantly run throughout the world by women. Globalisation has had a significant impact on women's work in information technology in developing countries. It has brought self employment and survival to women in majority of the developing countries. Good example is the Grameen Phone in Bangladesh where women run a successful business selling communication services via mobile telephones to other women who have relations and contacts abroad, teleboutiques in Senegal and Morocco and phone shops in Ghana.(Hafkin, N. & Nancy, T.2001).

IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ON NAGA WOMEN

I will analyse Naga women experiences regarding their settlement in developed foreign countries in the present era of globalisation, and also consider the role of social policy and security to women, their opinions about employment security for women. And I will attempt to highlight the impact of globalisation among the said Naga group of women. By acquiring the knowledge and awareness of global culture and foreign culture through ICT, they were able to take the step of migrating to foreign countries and assimilate themselves with the society of the country they were in.

Naga women are now on the move in all parts of the world drawn by the forces of globalisation. In the light of these developments, in this chapter I will attempt to study the impact of globalisation on Naga women migrating to the developed foreign countries. I also intend to analyse here whether globalisation is empowering and benefitting them and explore their participation and performance outside our country. The positive impact of ICT on women's work due to globalisation has been evident and has seen considerable changes in Nagaland as well.

Today, ICT and globalisation has become an important academic topic of discourse and historical research. The advent of widespread availability of computers, internet and mobile phones in early 1990's spurt on to globalisation. Technically with the rapid improvement of IT at lightning speed, our world has transformed our traditional society into a global village. Globalisation has created a new revolution which brings people together and stay connected with the rest of the world. This became possible because of

easy access to all information brought by IT. As a matter of fact, globalisation is generating cultural interactions leading to tremendous transformation. This unprecedented development is renegotiating the gender relation throughout the world, paving the way for women as well. Given the above scenario, it is essential to point out that Naga society is also affected by the impact of globalisation. Looking at the present Naga context, Information and Communication Technology (ICT) and Globalisation has started developing only recently unlike other developed Indian states. However, it is an undeniable fact that ICT has captured Naga society and driven even women to come out of their homes to move out to a developed country for job, study or for marital reasons following the trend of global migration. With the onset of the 21st century, the rapid growth of ICT's driven globalisation has revolutionised the whole world into a more complex identity. International migration has received attention in recent years due to a sudden increase in international migration. Basing on United Nations report of 2006, between 1960 and 2005 the number of international migrants in the world doubled. The current share of women in the world's population of international migrants is close to half of the total. As globalisation has opened up new opportunities, Naga women have become more informed, adventurous and brave enough to move to any foreign country and settle. As of 2000, the United Nations Population Division estimates that overall 49 percent of all international migrants were women and girls. In contrast, the proportions of women and girls among international migrants have now reached 51 percent arriving in more developed regions.

Nowadays there are Naga women all over Europe notably in Australia, UK, USA, France, Germany, Spain, Denmark, Belgium, Holland, Norway and in Asia like South Korea, China, and Japan. Questionnaires were formulated to get responses from Naga women settled in foreign countries and it was based on random selection. Questionnaires

were mailed to 20 women settled in different countries which included single and married, employed and unemployed. A summary of its main findings are presented below.

Majority of the Naga women in this study are married to a foreigner and moved with their spouse. However, some of them have gone abroad by actively seeking for work. Most of them responded and stated that the purpose for their leaving the country was to look for better opportunities. Some women had to migrate because of the nature of their jobs of being employed in Indian Foreign Service, Aviation and Cruise. However, there are also Naga girls spread across the countries pursuing for higher studies who were included in this survey.

Case 1

One woman, a medical doctor who has been living in UK for over 15 years promptly responded and stated that moving to a foreign country was simply because of moving and working abroad had positive impact in her life remarkably, in terms of better financial gains and improved her level of understanding and outlook. In her opinion, globalisation is empowering women, opening opportunities to a wider and fairer society and systems. She further commented that there is not much difference between Naga culture and the Western culture from gender equality point of view since in both culture, both men and women are equally respected. However, the law is fairer in the West in the case of inheritance where women are entitled to equal share. Women are also entitled to a share in husband's property and finances but women in Nagaland are not legally entitled to any of those. She concluded remarking that since our Naga civilisation is at its infancy, Naga women have lesser opportunities than men. However, with the effects of

globalisation, accompanied by better job prospects and freedom of movements and choice Naga women's condition are improving as well.

Case 2

A Senior Cabin flight crew worker in Doha, Qatar for 9 years happily responded and stated that her purpose for leaving the country was to look for better career opportunities, financial independence and to broaden her knowledge perspective by travelling around the world. She is satisfied with her job as she is in a well paid job in one of the top airlines in aviation market. She stated that she feels free, safe and equal and, is treated as such at her workplace. Further, she attributed globalisation being the factor for women's free movements and looking for a better self reliant and independent life. Thus, it has positive impact on women for more job opportunities, financial freedom, and exposure to global workforce and culture. Most of these women are working outside to make a good earning under free, fair and equal system to support themselves and their families back home.

Case 3

A 30 year old married housekeeping Supervisor presently settled in Vancouver, Canada who left the country for her husband's further studies claim she is satisfied and self reliant away from home. On being asked if globalisation is impacting her life, she said 'the effect of globalisation has definitely helped in easing the transition as intercultural differences becomes neutralised. Having been exposed to western culture prior to my move, through technologies of globalisation, I found the transition smoother. Globalisation is challenging but equally, a platform for opportunities. In these day and age of globalisation, it has become easier for our women's voices to be heard'. Speaking on the

social and personal freedom, she proudly asserted that there is freedom to work in any type of employment without feeling inferiority or social status complex. In fact, globalisation helps free mobility of women to travel and work anywhere in the world. Though discrimination as such she has not faced, there are hindrances to quick integration and creating relationships effectively with foreigners due to society's cultural differences between home and abroad. She also remarked that globalisation has increased the scope of creating awareness among Naga women with regard to women's rights, equality, standing up against discrimination etc. It has also neutralised the traditional elements because of modern people's awareness and sensitivity has rendered traditional norms and practices not readily acceptable.

Case 4

A resourceful and an independent woman who has been staying in UK for 21 years believe that globalisation is a key factor impacting our generations everyday lives in so many positive ways. It is making our travelling from one place to another much easier and cheaper unlike before. In her opinion when it comes to freedom of a woman, it is about how we manage our own affairs by applying our knowledge and awareness of ICT and its impact on globalisation.

Case 5

A 48 year old housewife married to an Englishman, who has been living in England for 19 years left home for marital reason is satisfied and feels independent and settled in a foreign country. In her opinion, globalisation is impacting women's life to a great extend since it has made better and easier access to modern information technologies through different media which lead to global migration easier and possible. As a woman, she is

accepted as an equal being with man and for that matter with the rich and the poor alike. She also says that she has equal role with her husband to make decisions for family and her contributions and opinions are valued. On the question of globalisation she remarked, it has open up huge opportunities for women in particular, about equal opportunities in seeking for jobs, in terms of income as there are more jobs to pick and choose like the men. Women in general, are now becoming more confident and independent financially and emotionally and, at the same time, globalisation is uplifting and empowering Naga women as well in various ways.

Case 6

A women doctorate in Christian Education based in Seoul, South Korea left the country to pursue higher theological studies commented, it is because of globalisation, women finds moving away from home either for job opportunities or for higher studies much easier. She positively feels that having greater access to foreign education given her a wider opportunity in connecting with friends from diverse nationalities. It has also helped her to connect on international network leading to a better future career. According to her, globalisation has empowered Naga women as it has generated awareness of her rights for an equitable society, challenging gender stereotyping and discrimination. It has also enhanced better participation by women in political, social and economic spheres. With ICT moving at a rapid speed which is the key to globalisation and that in turn, helps women become more economically independent, able to support family better and share responsibilities. It has also given women a sense of accomplishment and confidence. She also mentions that by living in a developed country like South Korea, she enjoyed more freedom from traditional, cultural and customary practices imposed upon Naga women

unlike in Nagaland. There is more freedom and no gender discrimination and, every woman has equal social participation and contribution in the society.

This chapter made an attempt to look at the impact of globalisation on Naga women. From the data analysis, the findings reveal remarkably overwhelming positive impact. Most women migrated in search of better job opportunities and some, for further studies while few, for marital reasons. Regardless of the reason, for moving abroad, all women respondent cited globalisation being the biggest factor in enabling them to do so. With respect to job satisfaction, they earn their own income and are not dependent on male partner but enjoy financial independence they never had before. Besides, most of them are earning enough for their families and hence, had no desire to come back home. From the responses of those women, it transpired that these Naga women who were in the past confined mainly in the domestic chores and playing their subordinate role assigned to them have now become very critical about their pre existing condition. Our society being transformed by hi-tech revolutions has undergone a drastic change leading to enhanced women empowerment. Now, Naga women are keen to manifest their ability, talent and potential to explore around the world for their freedom, financial equality and stability. Globalisation has indeed driven Naga women to come out of their home and enter into international global arena. ICT and globalisation has indeed played an important role in integrating markets, bringing women from both rural and urban sectors to develop networks that transcend international boundaries. It is widely acknowledge that in order for a woman to advance for sustainable and independent development, it is fundamental to explore beyond their comfort zones and participate to analyse their capabilities and realise opportunities offered by the new emerging technologies. While the information technology is flourishing, women must get involved actively to become a powerful vehicle that will

create gender equality and eliminate the gender barriers existing within one's own society. Women migration is not determined merely by education but by their ability to participate. In some instances, it revealed that women were earning higher wages than their husband. This is possible because most corporate and industrial sector prefer female labor as they are considered to be more perseverant and flexible workers. By working, women are contributing towards family income and raising the level of joint family income. Most significant impact of globalisation is that it has increased social mobility, opportunities and self confidence in women. Some women commented that in developed countries they do not face any gender discrimination for jobs because the employers choose the best qualified and suitable employee regardless of their gender. They also said, there is equal social security, mobility and respect for women. Another striking positive impact is that there is equal share in terms of property rights between husband and wife. These responses revealed how globalisation has taken women to another level of freedom, confidence and independence which did not exist before. Every year the number of Naga women moving to foreign countries is increasing. And they encourage and motivate other women to look for job opening anywhere in the world irrespective of distance as globalisation has opened up many opportunities and made the world virtually a global village. Empowerment can be achieved when women do not accept the subordination role and fight for equal rights. Globalisation has the potential to eradicate the negative impact of traditional beliefs and practices assigned to women and it can be a driving force to increase the living standard of women across the globe.

