ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGIES FOR WOMEN EMPOWERMENT : A KERALA EXPERIENCE.

Thesis submitted to University of Calicut for the award of the degree of Doctor of Philosophy in Economics.

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CERTIFICATE

This is to certify that this Thesis titled, ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGIES FOR WOMEN EMPOWERMENT: A KERALA EXPERIENCE submitted for the award of the degree of Doctor of Philosophy in Economics is a bonafide record of research work done by Dinesh.M.P under my guidance and supervision. No part of this work has been submitted earlier for the award of any other degree or diploma.

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DECLARATION

I Dinesh.M.P do hereby declare that this written account titled ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGIES FOR WOMEN EMPOWERMENT: A KERALA EXPERIENCE is a bonafide record of research done by me under the guidance of Dr. D Retnaraj, Professor, Department of Economics, University of Calicut. I also declare that this thesis has not been submitted by me earlier for the award of any degree, diploma, fellowship or any other similar title.

Dinesh.M.P

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Chapter 1

INTRODUCTION

1.1 Introduction

Population, workforce and employment are closely interrelated and a change in the size, composition and distribution of the population will alter the demographic structure of the labour force. In turn, a change in the size of the labour force, level of employment and job opportunities will affect components of population change, particularly fertility and migration (UN: 1976). According to recommended international definitions, unemployed persons seeking paid jobs are considered as the part of the labour force, but persons engaged in non-income producing activities, like women engaged in domestic work in own home, are excluded from it (UN: 1973). Participation in labour force varies among cultures, across age-groups and between sexes. Census or labour force surveys in different settings across the globe highlights relatively low labour force participation rate of women vis-à-vis men, and significant variation in female participation rate among countries (Jose: 1989). A number of analyses subscribe to the view that conceptual and measurement related problems, implicit in the identification of women within the labour force, serves as an explanation to the low level of work force participation rate among women, observed particularly in most of the developing nations (Agarwal: 1985). Again, cultural perceptions of traditional societies manifest in rigid notions about relative gender roles are found to prevail in these countries cited (Jose: 1989). Levels of economic activity among women have been found to be concomitant with the process of economic development (Durand: 1970) and social progress. Sadie (1966) had opined about the existence of a U-shaped curve depicting the relationship between female work participation and the course of development, which he felt have four distinct stages. Accordingly, he

justifies lower levels of economic activity among females, as observed in most of the transitional, developing societies in Asia and Latin America. Considerable amount of literature exist regarding the various determinants and patterns of women's work in different socio-cultural settings. As such, both demographic as well as non-demographic factors have been suggested to explain and substantiate evidences of women's work based on micro as well as macro level studies.

The International Conference on Population and Development (ICPD), held in Cairo in 1994, reiterated the importance of economic activity among women aiming towards the goal of gender equality and women empowerment. The conference noted that, the empowerment of women is anchored to their economic status in the society. Social recognition and status also hinges on economic empowerment. Women's economic productivity is a critical factor, as the dependence of the family on their contribution to household resources increases with the poverty status of the household (Mahapatra: 2002). Thus, it has been maintained that making women more productive--hence more effective income earner--will reduce their dependency and enhance their status, besides helping in reducing fertility and slowing down population growth, improving child health and nutrition status, bestowing greater decision making power on the women, both inside as well as outside the household and increasing aggregate labour productivity and ensures speedy growth in key economic sectors (World Bank: 1991; Gopalan: 1995).

Women are vital and productive agents in Indian economy, even as studies point towards 'statistical purdah' (World Bank: 1991) or as 'economic invisibility' (Radha Devi: 1981) manifests in selective under-documentation of their Endeavour, in a society with strong traits of patriarchal norms. In India, the Labour force is largely masculine, with only one out of every four workers being a female (RGI: 2001).