Women represented 48.21 percent of Nagaland population with an absolute figure of 953,853 as per 2011 census. It is noteworthy to mention that Naga women also engaged in productive activities apart from household chores. Globalisation is a complex

phenomenon and it is being perceived differently by different people. To some, it offers opportunities while for others it presents a challenge. It is widely perceived that the process produces both “winners and losers” (the role of women in the global village. Zahra abotorabi). The UN conference on women held in 2000 in Beijing states that globalisation offers opportunities to some women and also leads to marginalisation to many women. Therefore, the impact of globalisation is felt differently according to places. Speaking on a general term, globalisation is promoting new ideas and knowledge on equality and rights. Women are becoming aware of their needs and wants and hence struggle for equal rights and opportunities. On the other hand, globalisation is also exacerbating gender inequality in a patriarchal society especially in the world countries. The impacts of globalisation are visible in the contexts of Naga women as seen in many countries. Nevertheless, women remain disadvantaged in many areas of life. Even after the advent of globalisation on a wide scale, women are not considered equal in status with men in many respects especially, in the social and political institutions. Nevertheless, globalisation has had a positive impact on Naga women. The wave of globalisation is a recent phenomenon in the context of Nagaland and it is greatly improving the lives of women.

POSITIVE IMPACT OF GLOBALISATION ON NAGA WOMEN

1. Globalisation has enhanced employment opportunities for Naga women. It has facilitated a degree of economic independence and self esteem.
2. The migration of Naga women to foreign countries has helped ease the problem of unemployment at home. Many women are now able to support family better.
3. Globalisation has lessened the isolation of women in both rural and urban areas. Women are now seen stepping out from home to grasp the opportunity of economic empowerment.

4. ICT have improved Naga women's access to employment opportunities and health care. Instantaneous communication has also created awareness on gender economic and well being disparity.
5. Globalisation has generated change in job role among Naga women. Previously, women were confined in homemaking, farming, handlooms etc. But the advent of globalisation has given women opportunities in finding better jobs. Naga women are now seen playing prominent role even in an international market.
6. Globalisation has changed women's role in family and marriage. As Naga women achieve social mobility and take up jobs abroad, some have become the sole breadwinner of the family. They are able to support their family better and share responsibilities. Marrying within the same tribe has become less important. From the study, it has proved that most women have chosen the right to marry any man irrespective of race, tribe or colour.
7. ICT and globalisation has open prospects to pursue higher and quality education. There are numerous Naga women spread across different countries pursuing higher studies.
8. There is an attitudinal change towards traditional women's role due to good education and exposures. Naga women have become aware of her rights and freedom. Globalisation has enhanced self confidence and independence which promote gender equality.
9. Globalisation has strengthened Naga women economic empowerment. They earn their own income and thus not dependent on male and enjoy economic independence which they never had before. In many cases women get higher wages than men. They are now contributing in family expenses and raise the level of total family income.

10. Globalisation has brought about more opportunities for women in general and has benefitted even the uneducated in the rural poor areas. In Nagaland more than half of the population are women as vegetable vendors in the market. It has helped them to increase their productivity and demand for their goods.

Women Participation and Empowerment

Women in traditional societies like Nagaland have a high literacy rate though still below men's. According to the latest census (2011) female literacy was 76.11 percent while male literacy stood at 82.75 percent. While the status of women in India is not favourable, as men due to so many factors, like low status and female foeticide in Nagaland 'the birth of a girl as the first offspring in the family is considered favourable'. (Niumai, Ajailiu) Today, our society is driven by hi-tech revolution and thus, there is no reason to remain stuck in our traditional society's ways and beliefs. In such a complex scenario, it is essential to point out that the Naga society which was simple in the past and where Naga women were considered as subordinate, being confined within the domestic sphere. But that has been transformed to a changed society now with multiple roles undertaken by women. This changing facet of Naga women has become a vital question. Following modernism, there was economic growth and that create employment opportunities. It was in this scenario which enables the Naga women folk in particular to take up the employment anywhere else rather than remaining confined to Nagaland only. As quoted by Meziir Daisy in 'Naga Women and Village Council' Naga women enjoy more privileges and status compared to other women in mainland India. Naga women are keen to move out from home looking for job opportunities regardless of the distance. From the data analysis, result also shows that the Naga women readily integrate with the outside world and make themselves accessible to international market. No negative response was

received from any of the women participant in this study. In summary, it is quite obvious that Naga women have the ability to adapt and progress if opportunities are given or accessible. Based on the World Bank, United Nations and International Telecommunication Union inequalities and digital division can be eliminated if impoverished people in developing countries have the opportunity to access ICT and use it as a mean of development. It has also identified that the women herself have to participate in any job opening and use ICT effectively for greater inclusion.

As the whole world is integrated by the impact of globalisation over the past twenty years, the result on economy has been dramatic. It has provided vast benefits which contribute rising income, falling poverty and job opportunities. Most significantly it has impacted the rural society in Nagaland as well though not to a great extent. The widespread use of ICT can now be seen as the solution to overcome digital divide between men and women, rural and urban societies and between developed and developing countries. Howsoever, developed countries have better access to opportunities whereas the developing countries suffer from many disadvantages despite the huge services provided by ICT. As globalisation has opened up tremendous jobs openings, the Naga women are somehow trying hard to catch up with the advanced countries by taking up jobs wherever it's available.

Naga women had face problems such as gender discrimination, legal rights, and social restrictions from time immemorial. However, with the new generation globalisation empowering all women to the changing role created by ICT. It has seen vast positive change in women's life even in Nagaland. As globalisation paves the way, women are now seen involving in better higher jobs rather than in just homemaking, farming, handicrafts work etc. Thus, it is undeniable that ICT and globalisation has changed women's job roles.

From the field survey, it transpired that women play prominent role in modern day job avenues which were reserved only for men earlier. Moreover, with their ability to move abroad they begin to live and learn. This new era of globalisation bring countries closer and Naga women learnt to claim equality rights as they got inspired by the other women around the world fighting for their rights. Though the above positive impacts on these women in the study cannot be generalised to every woman, to a large extent, these changes had positively contributed to women empowerment in one way or the other. For instance, woman have become more aware and in control of their health care, family planning, social empowerment etc. Moreover, the research shows women migrating to the developed countries acquire more social autonomy, financial stability and self-esteem. And it has improved these women's social status, family well being and access to resources.

Role of ICT in Women's Empowerment

The role of ICT in women empowerment study and research publications is very limited in Nagaland. From the data analysis, it can be concluded that women's involvement in ICT enables them to international migration which is the result of ICT induced globalisation. As a consequence, it eventually changed women's outlook in terms of lifestyles, their perceptions, mental concept and expanded their self-esteem which in affect changed the society as a whole. In addition, it has enhanced better quality of life through knowledge, education and skills. The study also shows there is a positive prospect for economic empowerment through ICT use by the women. Information technology helped women to create awareness and increase their knowledge of their social and legal rights, education, health etc. Therefore, this research concluded that ICT empowers Naga women socially and economically and subsequently increased their mental capacity.

ICT therefore is regarded as the prerequisite for women empowerment socially and economically. By involving in ICT, it can enhance their status and improved quality of life. According to Marcelle Gillian in the book 'Information and Communication Technology and their impact on use as an instrument for the advancement and empowerment of women', ICT can be a powerful tool for women's empowerment when used effectively; it can create better opportunities for women to exchange information, gain access to online education and to engage in e-commerce activities.

Nagaland is still a developing state and moving on gradually to be at par with other developed countries in terms of ICT. Through the setting up of the Department of ICT in 2003 in Nagaland, the government have played an important role in determining levels of ICT use and promotion to build an interface with the rest of the country. Though the participation of women is lower than men in every ICT related works, the field work reports that ICT can improve the economic status of Naga women with the new opportunities. By involving in ICT, Naga women are getting job security, awareness on gender equality, confidence, self esteem etc. As women gets access to ICT, they reported that they gained confidence and respect in the society and family as well. For those women who have access to ICT, there is improvement in health care, family planning, education and poverty reduction. ICT has the potential to facilitate job and entrepreneurial opportunities for women in a developing state of Nagaland.

Important aspects of women empowerment in Nagaland

1. **E- Commerce**

Information and Communication Technology (ICT) offers a number of new opportunities for women. Many of these involve in e-marketing and other e-

communication services. E-commerce is growing at a fast rate and increasing opportunities for women. It is proving profitable to women in developing states and countries to reduce the barriers of unemployment. E-commerce is playing an important role in empowering women in developing countries. E-commerce business is helping women to start and grow business while working from their own comfort home. This business is very essential for women as there are no pre determined levels of educational prerequisites. Moreover, e-commerce industry makes the world come closer since business is done entirely on the internet. E-commerce revolution has brought sense of financial independence and social empowerment for women. In addition to it, since payments are mostly done through digital payment, women have the ability to become techno savvy.

A large number of Naga women today are choosing e-commerce business selling variation of apparel, handicrafts, food items, jewellery, cosmetics etc. selling across India. E-commerce platform is giving women the freedom of working from their comfort homes. Though the trend is very recent, Naga women were able to embark on the business indicating striking increase in the number from Kohima and Dimapur town. In Dimapur alone, there are more than 50 online business stores owned by women. This online marketplace is driving Naga women the prospect of creativity and the feeling of financial satisfaction. It is quite remarkable to see that a great number of women in Nagaland are engaging in running e-business, displaying multi products online, home delivery service within the state and selling across the country.

2. Education

Education is regarded as one of the most important tools to empower women and to bring a positive attitudinal change. Women need knowledge, skill and confidence to

participate in any developmental process. Education is therefore crucial for women for the social, economic and political development of a country. There are 960 million illiterate adults around the globe of whom two thirds are women. It is essential that in order to attain sustainable development women have to be educated to improve quality of lives. Though women in the past are considered as secondary being whose contribution was never accepted yet with technological advances, it brought change in outlook. After Nagaland attained statehood in 1963, women have made tremendous growth in education and the position of women have increased substantially. According to 2011 census, the literacy rate of female in Nagaland is 76.11 while male literacy rate stands at 82.75. Naga women are prospering somehow in education sector as compared to other mainland Indians. Naga women today have success stories in the field of literacy, better health care and entrepreneurship. Women in Nagaland have surged past men in academia, particularly in research. More women are pursuing higher education than men. The All India Survey on Higher Education (AISHE) 2016-17 report release by the Human Resource Development affirmed the contention that women are decisively ahead of men in the state. Out of a total enrolment of 232 PhD scholars in Nagaland, 138 are women and 94 men. Overall, there are 2193 teachers teaching at various level of higher education. Out of this 993 were men while 1205 were women. From the data report, it is clear to see that Naga women somehow are advancing towards progress in education field. Whatsoever, quality education may be scarce among women which is why there are less or no women participants in a political scenario. The state government put its concern for women empowerment and a new department of women has been established. The state is focus on new opportunities to empower Naga women through education, policy interventions, economic development and greater interactions within and outside the state. As education

is a powerful tool in the emancipation and empowerment of women, Naga women are rising gradually to face the challenges and courage. It has enabled them to achieve job and support the family with her income. More importantly, she has achieved self esteem, respect and social status. Empowering of women through education is leading her for greater participation in government and community sector.

3. North East Network

Various non-profit organisations are set up for the welfare of women. Most of these are progressing at the forefront for championing women's rights, supporting sustainable livelihood and preserving traditional practices.