Within India, the state of Kerala has carved out a separate niche for itself in development discourse due to its impressive performance over the years in the demographic and social development front. Much has been written

about Kerala's high level of female literacy, custom of matrilineal inheritance, political achievement regarding decentralized governance and commitment towards social welfare, high levels of life expectancy, low infant mortality and cohesive social structure - promoting effective interpersonal channels of communication (Bhatt and Rajan: 1990; Kumar: 1994; Kannan: 1998;). Such achievements in social development have led to the emergence of the so-called 'Kerala-Model' of development. However, it is certainly paradoxical that, in such a society which is well acknowledged for higher status and position to women, participation of the women in the labour force has been consistently on a decline. Such a paradox deserves close scrutiny.

1.2 Women Empowerment

The empowerment of women is one of the central issues in the process of development of countries all over the world. Women empowerment is concerned with the question of women's participation or non- participation in paid work, social work and employment. The fact is that waged labour opens up new doors, new ways of being and an opportunity to connect with other women and form bonds that are not feminine. All these would undeniably have an impact on how women perceive themselves and others. It is clear that the ability to work outside their own homes enables women to recognize, challenge or confront structures of hierarchy and women perceive possibilities of transformation in identities and perceptions through employment. A further aspect that shapes the way women and society respond has to do with the nature of the work itself. It is known that a large part of employment opportunities available to women consists of work that is considered either 'feminine' or subsidiary / inferior.

Empowerment is a multi-faceted, multi-dimensional and multi-layered concept. Women empowerment is a process in which women gain greater share of control over resources –material, human and intellectual like knowledge, information, ideas and financial resources like money and access to money and control over decision making in the home, community, society and nation and to gain power (UN,1995).

According to the Government of India, empowerment means moving from a position of enforced powerlessness to one of power. The World Bank has suggested that empowerment of women should be a key aspect of all social development programmes (Mahapatra, 2002), for women in India, need to be empowered in several realms: personal, familial, economical, social and political.

1.2.1 Economic Empowerment

Women are economically empowered when they are supported to engage in a productive activity that allows them some degree of autonomy. This type of empowerment is also concerned with the quality of their economic involvement, beyond their presence as poorly paid workers. Women's economic empowerment requires restructuring and redistribution power as well as financial resources to create financial equity and access to material resources on the micro and macro levels, which is dependent upon gender equality and re-evaluation of women's work.

1.2.2 Social Empowerment

This is a process of acquiring information, knowledge and skills and supporting the participation of women in social organizations without any gender discrimination in day-to-day activities. It is also concerned with inculcating a feeling of equality instead of subordination among women. Social empowerment aims at creating an enabling environment through adopting various policies and programmes for development of women, besides providing them easy and equal access to all the basic minimum services so as to enable them to realize their full potential.

1.2.3 Political empowerment

It is concerned with enhancing the power of voice and collective action by women. Besides, it ensures equitable representation of women in decision making structures, both formal and informal, and strengthens their voice in the formation of policies affecting their societies. It is

generally seen that throughout the world, women are under-represented at all levels of politics even though some women have been national leader. Women's political empowerment will require people to examine how power operates now and for those who benefit from its current skewed distribution to choose to share it equally with others, and to so freely and without prejudice.

1.3 Information and Communication Technologies (ICTs)

Across the world, countries have recognized Information and Communication Technology (ICT) as an effective tool in catalyzing the economic activity in efficient governance and in developing human resources. There is a growing recognition of the newer and wider possibilities that technology presents before the society in the modern times. IT together with Communication Technologies has brought about unprecedented changes in the way people communicate and conduct business, pleasure and social interaction. The evolution of new forms of technologies and imaginative forms of applications of the new and older technologies makes the lives of the people better and more comfortable in several ways. There is even greater realization that instead of a single-track technology, lateral integration of technologies can deliver startling results and the world seems to be moving towards such converged systems. With the emergence of IT on the national agenda and the announcement of ICTs policies by various states, governments have recognized the "Convergence of core technologies and E-Governance" as the tool for good governance, sustainable development, globalization of economy and social empowerment. Information is the key to democracy. With the advent of ICTs, it has become possible for the common man to access global information. The realm of electronic communication encompasses telecommunication, broadcasting, information technology enabled services (ITES) and industries, to undergo profound changes leading to a Global Information Infrastructure (GII), which will be capable of carrying any type of information, be it text, data, voice or video. Information is now broadly

defined to embrace voice in telephony, text in fax and newspapers, images in video and television broadcasting, and data in computers. All information can be digitized, transported, stored, retrieved, modified, and then distributed. Information is getting transportable over common infrastructure viz. high-speed, broadcast, digital electronic highways etc. Emerging digital techniques, new network alternatives (Intelligent Networks), high bandwidth communication technology, and state-of-the-art software for network functions and services, are the new technology trends evident in the development of electronic communication systems.