One good example is North East Network (NEN) in Chizami under Phek district established in 1996 founded by Monisha Behal, a woman's right activist. The Network programme work for women empowerment, skill enhancement like bamboo craft, food processing, organic farming, health, sanitation and human rights issues. Under this programme, the Chizami village council passed a resolution in January 2014 for equal wages in agricultural labour for both men and women. NEN preserved weaving traditional practise to offer livelihood opportunities for marginalised women which later led to creation on Chizami Weaves in 2008 with 300 women engaged in the practice. They got help from Delhi and Mumbai to develop new products and introduce more costumes beyond shawls. The products are now preserved in state emporiums in Bengaluru, Mumbai, New Delhi and Kolkata. Women workers under this programme are providing sustenance for the family and at the same time making their voices known by speaking women health care, livelihood and other social issues.

4. **Chakhesang Women Welfare Society**

Chakhesang Women Welfare Society is another non-profit organisation established in 1977. The society aims to improve the living conditions of Chakhesang community especially women. Health, education, better livelihood, promotion of traditional crafts and textiles are some of the major activities taken up by the society. During the last 40 years, the society is tirelessly working for the upliftment of women by imparting vocational trainings in knitting, weaving, tailoring, typing, food processing and agricultural works. The society is one of the leading business in the social service organisations.

5. Women Entrepreneurs

The role of women as entrepreneurs is slowly increasing especially in a developing country. Economic participation is a key component of women empowerment. Recently, there are evidences that Naga women are slowly engaging in small scale industries. Since time immemorial, Naga women have actively contributed to the local economy and livelihood for the family. And today, they continue to turn their fortune and inspired other women as well. Naga women are engaged in fibre production, livestock, piggery, farming, sericulture, mushroom cultivation etc. They attended various trainings and workshop organised by the respective department of Nagaland. Amazon India partnered with the state government and the National Skill Development Corp in 2017 to provide Naga women a platform to sell their products at zero initial cost. The objective is to drive digital literacy among women entrepreneurs in Nagaland. The programme also aims to encourage cottage industries in Nagaland by helping them grow through online commerce. India aims to promote flourishing cottage industries and unlock unique selection of products such as hand-woven items, intricate metalwork, woodwork, stonework, pottery and basketry.

Women in Nagaland have successful achievements in the fields of literacy, health and entrepreneur development. Nowadays, literacy rate of women and the enrolment of women in higher education are higher than men. In the health sector, the positive aspects are that the ratio of births of girls is increasing, low maternal mortality rate and absence of female foeticides. There are no cases of malnourishment among women and children. Majority of Naga women are engaged in agricultural activities. However, women participation in the manufacturing sector is as low as 6 percent. Participation in service sector is only 14 percent, out of which only around 7 percent are professional women. Recently, with education rising among women they have started to enter in other sectors such as trading, cottage industries, floriculture, aviation, restaurants etc.

The state policy for empowerment of women has been formulated and a new department of women has been established. The reservation of seats and earmarking of 25 percent of funds for women in the Village Development Boards have been the first step in the state for empowerment of women and participation in the governance and development of their communities. Empowerment of women will be vital as Nagaland marches towards its vision of a peaceful, developed and secure society. The focus must now shift to development of human being in its totality and enabling each other to realise his/her highest potentials.

Women participation in the workforce

Naga women working in the public administration is a very recent phenomenon. Until few decades ago, Naga women were hardly visible in the high government jobs. In politics there is still no woman MLA out of 60 members. Also no women MP except one, Mrs Rano M. Shaiza, the first and only one woman Member of Parliament of Lok Sabha

and also the first president of the Women's Federation, Naga National Council. Women's lack of access to higher education excluded Naga women from the well paid and high status occupations. Entry of women into higher professions like law, medicine, police, administration, education were much delayed. However, with the coming of modern era and technologies, there is shift in workforce which no longer require man only but women as well based on quality and capabilities. Gradually, with easy access to higher education it has help Naga women increase their participation in a better and higher skilled jobs. Nowadays, there is increasing number of Naga women in the higher profession as district administrators, academicians and directors in higher education, doctors, engineers, magistrates etc.

List of the Firsts Women of Nagaland

1. First Woman Member of Parliament, Lok Sabha – Rano M. Shaiza (1977-1980)
2. First Woman Chief Secretary of Nagaland – Banuo Z. Jamir (2014)
3. First Woman Chairman of Village Council – Tokheli Kikon (2005)
4. First Women Police Station – Women Police Station (October 19, 2016)
5. First Woman, IAS – Banuo Z. Jamir (1977)
6. First woman IPS officer – Amongla Aier (2006)
7. First Woman Pilot – Roveinai Poumai (2016)
8. First Naga Indian Ambassador – Neichulieu Nikki Haralu
9. First Naga Novelist to write in English – Easterine Kire
10. First Woman member of Nagaland Public service Commission – Dr. P. Kilemsungla (2007)
11. First Woman (or second Naga) Olympian – Chekrovolu Swuro (2012)

12. First Woman and Naga member of Union Public Service Commission – Dr. P. Kilemsungla (2015)

In the past, Naga women participation is very minimal however, with changing times, development of women have been given more importance. Moreover, with the ensuing of modernity and technology every society began to take measures for the betterment of women's livelihood. Likewise, Naga women today are playing a crucial role in all aspects of life. The government is putting every effort to raise their standards and eliminate inequities. Some women are now holding higher job than men. Besides, many women are employed in government sector, private, agriculture, piggery, weaving etc.

Therefore, Naga women are recognised by her contribution in numerous areas which augments her empowerment. Naga society still follows a patriarchal system and men continue to be the head of the family and the decision maker. Nevertheless, women are also treated with respect and honour. Within the households, women exert very strong influence on their husbands. In majority of the households, it is actually the women's wishes that are carried out by the husband. It has been observed that Naga women in modern era are emerging and playing significant roles for the emancipation and empowerment of women. Women are now rightly recognised as contributors and producers and not just as consumers or reliant on men. There are good number of Naga women today working in government sectors and business enterprises supporting the family and in some cases, as the sole bread earner.

How ICT can be a powerful tool for women's empowerment

As discussed earlier, ICT is a recent phenomenon in Nagaland. And yet, it is offering vast opportunities for Naga women including the poor women in rural areas. The new information economy is offering many opportunities and possibilities for women to become self reliant and independent. Naga women are moving into these ICT based jobs and are becoming great achievers. Their locally made handicrafts and other products can find niche markets outside the state if proper platform is created by the state. Policy makers and other NGO's need to organise IT training and awareness programmes to meet the needs of women. Moreover, Naga women themselves have to take more interest and motivate and get themselves involve in ICT policy making.

Education is the most important factor in improving the ability of women to take the opportunities of ICT. Therefore, basic education should be strengthened among all women especially in the rural areas. Girls and women should also be encouraged to study IT related subjects. Although most of the women accessing technology are from educated and urban areas, women from rural areas can also overcome the constraints by availing the many other opportunities provided these days. It is a known fact that in Nagaland, ICT is now beginning to grow and that Naga woman are taking the opportunities for social, economic and political empowerment. If women continue to participate in IT related jobs then IT can certainly find solution to women's problem and contribute to fulfil women's crucial needs.

CHAPTER FIVE

THE NEW TECHNOLOGY AND DIGITAL GENDER DIVIDE

What is Digital Gender Divide?

The uneven distribution of Information Technology within societies as well as across the world has been termed "the digital divide" (Hafkin & Taggart, 2001). Digital gender divide was identified in 1995 by the United Nations Commission on Science and Technology (UNCSTD) during the fourth world conference on women in Beijing. The term 'digital divide' refers to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard to both their opportunities to access information and communication technologies and to their use of the internet for a wide variety of activities (Joya, 2011). An article published by the United Nations entitled 'Women 2000 and beyond' defines the digital divide which is often characterised by low levels of access to technologies. Poverty, illiteracy, lack of computer literacy and language barriers are among the factors impeding access to ICT infrastructure, especially in the developing countries. Therefore, there is sizeable population of disadvantaged people in every country unaffected by technology revolution. Factors like time, education, language, cost, distance and gender further exemplified digital divide. Kenniston (2003) in his article, 'The Four Digital Divides' talks about the four digital divides that separate the people between those included in and excluded from the information age. According to him, income and education, linguistic and cultural, growing digital gap between the rich and the poor nations and the emergence of a new elite group are creating a huge gap in the information age.

The digital revolution which is considered as the most vital revolution in bringing development and growth to a country is often debated by many scholars. They defined ICT as digital divide which marginalised the rich and the poor, creates inequality between men and women and between developed and developing countries. No doubt, the developed and the advanced nations are on a better advantage to harness the benefits of ICT and the developing nations are often characterised by poor infrastructure and limited scope of investment. This intensifies inequalities between nations leading to digital divide in terms of technology use. There is a wide discrepancies existing between developed and developing nations, between the rich and the poor and educated and the non-educated. Despite all utopian dreams, ICT have not impact the world population positively. The main objective of this chapter will try to understand the nature of 'digital divide' that separate men and women from the information age.

Kenniston, (2003) argued that the information age has touched only a tiny minority of the world's population. Less than 5% of the world's population of six billion had gained access by the year 2002. Gender Digital Divide is defined as the inequalities between men and women in terms of access to information and communication technologies. It is the disparities in access and usage of any form of technology between women and men. Women are at a natural disadvantage to benefit from a digital revolution because they are less techno savvy and more technophobic and because the technology is not built for their needs and intuition (Hillbert, M. 2011). Basing on some research, women and poor people use the internet less. It is important to note that the digital divide is not simply an issue of access but also of obstacles to internet use. The digital divide is often characterised by low levels of access to technologies. Poverty, illiteracy, lack of computer literacy and language barriers are among the factors impeding access to ICT infrastructure, especially in

developing countries (United Nations, Division for the Advancement of Women, 2005). Some people see digital technology as a practical tool to empower women socially and economically. It can help women to gain employment such as through online networking and e-business. Whereas, in contrast to this opinion some women argue, women are the victim of digital gender divide because naturally women are less techno savvy. Some claim that men are much better users of digital tools.

Empirical research shows though men and women are given equal access to internet, they may not have the equal opportunity to access. The reason is, women spend less time on internet and other technologies because of gender roles and domestic responsibilities. During the 1990's, research shows that women tend to be latecomers to the digital age. As a consequence, the new technology was popularly portrayed as a male domain (Badagliacco, 1999). It was concluded that "men are more interested in technology than women and they are also more tech savvy" (Fallows, 2005). It is in this context that globalisation has given rise to division between men and women, rich and poor and between literate and illiterate. On the other hand it has also given rise to poverty and unemployment. It is in this context, Norris (2001) establishes that in order to improve the problem, policy makers must go beyond the evident technology implications to address the social inequalities.