The convergence of Information and Communication Technology (ICT) involve not only the integration of carriage and content but also of the industry. In such convergence, instances of conflicting interests might surface and it may trigger a competition ending up with the survival of the fittest industries and of sustainable applications. It may also be realized that converged applications have a lot of bearing on e-governance, which, people perceive as means to 'good governance'.

Initiatives of the government and the private sector to adopt standards, for developing interconnection and accounting systems and to deploy infrastructures, due to liberalization policies, have seen the growth of satellite systems and regional WANs (Wide Area Networks) in India. Emergence of ICTs on the national agenda and announcement of ICTs policies by several state governments has strengthened India's position in the software-driven ICT sector in the world. For example, states of Tamil Nadu, Andhra Pradesh, Delhi, Goa, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Odessa, Punjab, Rajasthan, Sikkim, Uttar Pradesh, West Bengal, Pondicherry etc. announced several ICT policies in their respective states.

Current research indicates that Information and Communication Technologies (ICTs) is an enabling environment for economic growth. ICT improves business, education and employment opportunities. Moreover, ICT facilitates communication between people, since it increases social interaction. If access to, and use of ICT, is directly linked to social and

economic development, then it is imperative to ensure that women in developing countries understand the significance of these technologies and use them in order to contribute effectively in their countries' development. Otherwise, they will become further marginalized from the mainstream of their countries and of the world. Furthermore, accessing computers and using it is an important factor determining wage potential. In the USA, workers who use ICT are typically paid 10% to15% higher than non computer users holding similar positions.

Information is the key to democracy. ICTs have the potential to improve interaction between government and citizens, fostering transparency and accountability in governance. Information and communication technology comprises a complex and heterogeneous set of goods, applications and services used to produce, process, distribute and transform information. ICTs are a diverse set of technological tools and resources to create, disseminate, store, bring value-addition and manage information. The ICT sector consists of segments as diverse as telecommunications, television and radio broadcasting, computer hardware, software and services and electronic media, for e.g. the internet and electronic mail.

1.4 Women and ICTs

Around the world new information and communication technologies (ICTs) have changed the lives of individuals, organizations and indeed, entire nations. No country and few communities are being left untouched by the 'information society' and given the state of recent inter-governmental and multi-stakeholder policy debates, there is still a long way to go before civil rights are entrenched in this new society. Women view that ICTs could "herald a new paradigm of freedom" for them. It would enable women across geographies to connect and engender collective identities. It also offers spaces for their self expression and action that transgress social and cultural boundaries. Further it makes possible journeys to explore new identities meanwhile breaking the barriers to learning and knowledge

imposed by literacy and print technology based systems and affirming alternative constructions of reality beyond the written word.

Policy is needed to ensure that investment in ICTs contributes to more equitable and sustainable development as these technologies are neither gender-neutral nor irrelevant to the lives of poor women. Women want technology to enable them to engage in communication that will improve their livelihoods and help them to achieve their human rights. Various reports highlights imbalances between women's and men's access to and participation in ICT and asserts that more needs to be done to ensure that women equally enjoys the benefits arising from global knowledge based economy at all levels of ICT policy and practice. This is a formidable challenge facing all societies in today's world, and especially developing countries which needs to consider ensuring, as a fundamental policy, that all workers have access to the technologies and that they possess the required education and skills to use them.

Due to systemic gender biases in ICTs and their applications, women are far more likely than men to experience discrimination in the information society. Women are not giving up on ICTs. On the contrary, even resource-poor and non-literate women and their organizations are aware of the power of information technologies and communication processes and, if given the opportunity to do so, will use them to advance their basic needs and strategic interests. Knowledge that informs policy and advocacy is critical to overcoming poverty which is directly linked to economic and social justice for all. At an alarming rate, women, relative to men, are experiencing higher rates of hunger and malnutrition, illiteracy, overwork and sexual violence with direct impacts on children, the sick and the elderly under their care. ICTs are building new channels for social awareness, mobilizing resources for resource-poor women and networking women as well as men who are supportive of human rights goals.

Large groups of working women of India are in the rural and unorganized sectors. Socially the majorities of Indian women are still tradition bound and are in a disadvantageous position. There is inequality in women's access

to and participation in all communications systems, especially the media, and also insufficient mobilization to promote women's contribution to society. As a result of globalization, there is a sudden opening up of the Indian economy at a very high speed, during the past decades, wherein advances in information technology have facilitated a global communications network that transcends national boundaries and has an impact on public policy, private attitudes and behavior, especially of children and young adults. Everywhere the potential exists for the media to make a far greater contribution to the advancement of women.

More women are involved in careers in the communications sector, but few have attained positions at the decision-making level or serve on governing boards and bodies that influence media policy. The lack of gender sensitivity in the media is evidenced by the failure to eliminate the gender-based stereotyping that can be found in public and private, local, national and international media organizations.

The continued projection of negative and degrading images of women in media communications - electronic, print, visual and audio - must be changed. Print and electronic media in most countries do not provide a balanced picture of women's diverse lives and contributions to society in a changing world. In addition, violent and degrading or pornographic media products are also negatively affecting women and their participation in society. Programming that reinforces women's traditional roles can be equally limiting. The worldwide trend towards consumerism has created a climate in which advertisements and commercial messages often portray women primarily as consumers and target girls and women of all ages inappropriately.

In our society, the freedom of women to seek employment outside of the family is a major issue. This freedom is denied in many cultures and this attitude in itself is a serious violation of women’s liberty and gender equality, the absence of this freedom militate the economic empowerment of women creating deleterious consequences.

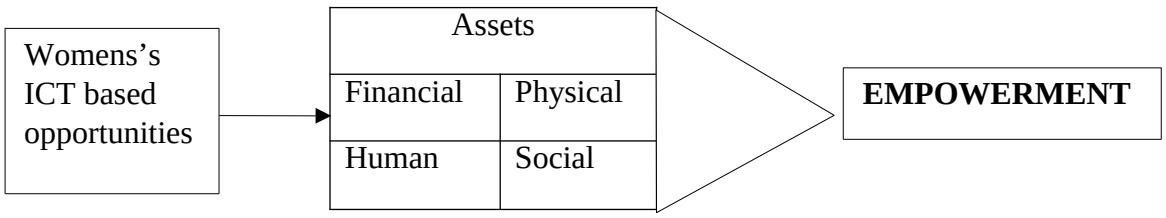
Knowledge liberates people from poverty and empowers them. It is also now well understood that any attempt to improve the quality of life of people in developing countries would be incomplete without the progress of their women folk. ICTs emerge as a powerful tool for gender empowerment in a developing country like India. According to the World Bank, tele-density in India had reached 3.8% of the population by 2001. The number of internet accounts is growing at a rate of 50% per annum. The IT and ITES sector is projected to grow 18% in the next five years to become an industry of Rs. 4.58 lakhs crores by 2012, according to an IDC[1] release.

The UNESCO reports on "Gender issues in the informal society" states the capability of women to effectively use information obtained through ICT is clearly dependent on many social factors, including literacy and education, geographical location, mobility and social class. Hence, the clear guidance on good practice for ICT project interventions from the micro level of participatory assessment of needs to the macro level of gender sensitized policies on infrastructure (Jorge, 2002, Huyer and Sisoska, 2003) is required.

We can explain the impact of ICTs on women employees' life with the help of following Figure 1.1.

Figure 1.1

Impact of ICTs on women employees' life



[1]1. International Data Corporation and IT Index, 2001. Out Sourcing Institute.