During the second half of the twentieth century, ICT have transformed human lives. It has resulted to irrevocable social, political, economic and cultural transformations. ICT which includes internet, telephone, computer and other social networking applications have become a global infrastructure which has completely changed the human society. Therefore, our society is starting to embrace these new tools and changing from the way

we communicate. At this juncture, the question is, who gets empowered and accessed to digital network and who is marginalised by the use of these tools?

ICT offers vast and unprecedented opportunities for human empowerment in terms of health, education, business etc, It is also a key factor to social and economic disparity among certain groups. Digital gender divide is one of the disparities. Women face challenges throughout the world that prevent them to access from the benefits of IT. Technology has become all pervasive beginning with the coming of World Wide Web (WWW) in the 1990's. However, technology on the other hand is termed as gendered. This is evident because certain technologies such as computing technology, fast cars, spacecraft and other digital tools are associated with men while women are often associated with kitchen tools (Kelan, K. 2009). Research has found that men working in high-tech environments who see themselves as technologically well versed also construct themselves as technologically incompetent when it comes to operating the microwave in the home (Massey, 1996). It is an undeniable fact that most inventors of technology were men. However, research has also shown that there were few women who contributed to technology industry but history forgot to include them. The contribution of women like Ada Lovelance in the design of early computer is highly respected. Therefore, to uncover women inventors should be considered as a significant study. Research also shows more men were 'online' than women and more men dominate computing technology than women. Women are generally underrepresented in the technology industry. Their participation decreases as they advance to higher management.

The North East region of India has a limited access for women to technology. Since the programme is recent, efforts are needed to spread it to every state especially in the rural areas in order to achieve a wholesome progress. Nagaland remains a backward and considered to be one of the remote states as compared to mainland India. Political instability, unemployment, income inequality, lower job prospects, poor infrastructure and geographical problems are some of the main factors. When we talked about ICT as a barrier, it is true to those women in rural villages. Since Nagaland is largely rural with 71% living in rural villages as per 2011 census. Therefore, it is very likely that most women folks are not accessible to ICT tools such as smart phones, computer and internet. It is also understandable that women in the village are mostly engaged in agricultural work, family and domestic chores. Thus, time, cost and language become the major constraint for acquiring ICT based knowledge. In addition, some villages are yet to be connected with proper roads and network connectivity which becomes a great concern for development. In order to alleviate these villages, the government must take every possible effort to remove illiteracy. Likewise, the government is making every effort to bring IT connected to every district and department. Under the effort of the government of India, National Informatics Centre (NIC) was established in 1989 in Nagaland for providing e-governance to government sectors. However, because of hilly terrain, implementation of developmental work becomes a difficult task.

This chapter explores why there are low representation of women studying computer science and telecommunication engineering studies. In most European countries, it is a common phenomenon to observe why there are less women to pursue maths, technology and computer subjects than men. ‘Women have attained many goals in our modern society but they are still at a disadvantage in terms of playing an active role in the

design and production of technological appliances and service in the current information society' (Sainz, M. 2011). This chapter also looked at barriers to career advancement of women in ICT and strategies to promote and encourage them. Data was collected through online questionnaire from 50 students between the age 18-20 and to every woman working in the ICT sectors in Kohima. After data analysis, the most prevalent career advancement barriers identified were the lack of knowledge and skills in the field of technology, low interest in science and technology subject, male dominated nature and lack of support and encouragement. Participants believe organising seminar and workshop for awareness, proper guidance from parents and teachers, opportunities for women and building partnership will be effective to bridge the barriers.

For a state like Nagaland, ICT is a very recent phenomenon. Keeping in mind of the present technological development and gender digital divide, the present chapter attempted to look at the digital divide and constraints faced by women in Nagaland. This chapter also analyses the differences between men and women access and use of ICT in Nagaland state. Women are often underrepresented in the advancement of Information Technology especially in a developing nation like India and Nagaland being considered as one of the smallest Indian state in a hilly region is dramatically underrepresented in the ICT field.

Poverty, illiteracy, computer illiteracy, time, geographical location, language etc are the main constraints that many women faced from the benefits of technology. A UNESCO report on 'Gender Issues in the Information Society' points out that the capability of women to effectively use ICT depends on social factors like literacy, education, geographic location, mobility and social class. Looking from the technology perspective, ICT has increased and widened gender gap. From the field work result, Naga

women in the technical education and other IT related jobs are underrepresented than men. Nevertheless, as elsewhere in the world, women issues remain at the bottom of policy agendas. In comparison to men, women remain disadvantaged especially in ICT sectors with a minimal participation and representation in ICT job. The condition of women varies from country to country. One common problem faced by every country is that women are in the minority of ICT users in both developed and developing countries. For example, in Spain women are underrepresented in technology related studies and occupations. Women engagement in computer science is on the decrease. The research reveals that in Spain, girls begin to opt out of technical subjects, whereas boys begin to opt out of humanities and social sciences subjects. Another finding published in International Telecommunication Union (ITU) news in 2018 of 9500 girls and young women aged 11 to 18 in nine European countries underline the 'leaky pipeline' finding. In Finland, 62% of female teenagers said they see the natural sciences as important but only 37% said they would consider a career in that area. In 2013, 200 million more men had access to internet than women. In 2016, reports stated that women the percentage of women having access to internet is actually decreasing with women accessing ICT at 11% less than men in 2013 and 12% less than men in 2016. In 2018, women usage of internet was 12% lower than men. Studies lack sufficient detail as to how women use ICT and less frequently. This is the reason why special attention is paid to women in developing countries on how ICT can be a tool of empowerment and equality. In the rural village and developing nations, ICT penetration is slow. Therefore, potentials of ICT development become a challenging task to women in particular.

With the increased rise of ICT and globalisation in this present information age, the overall approach is to analyse, if ICT's are contributing to gender equality and women's empowerment. However, it has to understand that ICT alone cannot create gender equality or end poverty, but they can be a tool for social action and positive social change (Bridging the Gender Digital Divide, UNDP report, 2004). Women are seen progressing enormously from the benefits of ICT. However, there is also widening of digital gender divide.

In the present era of technology with the world becoming as one global village, ICT has the prospective to access global markets and e-commerce. The new digital technology has become accessible to every mankind breaking barriers in terms of cost, time and distance. It is also considered affordable and every day internet access is increasing. However, technology seems to have far negative consequences. It has created a digital and gender gap. The rich and the educated are getting more benefits while the poor and the uneducated are being marginalised. Technology had thus led to digital divide between the poor and rich and between men and women. More importantly, based on the research, women are tending to be underrepresented in the field of technology. According to the Internet and Mobile Association of India, for example, male users account for 67% of India's online population while women account for just 29%.

Women in Nagaland are not only underrepresented in top leadership positions but the progress rate in career advancement is slow. Although Naga women are closing the gap in some job sectors like education, the representation in leadership is still low. Especially in technical education and IT sector, Naga women are grossly underrepresented. When a survey was conducted in every IT institutions and offices around Nagaland, women participation was very low as compared to men. For the past five years, the pass percentage of female is higher than male in science stream. However, student's enrolment in technical

and IT education shows the number of female is not even one third of male. This is because more female continue to take generic bachelor degree courses while male are going for other engineering and IT courses. And when it comes to employment, women representation is still alarmingly low. The report also shows the top leadership positions in both private and government organisations are occupied by men. Based on the field work report, in the technology sector in particular, men outnumber women at every level.

WOMEN AND IT EDUCATION IN NAGALAND

The scarcity of women in technical fields has aroused enormous interest among researchers in the last few years. This study explains why women despite obtaining good grades and having equivalent grade with those of men still rejects related to technology and engineering studies. A group of researchers in Spain conducted a study on 'why don't girls choose technological studies'? They explained that differences depending on the type of studies they undertake are very much conditioned by gender stereotypes. The influence of parents as well as the influence of teachers and guidance counsellors is verified. No doubt, friends and peer group also play an important role in adolescent's choices. In Spain and in other countries, women do not reject science subject but they do specifically reject the branch of technology. In addition, technological high school is considered more masculine. This study also explores girls studying technology is considered least feminine.

Many researchers dismissed the assumption that women are less adept in science, engineering and technology. Biological differences are not the reason that prevents girls from participation. However, many believed that social factor greatly determined the choices of study. Societal stereotype views that the technology sector is best suited to men.

Girls are often not encouraged by families, teachers and peer groups to pursue technology field. In ICT, women are confined more in the lower level in IT enabled services. Gender gap is widening because women are less likely to receive technical education.

Women's participation in the state's IT growth is determined by the low status. Like in many parts of the world, more girls take up courses in arts subjects while few girls go for engineering and IT. In Nagaland, there are more girls in higher education where 75% are pursuing studies in private colleges. According to 2018-19 report, the total enrolment of female was 16,961 and male was 14,935. Gross Enrolment Ratio of female was 19.7 and for male 17.8. While more female are enrolled in higher education and are apparently performing better than male in class 10 and 12 board exams, few women choose IT studies. The unfortunate truth is that female enrolment in ICT education has declined. The research findings indicate many female students choose not to pursue IT education. Moreover, more female avoid studying computer science and IT because they fear they won't fit in.

Table 5.1: Pass percentage of 12th standard, science stream

Year	Pass Percentage	
	Male	Female
2017	88.48	93.72
2018	88.54	90.62
2019	82.64	90.43
2020	75.07	90.03

It is quite remarkable to see the performance of girls in their higher secondary level (science stream) where the pass percentage of girls has been higher than the boys for the past four years. Based on the source, women in Nagaland definitely have surged past men in academia, particularly in research. Besides, more women are attending colleges in pursuit of higher education and graduating with bachelor and master degrees. But few of them continue to professional courses. Meanwhile in workforce, women participation has dipped.

However, the fact is that though the literacy rate in Nagaland is high, yet very few women opt for, and enter in IT fields. Currently, IT education and training is available in the state providing both degree and diploma certificate courses like in Polytechnic, NIT, NIELIT and other training centres. Women are particularly under-represented in engineering and Information Technology education. Very few female students choose ICT studies.

Table 6.2. Year wise number of student selected for undergoing under-graduate engineering courses.

		2017			2018			2019			2020		
Sl. No	**Course Name**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
1	Civil Engg.	16	17	33	20	**18**	**38**	**21**	**11**	**32**	**29**	**9**	**38**
2	Electrical	**2**	**0**	**2**	**1**	**1**	**2**	**6**	**1**	**7**	**3**	**0**	**3**
3	mechanical	**3**	**2**	**5**	**3**	**3**	**6**	**7**	**2**	**9**	**3**	**2**	**5**
4	Computer science	**2**	**0**	**2**	**1**	**0**	**1**	**5**	**3**	**8**	**3**	**4**	**7**
5	Computer Engg	**1**	**1**	**2**	**1**	**1**	**2**	**2**	**0**	**2**	**1**	**1**	**2**
6	Electronics & Comm.	**1**	**0**	**1**	**1**	**0**	**1**	**0**	**1**	**1**	**1**	**0**	**1**
7	Architect.	**2**	**1**	**3**	**2**	**1**	**3**	**1**	**0**	**1**	**2**	**0**	**2**
8	Chemical Engg.	**1**	**0**	**1**	**0**	**0**	**0**	**4**	**1**	**5**	**1**	**0**	**1**
9	Pharmacy	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**1**	**1**	**1**	**0**	**1**

Source: Directorate of Technical Education, kohima

The table shows the result of male and female selected to study engineering. Engineering field is often dominated by male in almost all the countries. In Nagaland, female are also on the lesser level as compared to male. From the table, it is quite evident that there is more male choosing to study engineering but we can also see in some years there are more women in some particular subject although there is no consistency in their

strength. Also, there is not so much gender gap. Though less in number, the girl's studying engineering is slowly growing. This proves that engineering field are attracting female slowly.