It can be understood from the above figure 1.1 that ICT based opportunities have a direct impact on the life of women, who utilize the same, by providing them with following

- **Improved financial assets:** Regular income from work in ICT-based enterprises has enabled women to contribute to their family welfare (such as healthcare, education or payment for marriage of siblings) and even to add regularly to savings, when previously they might be unemployed with no income.
- **Improved physical assets:** Regular income from ICT-based enterprises has enabled women to purchase land, housing, gold or physical goods for their family, and also to purchase hardware and software equipment for use at work where previously that would not have been possible.
- **Improved human assets:** Women develop personally and professionally through work in an ICT-based enterprise, particularly in terms of technical skill development and in personal confidence. Many become involved with management activities and decision-making, and some develop entrepreneurial skills such as an understanding of cash flow, customer service, etc.
- **Improved social assets:** Women working in an ICT-based enterprise see improvements in three main areas of social relations: links to customers and suppliers (business linkages); links to support agencies plus banks or credit unions (other institutional linkages); and links to other women working in the enterprise or in similar/nearby enterprises (social and community linkages).
- **Empowerment:** Women working in ICT-based enterprises seem to talk about this more than anything else. They talk about gaining confidence to apply new skills, to tackle problems, to deal with businesses and agencies. They talk about new "respect", "recognition" and "acceptance" within their communities. As a result, they can make some inroads into traditional gender biases: taking on management roles traditionally seen as "men's work"; hiring and managing men as employees; taking on traditionally-male activities like working late or travelling with their

work; and having a different role in their families due to their new income and status.

Additionally, potential gender-related benefits for women involved in ICT-based enterprises can include:

- employment and financial independence particularly in the absence of social safety nets;
- the opportunity for skills development in a women-only environment;
- work that is suitable for disabled women who might otherwise have very limited options;
- the opportunity to increase competitiveness, both within the economy as well as in relation to men; and
- Means to involve women in ICT policy making.

There are also innumerable broader benefits. These women are likely to act as role models for others. Their enterprises may create a "business node" that encourages other businesses – including women-run businesses – to set up. They may start to create a critical mass of skilled women, making migration of those women to other areas and other sectors less likely. More generally, they start to close the gender digital divide. Having said this, it appears that under the aegis of globalization, of which ICTs are an agent, women are increasingly commodified and this commodification is being sold as women's empowerment, especially through their participation in the economy of which they are already an intrinsic and vital part, and whose roles remain largely unrecognized and unpaid. ICTs are seen as 'a double-edged sword' in the empowerment of women. Evidence of women's concentration in lower-end ICTs jobs and also their displacement in some workplaces by ICTs, shows that ICTs do not necessarily aid women in all situations.

1.5 Scope of the Study

It is generally believed that female participation in production processes would result in increasing their economic and social status, consequently

empowering them. Kerala is the only state in India where the female labour force participation rate has declined continuously. The female labour force participation rate in Kerala has declined from 16.9% in 1991 to 15.3% in 2001 and also downward trend still persists, for example, Female work participation ratio according to current daily status approach of NSS 66th round up 2009-2010 is 15.6 percentage[2] (various Census reports and NSS 66th round up 2009-2010).

At the same time, it is observed that, Kerala has got special features in terms of female development- for instance: high sex ratio (1084/1000), high literacy rate (93.91%), first Rank in Gender Development Index (GDI) and Gender Empowerment Index (GEI)[3]. The studies on gender parity in Kerala reveal that SSLC and Plus Two qualified unemployed female is higher compared to same qualified male candidate in Kerala (Eapen and Kodoth, 2005). Another feature is that absorption of women in the non-agricultural sector and white-collared jobs are comparatively higher in Kerala (Zachariah and Irudaya Rajan, 2005).