Table 6. 3. Year wise number of students for undergoing under-graduate degree courses in MBBS, BDS.

Sl.No	Year	Gender	MBBS	BDS
1.	2017	Male	21	5
		Female	31	7
2.	2018	Male	15	8
		Female	40	3
3.	2019	Male	24	0
		Female	39	12
4.	2020	Male	24	4
		Female	39	8

Source: Directorate of Technical Education, Kohima

According to this data, it shows majority are female taking up medical courses. It is not surprising that the number of female students in this field is on the rise in Nagaland.

Problem Identification

The digital transformation offers immense opportunities to every society at large. However, the benefits are not equally balanced between societies and between genders. Based on a study, gender differences in choice of studies emerge already in adolescents.

This situation is common in other countries and reflects a completely generalised pattern in advanced countries as well. In the entire European Union, the percentage of female in 2005 graduates in sciences, mathematics and computer science reached 39.17%, in health sciences 66.42% and in engineering 18.32%. Therefore, it does not mean that women reject sciences. The representation of women in careers of medical sciences is good but not in engineering (Lopez Mercedes, Puertas Susana and Sainz Milagros, 2011). These differences in choice of studies already appear in adolescence and will affect the future career.

In the IT sector in Nagaland, there is lack of women representation in the labour workforce and in academics. Although in Nagaland there are no gender differences to choose education and the parent's gives freedom to a child to choose their interest. The distribution of boys and girls in the higher secondary schools reveals remarkable result. In Nagaland, more girls are taking science courses in college and passing out with higher percentage than the boys. However, after the secondary level, there are huge sex differences. There is a higher rate of women pursuing other bachelor degrees but in technological and engineering studies, the percentage of women is much lower than that of men. Therefore, there is much concern about the low number of women students majoring and passing out in technology. Field studies have identified some general factors contributing to low representation of women in the IT sectors in Nagaland. From the qualitative study, several barriers are the root causes for digital gender divide. Limited networking opportunities, lack of awareness and guidance in career options and lack of female mentors are the top barriers identified. Besides, time constraint, affordability, education and technological literacy also contribute to the issues.

Lack of awareness from the respective institutions is considered one of the main reasons. Some girls claimed that they were not aware of the potential benefits of IT from the schools or from the societal group. Even in formal education girls are less interested in maths, science and computer subjects. Few female students assume that they did not choose science because it was more difficult than other fields. According to findings from a 2000 study by the American Association of University Women (AAUW), girls and young women find technology related careers unappealing because they associate them with jobs that are 'solitary', 'passive' and 'sedentary' (Hafkin Nancy and Taggart Nancy, 2001). In Africa, many science teachers hold their views that girls can't think or work scientifically and that science is too mechanical and technical for girls. Women also feel complacent and do not effort to use internet thinking they don't need it. Some women are generally not interested to use internet. Women are significantly more likely than men not to use the internet because they think they 'do not need it' or they 'do not want it' (Fallows, 2005). Many women on the other hand reports lack of interest about its usefulness. Men and women use internet for different ends. Women also spend less hours using internet than men. When a case study was performed among girls from age 18-22, none of them responded to gaming. Girls mostly use internet for entertainment and information between 7-9 hours a day. It is encouraging that women tend to make use of better opportunities than men. Women are less enthusiastic about e-gaming and e-governance than men. Digital illiteracy also hinders women's and girl's ability to access internet services. According to some researchers, women are technophobic. Digital divide still persist between men and women. The research identifies women distance themselves from technical education while men construct a close relationship with technology. This study can also be interpreted why there is lesser number of women in technical

professions. Although in earlier times women were at a disadvantaged position to enter technical education, today women are in a better position to study any professions they choose to. Inspite of this, women tend to select non-technical professions because they themselves are not interested in technology. For instance, although institute like NIELIT offers 5% reservation for girls, yet their enrolment remains very low. Women therefore are still under represented in technical fields.

ICT: an Opportunity for women

'Most women internet users in almost all developing countries are not representative of women in the country as a whole, but rather part of a small, urban educated elite'(Hafkin, N. & Taggart N., 2001). With the advent of digital technology, access to internet and ICT applications has become easy and feasible. Ever since mobile technology has evolved rapidly over the years, its uses have made life and business much easier and simpler. Digital revolution began around 1980's with the invention of internet and later with mobile devices and social networking globally. Nagaland though one of the smallest states in India located in a far flung geographical area is no longer a backward state in terms of technology.

Some case studies show that ICT can and are empowering women in developing countries and states. For example, in Nagaland many women have heard of ICT education and are interested to take up IT studies if proper awareness is highlighted on the importance of IT. Nagaland state despite of being a patriarchal society, gender bias is not very strong when it comes to education. According to the study which was conducted between the age group 18-20, many girls responded about their interest and awareness of

IT. Moreover, some girls are more interested in science subject and believe ICT can empower women in Nagaland if schools can stressed more importance on IT subject.

Evidence also shows ICT can and are empowering Naga women lately. For instance, ICT provide women entrepreneurs with access to worldwide e-business channels. Naga women represent more than 90% in e-business marketing. Nowadays, e-commerce is playing an important role in economic empowerment among Naga women. ICT has open new opportunities and communication channels across the globe. Field studies illustrate Naga women entrepreneurs are equipped with ICT tools and are therefore able to reach the markets far and wide. Now, they have large number of clients and securing high number of orders. Networking has enabled them to work at home efficiently. It is no doubt that the new information society is offering possibilities of new IT enabled business to Naga women. Another good example of e-commerce is local handicraft and handloom where Naga women export them not only outside the state but outside the country too.

Education is the most important factors to take advantage of the opportunities offered by information technology. And since in Nagaland, girl's performance is better than the boys in the high school and higher secondary level, there is a good opportunity that the number of girls and women will increase in IT related jobs in the coming years. Secondly, in every school, computer subject is made compulsory. Therefore, we can assure that technology is not a problem for women's problems in Nagaland. In general, ICT is offering a lifeline for economic and social empowerment. We can also assume that ICT can be a powerful tool for women to overcome constraints and achieve full equality to determine their lives. Likewise, in Nagaland, women and girls do not experience much gender discrimination as compared to other mainland India, ICT will open up a direct window for Naga women to the outside world. According to the research findings, job

opportunity in Nagaland does not encounter any gender bias but relies on capability and qualification. Besides, some IT institute offer even relaxation to girls. Therefore, it is apparent that ICT can offer potential for women and girls for improving education and health, creating self employment and promoting empowerment. ICT has created job avenues. Women are seen taking up these jobs in various forms ranging from data entry, technicians, programmers, operators, computer engineers and data analyst.

Empirical research revealed that majority of Naga girls and women were ICT literate. They made use of computer, internet and mobile phone for communication and for other purposes. Majority of them have equal access to the use of ICT's with men.

Women and ICT: Obstacles and Challenges

ICT has become a driving force to transform the society, economy and polity all over the world. As Hafkin and Taggart has clearly mentioned, there is little chance for countries to develop without their incorporation into the information age. Most of the countries embrace information technology to minimise marginalisation and also to provide opportunities for economic growth. ICT as a process is changing the way we live and work. To some, ICT is a driving force while to others it is a possible risk associated with a divide. Therefore, ICT is perceived as both "winners" and "losers". ICT has given way to globalisation which created opportunities to women in the developing nations. Feminist propound that globalisation has created 'feminisation of poverty' and has further reinforced many existing gender disparities and inequalities. The world is divided between haves and have-nots which create digital divide. Among this division, women who represent one third of the world population is the most affected. This gender gap is increasing in almost every country and especially in the developing and rural nation.

Therefore, it is necessary to address the disadvantages faced by women so as to check marginalisation in the future. Feminist and human activist are concern that if women are not actively present at all levels, we will see new forms of marginalisation that could undermine other advances made by women in the 20th century. Thus, it is essential that gender issues be considered early in the process of the introduction of Information Technology in developing countries. Though ICT is providing opportunities to large women, most of them are employed only in Software Company and front desk operator rather than in technical and higher jobs. Thus, we see this new digital age has marked digital divide between men and women and between poor and educated women. In other sense, ICT has divided the world into developed, developing and underdeveloped nations. Women belonging to underdeveloped nations become the victims and are pushed to the lowest rank of social global world. ICT was meant to create better jobs and increase employment to all deprived men and women. However, it becomes accessible to only fairly well off and educated sections of the society. For poor women, existing inequalities and insecurities have intensified, unskilled women have lost their livelihoods and to some women workers, it has meant a loss of rights, benefits and job security (Hafkin Nancy and Nancy Taggart, 2001).

Some challenging factors such as time constraints, cost, illiteracy, education, language barrier and cultural norms are affecting women to access IT. In addition, many women are not interested to take up science subjects and IT studies in the context of Nagaland state. Research survey was conducted among girl's students between the age group 18-22 with structured questionnaire method. According to the study, most girls show their interest in science subject and IT studies. But only half of the girls are aware of the importance of IT and show their interest in IT fields. However, 50 percent of the

respondents are not fully aware of IT subject and its implications and therefore, didn't choose to study. The result is because of lack of proper encouragement and guidance. The study also revealed that although they are aware of IT benefits yet did not choose to study because of less support and encouragement from the teachers, family and society. Therefore, in order to empower girls and women in Nagaland, it is necessary to organise massive awareness campaign, building partnership, strengthening women's network and educate them. Moreover, within the state due to lack of proper institutions, many women miss out the chance.

As stated earlier, in Nagaland women enjoy relatively more self esteem and freedom as compared to other mainland Indian state. Women are not discriminated and equal job opportunity is offered to both men and women. Despite the equal treatment being offered, statistical report indicates that men continue to outnumber women in terms of employment in IT which led to digital gender divide. Many factors attribute the fact that women study engineering and IT at a lower rate than men. Cultural and social norms also influence the digital gap. Obstacles to some extend, emanate from patriarchal, institutionalised work, limited ICT facilities as well as individual perceptions and attitudes.

Women are often underrepresented in ICT in the developing countries. There are various factors that limit women access to the new technologies. Some of the significant constraints are education, language, time, cost, skill, cultural norms and location.

Education

'As women make up nearly two-thirds of the world's illiterate and one out of every two women in developing countries is illiterate, women are more likely than men to lack basic literacy and computer skills, which would enable them to take advantage of the new global communication technologies' (Taggart Nancy and Hafkin Nancy, 2001). Unlike the rest of the developing countries, the current education scenario in Nagaland is remarkable. As shown in table 5.1, girls passed percentage in both high school and higher secondary school is higher than the boys. And table 6.3 shows enrolment at most colleges, universities and research more female. However, girls tend to find computer subject tougher and thus produce lower marks than other subjects. After passing out from secondary school, girls enrolment in IT studies begin to drop down to a low level. The research findings indicate girl's percentage in various IT institutes within the state is decreasing. Some girls think IT is meant for boys since boys are more techno savvy than them. This factor significantly impacts girls and women in general, and those hailing from the rural villages who had no access to formal education. Since in Nagaland, 75% of the population live in village, it is understandable that lack of education is a barrier for future development.

Cost and Time

Internet cost and connection becomes an obstacle in developing nation especially in the rural areas. Many people cannot afford a computer and internet connection. Though smart phones are excessively available in the market yet, still more people cannot afford to buy. It becomes an added advantage to the educated, the elite and the middle class to access. But for those people from rural village, it becomes an obstacle as it is unaffordable

for them. Time availability is one of the factors that determine increase efficiency. However, time is a major constraint to women access. It is because household and childcare responsibilities rest on women's and girl's shoulder. This is the reason why women could not spend more time on internet and computer at home.

Geographical Location

Geographical location is a pertaining factor which affects women access to information technology. Women's mobility is more limited than men in most societies. And, Nagaland being located in a far hilly region from the mainland India, women migrating to the mainland cities and towns remain lower than men. This is because of our society and parents do not feel safe for women to travel alone even if opportunities arises. Moreover, women have the responsibilities to look after the family which makes it less easy than men to migrate to towns and cities. Thus, in such scenario men can take the advantage, wherease women were likely to be deprived from the services of IT.

Skills

When it comes to skills, men are better than women in gadgets and technology devices. Even if women have access and opportunities to all IT inputs, they still lack the expertise skill in managing the operation. Most girls also agreed that boys tend to be more techno savvy, which is true in reality.

How do women use the internet?

Men and women use the internet for different reasons. Researchers around the world have found that men use internet more than women and stay online longer than women. From the questionnaire report it was found that most women use the phone

internet for 7-9 hours a day mainly for educational purpose, to improve health and gathering information. While men use the internet more than 10 hours a day, they spend more time in gaming, e-business, information and e-governance. In the present generation, it is found that women and girls are more enthusiastic with e-business and online shopping. They spend half of the usage time in doing online shopping and selling products. We can conclude by saying that women embrace digital technology more passionately than men. They are found to be better communicators. ICT tools are providing opportunities and other benefits to women in terms of employment, education, health and income. Especially in the Nagaland context, ICT is boosting in e-business as large section of women are engaged in buying and selling in a large scale. Women are considered less digital capable, however, once able to access to ICT, it can be turned into a virtuous circle and can enable them to fight the existing inequalities.

Bridging the Digital divide

It is obvious that unless women increase using digital tools, it is likely that greater numbers of women will be marginalised in the coming years especially in the developing countries. Nagaland being one of the smallest and remotest states in India, is very vulnerable for marginalisation. Information Technology offers significant opportunities for all. Therefore, it is vital to ensure women's ability to take advantage which depends upon conducive policy from the government. Government and societal organisation need to implement concrete measures to promote gender equality. Ministry of IT can take the lead in IT policy making and give priority to women in some areas. It is also important to extend communications infrastructure and offers the benefit to women. As mentioned earlier, women participation in ICT is very low therefore, women need to involve themselves in the area of information and communication technology. Girls and women

must strive to fully utilise the benefits of new technology. It is vital that the government should emphasise on the importance of IT. Such support will increase the meet of women and participation in IT policy, which will in turn, increase women contribution in IT development. When women have access to Information Technology, they can engage themselves in productive tasks (Hafkin N. & Taggart N., 2001).

More girls and women need to enter scientific and technological studies. One very important factor to improve the ability of women is to take full advantage of the opportunities offered by Information Technology from scientific to technological education. Educational institutions should integrate girls education and expose them to new technologies at an early stage. They should be equipped with skills and be prepared to take the roles as creators, designers and managers. Schools should play a vital role to improve awareness on IT education. Efforts should be given to girls and women studying IT related subjects to help them fully utilise IT skills.

Educators and researchers around the world are demanding for more IT education for women. They recommend educating families and teachers to encourage girls in science, maths and computer subjects at an early stage. Moreover, in the developing countries and in rural village like Nagaland, most girls are likely to discontinue after high school, therefore, computer education should be incorporated into schools as early as possible. Thus, ICT is understood as potential instruments for addressing the needs of a women, children and men.

CHAPTER SIX

CONCLUSION

Information and Communication Technology (ICT) which is serving as a catalyst for development is been divided into two diametric discourses. Some people asserts on the positive impact of technology while others believe ICT is responsible in bringing the digital divide. The new information age specifically the mobile technology has the potential to eliminate poverty and empower economic growth in the developing countries. However, access to ICT alone cannot empower the marginalised. Information and Communication Technology is enveloping our country's business environment and people are increasingly striving to ensure more productivity. But with higher potentials, the challenges of digital divide are also higher. No doubt, the role of ICT has impacted not only the lives of women but in all areas of life. It has increased women's employment opportunities and many women are now seeing earning more than men. This has raised the level of family income and economy of the state. ICT has improved women's social status since ICT has cut international borders, many women moved to developed nations for better lives. In such process, it builds self confidence, social choices and economic empowerment.

ICT can play a powerful role in ensuring empowerment of women in Nagaland as well. Many research studies found that ICT ensures women empowerment and can have a positive impact. Nagaland is a small state a land-locked region located in a topographically hilly terrain where development is not easily feasible. Because of poor infrastructures, political instability and other social problems, the state lags behind in technological

development growth. However, the state government is giving top priority to ICT development. ICTs have become a key factor for comprehensive development, poverty reduction, women empowerment, educational attainment etc. Since ICT and economic development is co-related, gender disparity will have serious implications for economic growth as a whole. At the World Summit on the information society, it was declared that the global challenge for the new millennium is to build a society where everyone can create, access, utilise and share information and knowledge; enabling individuals, communities and people to achieve their full potential in promoting sustainable development and improving their quality of life (WSIS, 2005). IT has the potential to redefine traditional gender roles and that the spread of IT enabled services has been immensely beneficial to both men and women (Kelkar and Nathan, 2002). Pioneers in the field of gender empowerment have shown that access to and effective use of ICT contributes to women's empowerment and capacity building in numerous ways. It is relevant to say that even in Nagaland ICT is having a positive impact on women's progress. Over the years we have seen women rising in ICT sectors especially in business. As mentioned earlier, ICT and economic development are correlated. It is a known fact in e-business women are engaged more predominantly than man, and they contribute to the state economic development.

ICT has the potential to reduce gender inequality and strengthen the position of women. It is imperative to make ICT more accessible for women in order to acquire its relevant benefits. Women also need ICT to develop their skills, enhance economic empowerment and become informed citizenship.

The role of ICT as a tool for sustainable development and growth has attracted every countries over recent years. Every nation is planning out strategic policies and

partnerships to enhance development. They are formulating skills to make ICT as the basic tool for new knowledge or information societies. Over the decade, nations are applying ICT tools for advancement in social, political and economic activity. There has been a growing understanding that ICT can be an important instrument for a country to make a wholesome progress like in employment, health care, education etc.

It has become so obvious that in order to attain global and national competitiveness, industries and business establishments needs a work force with the latest knowledge and skill of ICT. The bottom line is that, countries development depends on quality, cost, competitiveness and relevance. Nations must aim to provide quality education to enhance life time capabilities to all men and women to equip knowledge and a high level of inter-personal, business and learning skill. Modern technologies have become all pervasive and an integral part of our lives. The Information Revolution has spawned the Information Technology industry and in the process, given rise to tremendous opportunity and challenge. The new technology aims to offer substantial possibilities to improve the lives of women. It offers job opportunities in the IT fields and also teaches them to use digital tools and improve their learning ability as users and producers. ICT has brought opportunities even to the poor women. However, women need to get involve themselves in policy development in order to bring sustainable development and progress. Along with policy, education is pivotal for empowerment. Therefore, girls and women have to continue to educate themselves with various IT skills in order to achieve full empowerment.

This study is motivated with the intention to understand the role of Information and Communication Technology in Nagaland through empirical analysis. The present thesis *'Impact of Information and Communication Technology (ICT) on Naga Women; A Historical Analysis'* reveals the realities of women's limitation in technical education and their under-representation in various ICT sectors. This study focuses on the impact of ICT on Naga women. It looks at how women in Nagaland are participating in the IT sectors and whether it is benefiting them or not. This study tried to establish whether Naga women is benefitting from the opportunities of ICT. The central argument of this study is that women participation in the ICT sectors is limited. They are underrepresented in various technical jobs. More so, the enrolment of girl's student taking up technical studies is very limited. This study brings out about how ICT has affected women's lives and how women are contributing to the society.

The objectives of this study were to analyse and understand the historical background of ICT in the state. It discussed the advent of ICT, establishment, development and their contribution towards the state. There was a drastic change in the society, economy and polity after the advent of ICT. The study also reviewed the outcome of the ICT development of the Nagaland state. It also critically analysed and discussed the poor infrastructure and industrial development in the state.

The study begins with the historical background of ICT in Nagaland in general, and the role of women in particular. Naga society in traditional period revolved around the village and was mostly restricted by the confines of the traditional norms and practices. Agriculture is the main source of livelihood and nearly 70% of the total population depends upon it till today. It was only after the arrival of the British in 1830's, the Naga

society first witnessed modernisation. Slowly and gradually, the Naga society, economy and polity underwent tremendous development.

In the gradual process, the state government under the initiatives of the Indian government, development began to take place. With the advent of mobile phone in 2003, the state has witnessed drastic change in terms of communication infrastructures of ICT which had tremendous impact on the Naga society in general, and Naga women in particular. Though ICT is a recent phenomenon in the Nagaland context, yet through the initiatives of the state government and other private enterprise, we can say that ICT is benefiting all sections of the society. As Nagaland state is one of the most remote states in India, the society is often faced with practical hardships in terms of infrastructural development. Geographically located on a hilly terrain and heavy rainfall, natural disasters like landslides become the biggest obstacle for development. Since ICT is considered an important factor for an integrated development, it is essential to set up strong mechanism lead by the state government. In spite of the problems, now ICT being accessible, the Naga society are getting the benefit of enjoying better health care, increased income and improved education. It is also found that ICT has enabled better access to government services, enhance better communication, private sectors are maximised, better job opportunities and increased agricultural production. ICT on the other hand is impacting the lives of Naga women positively. With the implementation of ICT, we see many women are getting involved in career building. Internet is one of the most important technological tools serving the purpose of women. Women begin to take the opportunity and participating in social networking and e-business. With ICT's driven globalisation, many Naga women migrates to foreign countries for work and studies.