There have been a few studies aimed at examining various dimensions of women's work in Kerala. Radha Devi (1981) studied the extent of female participation in economic activity in the state and the occupational pattern among them. She found that women in Kerala are primarily engaged in skilled or semi-skilled vocations and level of education among working-women is much higher than the rest. Again, marriage and family was found not to affect the work participation rate but family disruption due to divorce or separation did. Kumar (1994) had pointed out the nature of the economic structure in the state, which has shown reduced demand for female labour, and losses in the primary and secondary sector that has not been offset by the service sector. Another study, from the perspective of political economy of labour identified technological obsolescence, mismatch between labour demand and supply, and lack of fresh investments in the state has stood in the way of translation of social achievements into the

[2] Census figures show comparatively less than NSSO data.
[3] Census,2011

economic sphere (Kannan: 1998). Panda (1999) studied the effects of family structure on young women's employment, and came to a conclusion that household composition, family characteristics and class status had significant influence on employment. Mathew (1995) explored the problem of educated unemployment in the state and identified proliferation in general higher education, changing expectations of job, as well as a faulty educational system to be responsible for such phenomenon. In a study, aiming inter-census comparison of trends and patterns of work force participation in Kerala, Rajan and others (1997) suggested that, level and nature of female workforce participation in the state has responded to census modifications over time, and although a large proportion of female workers are engaged in primary sector activities, the expansion of urban and tertiary sector activities has had a beneficial impact on the levels of female labour activity during the years 1981-91.

On the contrary, Kerala economy faces number of hindrances for female participation in Production Process. Religion and caste factors are found to significantly influence low female work participation rate in Kerala (Nirmala and Bhat, 2000). Qualified female generation (Eapen and Praveena Kodoth,2005), white-collar preference of the Malayali society (Mohan Pillai, 2008), existing marriage conditions and customs and middle class peoples' negative attitude towards the female work participation in agriculture and industrial sector are other major factors responsible for continuously diminishing female work participation rate in Kerala. Above all, domestic responsibilities also hinder the women to be at their work place.

Under these circumstances the present study purports to deal with the utilization of employment opportunities in the Information and Communication Technology (ICTs) sector for increment of female work force participation rate and consequent economic and social empowerment of women in Kerala. The study examines whether the employment opportunities in the Kudumbashree ICTs' units provide enhancement of socio-economic status and overall improvement of rural women. Likewise,

separately, the study analyses whether the large employment opportunities in the ICT parks are helpful for the overall development of urban women in Kerala.

1.6 Review of Literature

Jawaharlal Nehru said, " to awaken the people, it is women who must be awakened; Once she is on the move, the family moves, the village moves and the nation moves." Education is one of the most important means of empowering women and giving knowledge, skills and self confidence necessary to participate in the developmental process.

Women empowerment and her participation in the economic activities, social work and politics is not a new phenomenon. Women have been participating in the economic activities from time immemorial. At the same time, women participation in the information and communication technologies (ICTs) in the developing countries is a recent trend and the international community was able to recognize the importance of the information and communication technologies (ICTs) for economic and social empowerment of women with Beijing declaration, 1995.

Both in the developed and developing countries of the world, limited number of studies have been conducted in the field of women empowerment through information and communication technologies. The purpose of this part is to review some of such studies, which has direct relevance to the present study. For simplification, convenience and better understanding, the review is done under three heads. They are:

- Review of International studies
- Review of Indian studies and
- Review of Kerala studies

1.6.1 Review of International studies

The concept of women empowerment through ICTs is a very recent trend and so we have limited number of relevant international studies in this area.

Shah M S (1975) argued that the economic reason involving additional cost is an impediment to women empowerment. There is statutory obligation on the employer to pay maternity benefit and it is considered as burden by the employer and affects the employment of women. Some employers recruit only unmarried women on the condition that they shall resign their post on getting married. This has been discriminatory, unfair and unjust. Prohibition of night work of women under much legislation too has affected the employment of women.

The study of **Khander and Herz (1991)** demonstrates the ways to improve women's opportunities and participation in the production activities. It is concluded that education is shown to improve women's participation in the labour force, productivity thereby leading to empowerment.

Moser C (1993) asserts that the access to ICT will automatically empower women economically. Without the use of ICTs, he believes, that empowerment is impossible. According to him access to ICT brings about better earning capacity and improve women's social position in the society. He analyzed the collected data by using linear multiple regression method.