Information Technology has become an important tool in transforming social, political and economic life. Every developed and developing country has incorporated ICT for a progressive goal and without which there is little chance for a country to develop and will further lead to a digital divide. More concern for the women folks, is that, if they do not understand the significance of IT and its uses then, there are chances which will marginalise them from the society and from the world. Gender technology should be an issue so that woman in the developing countries is not affected by the digital divide. If IT is incorporated, it can be a potent force in meeting women's needs and can provide the resources that can lead women out of poverty. Today ICT is considered as the most powerful tool in enhancing economic growth. It is hailed as an effective instrument to elevate the status of women.

The study pointed out that with the introduction of ICT, Nagaland is unleashing various modern development for the benefit of the society. Though Nagaland does not conform to gender bias unlike in mainland Indian, the impact of ICT on women is still minimum compare to that of men. Up to the higher secondary level, girl's performance is much better than the boys. However, after the secondary level, girls enrolling in engineering and ICT studies drops down. There is no gender preference associated within the families but the girl's choice of interest seems to be the main hindrance. Therefore, it is vital to study the problem and to initiate positive measures so as to increase their interest and make them understand the importance of ICT. Looking from the other perspective, ICT is doing well in women empowerment. For example, many women in Nagaland are participating in e-business. Through online, they could sell their local products across the countries. They regard this as economic empowerment by which they are able to support their family better.

It was also found that, women in traditional period were confined in domestic sphere engaged only with household chores and responsibilities. They are not encouraged to get involve in outside dealings or business. On the other hand, men have every freedom to choose everything including pursuing of higher education. For many centuries the society continued to live with traditional practices which have restricted women's freedom and choice. It was only with the arrival of the British, modernity began to took place. And in due course of time, the society progressively embraced Christianity. Under the initiatives of the British, western education was introduced which gradually benefitted women as well. In the process though gradual, Naga society underwent tremendous development in all aspects of life. Globalisation began in 1990's and gradually spread all over the world. Soon, under the leadership of Indian government, special attention was paid to North East region in terms of infrastructural development. Efforts were much needed in all round development to bring the state at par with other states/countries. Therefore, ICT sector was one of the major developments to be introduced in the state. Consequently, with the setting up of Science and Technology Council, Department of Information and Communication Technology, National Informatic Council, Technical institutes in the districts etc the state has experienced major development in all areas of life. With the advent of mobile technology, internet and smart phones, the citizens are seeing better education, health care, improved life and better economy.

The empirical research and data analysis shows that ICT has a positive impact on women's life in Nagaland. The results confirm that the use of ICT enable women to come out of poverty and marginalisation. Moreover, ICT is becoming a driving force for comprehensive political, economic and social empowerment to both men and women.

From the gender perspective it is widely argued that ICT is empowering women economically, politically and socially all over the countries. In Nagaland state alone, women are seen empowering themselves from the benefits of ICT. One of the important impacts of the proliferation of ICT and its impact on Naga women is that a large variety of female labor force participation rates are increasing. Large group of women are entering into ICT sector as entrepreneurs, managers and directors. Globalisation on the other hand, has led to an increase of Naga women in networking and migration to foreign countries. These developments have helped women to integrate themselves to build a sustainable social relationship. ICT can play an important role in changing the social and cultural aspects in women. ICT can also help them to utilise their potentials and making them self-reliant. Thus, this study shows ICT has a scope to impact women positively in the coming years. There is need for women's empowerment in this present generation. Studies show that since women are half of the total population in the world and yet, 70% of women are still disadvantaged. Therefore, it is necessary to equip women with ICT tools and empowers them in order to eradicate poverty, inequality and unemployment. To unleash the full potential of ICT in development programs, a new level of collaboration both internally and with other organisation and a new approach to scaling solutions to achieve a quality material impact is needed.

As had been mentioned in the preceding chapters ICT programme in Nagaland is a recent discipline, the state still face many problems for development in the particular field. Women continue to be under-represented in many employment sectors. Women still lack rights to inherit property, own land, get educated and involved in decision making. This is mainly because of Nagas being patriarchal society from the time immemorial. This study critically analyse how women folk are being marginalise in the IT fields. Most high jobs in

IT are occupied by men. So far, no women have become the director of technical education department. Therefore, this study highlights and argues that with the rising development of ICT, it is shaping the gap popularly known as 'The Digital Divide' between men and women, between urban and rural and between rich and poor. This study identified some factors which constraints women to access ICT. Poverty, illiteracy and language barriers are considered particularly acute for women. A UNESCO report on "Gender Issues in the Information Society" points out that the capability of women to effectively use ICT depends on social factors, literacy, geographic location, mobility and social class. Women are less likely to use and operate electronic gadgets compared to men in almost all developed and developing countries. For example, in the United States boys are five times more active than girls to use computers at home.

While discussing the impact of globalisation on women, it is important to understand that women are not a homogeneous group. Therefore, the impact of both ICT and globalisation on women are felt differently. Although united as a gender, women across the countries are divided by caste, religion, culture, sex, etc. And so, the impact of globalisation on women differs from country to country and culture to culture. It is also clear that globalisation has not affected all women in the same way because of different level of ability and knowledge. The educated, privileged women and the techno savvy women are the most benefitted from the process of globalisation. Whereas, the poor and the uneducated group of women suffers tremendous difficulties and deprivation.

The gender digital divide is becoming a major concern and the world is working to eliminate the divide and to especially ensure women in developing countries to be effected by the information age. It is comprehensible that ICT offers vast opportunities to women which will improve their livelihood. It is also a major tool of empowerment by which

women could access the resources and voice out their abilities. This study helped to identify women's motivation to participate in the IT sector. The role of networking, mentorship and initiatives from the government and other civil societies play a pivotal role in creating equal opportunity for participation. Since *silence* is considered as a major hindrance to women empowerment since time immemorial, ICT have broken the silent barrier and isolation of women. Now, women including the poor could access the opportunities and benefits of ICT in a wide range.

Government establishments have to ensure that ICT infrastructure has to reach to every woman. Public policy should support integration of women and encourage their decision making role in the globalising world. Administrative and political groups must also support their demands so as not to deprive any women. Women on the other hand need to get themselves involve in ICT policies. Along with involvement in policy, women have to equip themselves with ICT knowledge since such skills become the key factor for success in the information age. Furthermore, to work at the high level of IT, women and girls need to have good scientific and technical education. Women reported that they gained more respect if they have ICT skills like learning to use computer, internet or mobile phones among the community. In addition, they also become confident in job market.

The impact of ICT has diffused in the rural areas as well. Particularly, the mobile technology has increased the access among women and eased transportation. This technology helped women to obtain information from the market about the market prices and for the sale of their products. ICT are expected to solve a variety of problems in establishing good governance and alleviating poverty. In a rural context, ICT need to be evaluated in agriculture sector and other economic activities. And, in order, to improve the

impact, civil society or organisations must work towards poverty alleviation. Greater attention need to increase to support women especially the poor women in their involvement in ICT by providing training.

This thesis demonstrates that ICT has the potential to help women by improving their social status from traditional barriers, improving access to information, expanding the market and enhancing employment opportunities. ICT can also play a vital role in women's empowerment in employment, education, personal development and other productive areas of life. Networking technologies have brought new job opportunities for women in vast numbers. It have made possible for women to communicate, network and collaborate on a global scale to promote the agenda of gender equality. Networking have also enable women to organise themselves to address their grievances or any other kind of discriminatory actions. Websites are set up in many developed countries to provide assistance to women seeking help on domestic violence. ICT can act as a platform to disseminate women's experiences and concerns. Over the past years, researchers have identified and recognised that ICT had created new opportunities for women. Many women across the world are contributing in ICT building, knowledge sharing, social networking and digital commerce activities. The world have acknowledged that poverty, lack of access, computer illiteracy, language barriers etc are some of the main factors that prevented women from using ICT. Therefore, measures were proposed to ensure that every woman is benefitted from ICT such as equal access to ICT, special training and opportunities and equal opportunities through partnership in both private and public enterprises.

Globalisation is a process of increasing integration and interdependence among the nations across the globe. However, this process is not consistent with women and it leads to poverty and marginalisation. Therefore, gender equality becomes critical to development and growth. In some cases, there has been unequal distribution of opportunities which resulted to gender inequality. Women in the developing countries are affected the most and often denied the benefits of a globalisation and ICT. Therefore, it becomes necessary to initiate proper implementation and legislation. From the United Nations Development Fund report, the impact of globalisation is widening gender inequality in the developing nations of Africa, Asia, Eastern Europe and Latin America. Women are more exposed to work exploitation like cheap labour, low wages, unstable employment and underrepresentation. Taking all these into considerations, it is necessary to organise networking partnership among women and among countries and fight for equal opportunities at all levels. The state and the government must also play a greater role to enhance women skills and innovations. ICT are especially relevant today with the rise of the new digital economy. It has been estimated that 90% of future jobs will require ICT skills, and some million new jobs will be created in the computer, mathematical, architectural and engineering fields. Therefore, the use of ICT has the potential to sustainable development and growth. ICT will play an important role in supporting the development of women capacities and resources. Hence, it is essential to have a collaborative effort between researchers, program implementers, policy makers and state officials to address ICT as a vital developmental programme.

As had discussed in the chapters, language, literacy, time and cost are the major factors that limit women in ICT empowerment. Hence, critical factors are necessary to adopt to make ICT available and accessible to every woman. For example, digital literacy

should be adopted especially in the rural areas by providing appropriate learning opportunities. Since gender inequalities continue to remain a setback in the digital economy, gender equality should be sensitised during the implementation programme and during the whole planning cycle. In order to include all man and woman from the rural areas to digital world, it is very important to provide them with access and tools of ICT. It is also necessary to promote their interest by building partnership with the developed and developing nations.

Bibliography

Akokpari, John. (2000). Globalization and Migration in Africa. *African Sociological Review.* Vol. 4, No. 2.pp72-92

Ardestani, Zahra. (2012). The Role of Women in the Global Village. *The Journal of International Issues.* Vol. 16. No. 4.pp 90-109

Bannerjee, Gargi. (2014). ICT Development in India: Current Scenerio. *International Journal of Current Research*. Vol. 6. Issue.1.pp 4685-4689

Bhatnagar, S. & Schware. (2000). *Information and Communication Technology in Development.* New Delhi, sage Publications.

Bhuimali, A. & Malakar, B. (ed). (2007). *Women in the Face of Globalisation.* New Delhi: Seriel Publications.

Castells, M. (2000). *The Rise of Network Society*. Oxford, Blackwell Publications.

Castells, M. (2000). Power of Identity. Oxford, Blackwell Publications.

Castells, M. (2000). End of Millinium. Blackwell publications.

Cecelia, Ng. & Mitter, S. (ed). (2005). *Gender and the Digital Economy: Perspective from the Developing World.* Sage Publications.

Census of India. (2011). Accessed at www.censusindia.gov.in

Chakraborty, J. (2011). Information and Communication Technology for Development: a Case Study of Community Information Centre's in Assam and Nagaland (Unpublished doctoral dissertation). University of Hyderabad.

Chakraborty, J. (2012). Local Self Governance as Democratic Participation: The Unique Case of the Nagas. *Journal of Business Management & Social Sciences Research*. Vol.1. No.2.pp98-104

Chakraborty, S. & Ray, A. K. (ed). (2008). *Society, Politics and Development in North East India*. New Delhi, Concept Publications.

Chasie, C. (2005). Nagaland in Transition. *India International Centre Quarterly.* Vol. 32. No.2/3.pp253-264

Cowan, Ruth. (1976). The Industrial Revolution in the Home: Household Technology and Social Change in the 20th Century. *Technology and Culture*. Vol. 17, No. 1.pp 1-23

Culture of Nagaland-Food, Dress, Tradition &People. Accessed on 06.09.20121 from www.holidify.com

Davisson, William. I. (1972). Technology and Social Change. *The Review of Politics*. Vol. 34. No. 4.pp.172-184

Directorate of Economics & Statistics. Nagaland Statistical Handbook. (2018). Nagaland, Kohima

D. N. (2001). ICTs in Rural Poverty Alleviation. *Economic and Political Weekly*.Vol. 36. No. 11. pp. 917-920

Dubey, A., Kumar,, S. Srivastav N. & Thomas E. (ed). (2007). *Globalisation and North East India*. New Delhi, Standard Publishers.

Dutta, Nandita & Jha Sumitra. (2014). *Women Empowerment and Globalisation.* New Delhi. Pacific Books International.

Dutta, P.C. (ed). (2008). Some Aspects of Sustainable Socio-Economic Development in North Eastern Region of India. New Delhi: Concept Publishers.

Freeman, B. Richard. (2002). The Labour Market in the New Information Economy. *Oxford Review of Economic Policy*.Vol. 18. No. 3. pp. 288-305

Fugue, Joy. (2013). Visions of Technology, Gender and Knowledge Production. *Women's Studies Quarterly.* Vol. 41. No. 3/4 .pp 280-282

Gayathri.V, & Vijaybaskar.M.(2003). ICT and Indian Development: Processes, Prognoses, Policies. *Economic and Political Weekly*. Vol. 38. No. 24. pp. 2360-2364

Ghosh, Avik. (2006). *Communication Technology and Human Development.* New Delhi, Sage Publications.

Ghosh, Jayati. (2002). Globalization, Export-Oriented Employment for Women and Social Policy: A Case Study of India. *Social Scientist.* Vol. 30. No. 11/12.pp 17-60

Government of India. (2020). Annual Report of Ministry of Electronics & Information Technology (MeitY)

Government of Nagaland. (2004). Nagaland State Human Development Report

Government of Nagaland. (2016). Nagaland State Human Development Report

Government of Nagaland. (2014). Annual Administrative Report. Department of Information Technology &Communication.

Government of Nagaland. (2015). Annual Administrative Report. Department of Information Technology & Communication.

Government of Nagaland. (2016). Annual Administrative Report. Department of Information Technology & Communication.

Government of Nagaland. (2017). Annual Administrative Report. Department of Information Technology & Communication.

Government of Nagaland. (2011). Science and Technology Intervention in Nagaland. Department of Science and Technology.

Gurumurthi, Anita. (2006). Promoting Gender Equality? Some related uses of ICTs by women. *Journal of Development in Practise*.Vol. 16. No. 6. pp. 611-616

Hafkin, Nancy and Nancy Taggart. (2001). *Gender and Information Technology and Developing Countries: An Analytic Study:* Learnlink Project, Washington D. C: USAID.

Kaur, Pushpinder. (2018). Impact of Globalisation on Women. *Global Journal of Commerce & Management Perspective.* Vol. 7 (2)

Keniston, Kenneth. (2003). *The Four Digital Divides*. New Delhi, Sage Publications.

K. Vidyavathi. (2006). *Women in Information Technology: Enabled Services*. New Delhi, Sage Publications.

Kennedy Tracy, Wellman Barry & Klement Kristine. (2003). Gendering the Digital Divide. Vol. 1, issue 5.pp. 72-96

Kolarova, Marta. (2006). Gender and Globalisation: Labour Changes in the Global Economy. *Czech Sociological Review.* Vol. 42, No.6.pp 1241-1257

Kumar, Bipin. (2009). *Globalisation and Women Empowerment.* New Delhi, Deep and Deep Publications.

Kwon, N. & Zweizig, D.L. (2006). Use of Community Information and Communication Technologies (ICTs): Explaining the use of Community Network with Demographic Factors and Alternative Service Accessibility. The Library Quarterly. Vol. 76. No. 1.pp 81-106

Madanda, A., Kabonesa & Kyomuhendo, B. (2007). Challenges to Women's Empowerment through ICTs: The case of Makerere University. No. 71. pp. 81-88

Mamba, T. Nesaratnam, S. & Singh, J. (2018). A study on the Gender Digital Divide: Overcoming the Under-Representation of South Africa Women in the IT Sector. *Business Management and Strategy*. Vol. 9, No. 2. pp. 151-168

Moolman Janine, Primo Natasha & Shackleton Jean Sally. (2007). Taking a Byte of Technology: Women and ICTs.

Maqbool, T., Dar, Bilal A., & Jan, Salima. (ed). (2020*). Gender Digital Divide in the Information Society: A Systematic Review of Current Literature.* Kanpur, International Publications. pp.223-235

Mitra, Charulatha. (2003). *Women's Development Goals*: *Reshaping Globalization.* New Delhi, Authors Press.

Nagaland-Government and Society. Accessed on 06.09.2021 from www.britannica.com

Nagaland Infomatics Centre (NIC). Available at www.nagaland.nic.in

Nagaland. (2018). National Family Health Survey, India.

Nakro, Tsotalu. (ed). (2020). Impact of Globalisation on Naga Women: A Case Study.Kanpur. International Publications. pp.236-247

Nakro, Tsotalu. (2018). Impact of Information and Communication Technology (ICT) in the North East Region with Special Reference to Nagaland. Vol. 7. *International Journal of Research.* Issue IX. pp 1-11

National Policy on Information Technology. Accessed on 20/08/2019 from https://www.meity.gov.in

Ng. Cecelia & Swasti, Mitter. (ed).(2005). *Gender and the Digital Economy: Perspective from the Developing World*. Sage Publications.

Nienu, V. (2015). Naga Cultural Milieu. Dorylus Publishing Group.

Niumai, Ajailiu.(2011). Globalization and Naga Women: A Sociological Perspective. Krantikaal Prakashan. pp. 204-228

Naidu, Gurappa. (2006). Globalization and its Impact on Indian Society. *The Indian journal of Political Science.* Vol. 67. No. 1.pp 65-76

Olsen Jan, Pedersen Stig & Hendricks Vincent. (2009). *A Companion to the Philosophy of Technology.* Blackwell Publishing Ltd.

Pande, Rekha.(2005). Looking at Information Technology from a gender Perspectives. The Call Centers in India. Asian Journal of Women Studies. Vol 11 No. 1. pp 58-82. EWHA Womens University Press.

Pande, Rekha & Weide, Theo. (2012). Globalization, Technology Diffusion and Gender Disparity. IGI Global.

Pande, Rekha. (ed). (2015). Empowering Women in Developing Countries: ICT Applications and Benefits. Daya Publishing House.

Pande, Rekha. (2000). Globalization and Women in the Agricultural Sector. *International Feminist Journal of politics.* Vol. 2. No. 3. pp.409-412

Pande, Rekha. (2001). The Social Costs of Globalisation: Restructuring Developing World Economies. *Journal of Asian Women Studies*. Vol. 10

Pearson, Ruth. (2000). Moving the goalposts: Gender and globalization in the twenty-first century. Vol. 8, No. 1.pp 10-19

Parida, Jayanta. (2011). Globalization and its impact on Women-An Assessment. *The Indian Journal of Political Science.* Vol. 72. No. 2.pp 429-435

Pursell, Caroll. (2005). *A Companion to American Technology.* Blackwell Publishing.

Roy, Sumit. (2005). *Globalisation, ICT and Developing Nations.* Sage Publications.

Sagar, Rajiv. (2010). *Women and Professional Development in India*. New Delhi, Cyber Tech Publications.

Sainz, Milagroz. (2011). Factors which influence girls' orientations to ICT subjects in schools. Evidence from Spain. *International Journal of Gender, Science and Technology.* Vol.3. No. 2.pp 388-406

Saez Mercedez, Puertas Susana & Sainz Milagros. (2011). Why don't Girls Choose Technological Studies? Adolescents Stereotypes and Attitudes towards Studies Related to Medicine or Engineering. Vol. 14. No. 1.pp 74-87

Samiti, Dastkari J. The Exquisite Basketry of the Angami Nagas. Accessed on 06.09.2021 from www.artsandculture .google.com

Schroeder, Ralph. Social Theory after the Internet. UCL, Press. Accessed on 20/07/2020, from http://www.jstor.org/stable/j.ctt20krxdr.10

Singh, K., Devi, S. Roma & Singh, Meitram H. (2015). Traditional Agricultural tools and Implements used in Wokha, Nagaland. *Indian Journal of Hill farming*. Vol. 28. Issue 2.pp 50-55

Saxena, Anupama. (2005). E-Governance and Good Governance: The Indian Context. *The Indian Journal of Political Science.*Vol. 66. No. 2. pp. 313-328

Singha, Komol. (ed). (2009). Village Development in North East India. New Delhi, Concept Publications.

Sharma, Usha. (2003). *Women Empowerment through Information Technology*. New Delhi, Authors Press.

Skalli, H. Loubna. (2006). Communicating Gender in the Public Sphere: Women and Information Technology in the MENA. *Journal of Middle East Women's Studies.* Vol. 2. No. 2.pp. 35-39

Smith, Gail. (1998). Women Working in the Internet. No. 38. pp. 70-77

T.K. Basantia & R.K.P.G Singha. (ed). (2009*). Education and Development of North East Tribal Region:* A Seed Corn-Relationship. Concept Publishers.

Tenhunen, Sirpa. (2008). Mobile Technology in the Village: ICTs, Culture, and Social Logistics in India. *The Journal of the Royal Anthropological Institute.* Vol. 14. No. 3. pp. 515-534

The Nagas. Accessed on 06.09.2021 from wwwe.lib.cam.ac.uk

UNCTAD. (2014). Measuring ICT and Gender: An Assessment

Unwin, Tim. (2009*). Information and Communication Technology for Development.* Cambridge, Cambridge publications.

Wasserman, Herman. New Pressures and Opportunities: Technology, Geopolitics and Social Change. University of Illinois Press. Accessed on 20/07/2020, from http://www.jstor.com/stable/10.5406

Zunguze, Margaret. (2007). Do ICTs Really Empower Rural Women? Interrogation of a Zimbabwean Community ICT Project. No. 71 pp. 97-105