Misra (1994), Kandewal (2004) and Usman (2006) observed that after the industrial Revolution, the social situation has changed throughout the world. Because of rapid growth of industrialization, development in the field of transportation, communication and improvement in the realm of science and technology not only new roles have emerged but also new social norms and values have emerged. Due to change in the outlook, attitude and approach towards life, it has now become imperative for families to supplement their requirement through additional earnings. Today as the center of production is located outside the house, socio- economic condition demand participation of women along with men in the production process. Moreover, globalization has accelerated the ways and means to enter the field of employment. Impact of globalization is everywhere and it is not only either on males or

females. For these reasons women have recorded impressive gain in employment, though the work participation rate of women continues to be lesser than that of men, yet it has increased with the passage of time.

Beijing Declaration and platform for action (1995) stated that women should be empowered by enhancing their skills, knowledge and access of information technology. This will strengthen their ability to combat negative portrayals of women internationally and to challenge instances of abuse of the power of an increasingly important industry. With this statement, the international community was able to recognize, for the first time, the importance of the ICTs for economic and social empowerment of women.

Horton (1996) points out that while in most Asian countries, women move to regular jobs, in the case of India they move to the less advantageous status of casual employees.

The study of **Bloom and Williamson (1998)** reveal that the empirical evidence from various countries shows a significant positive impact of labour force growth during the second stage of the age structural transition on the economy.

Warnken,j,Federal Ministry of Labour and Social Affairs (1999) found that the information and communication technologies (ICTs) have influenced the numbers and structures of the workforce and significantly changed working conditions and occupational patterns. They also argued that ICTs increased the productivity and status of workers, in recent years, that is, ICTs helps in tremendous increase of efficiency, capacity and status of workers in the production field.

United Nations (1999) observed that women's paid employment could change the perception of women's value and motivate them for the investment in their girl child's education and health. So UN underlines that women who work outside their house caters empowerment.

Mitter, Swasti, (2001), conducted a case study on 'Grameen phone' in Bangladesh and 'Online delivery of services as freelance journalists to news papers' in India and found out that by using ICT

women have found a market niche in different areas. Finally, concluding that this intervention leads to economic and social empowerment of women.

Wilasinee Phiphitkul and Jarupa Sodarak (2002) argued that in order to narrow digital divide of information technology in Thailand, the national ICT policy and other related sectors would need to be engendered. Societies have to put their energies into this project in the belief that, without positive action by gendered sensitive civil groups, the information networks will soon be no place for women and marginalized groups.

The study of **Youngs, (2002),** pointed out the technical efficiency of ICTs. In his study he finds out the dual characteristics of ICTs. ICT not only decreases the cost of production but increases the efficiency of both international and local communication. ICT improves access to information and facilitates international collaborations.

Hafkin, Nancy, (2002), concluded that when there is a suitable environment, ICT can provide diverse avenues for women's social development and also whenever required political and economic empowerment. That is, we have to adopt information and communication technologies as a good tool for women empowerment in the present world.

Huyer and Mitter (2003) found out that the women who can access and use ICTs are offered with better income, education, health, access to information and awareness on public and private right and which enables them to improve their well being.

Huyer and Sikoska (2003) observed that the income and knowledge from ICT sector enables women to perceive themselves as capable of undertaking decisions and making choices about their lives, which in turn requires sufficient levels of self-confidence and assertiveness. Thus, the empowerment directs the structural changes in all aspects of her life – social structures and relationships, moral, cultural values and norms, institutions and power structures.

The study of **Sandys (2005)** shows that important step for empowerment of women is to have the ability to take control over decision making in her home and family. The empowerment of women is focused on increasing their ability to take control over decisions that shape their lives, including access to resources, participation in decision making and control over distribution of benefits.

The finding of **Sreberny (2005)** is very interesting. The study reveals that debates in the ICT field on "Women and technology" have been gradually diverted into a broader concept of gender and technologies. This study shows that the economists recognize that by using the tools of ICT, the economy can utilize the efficiency and productivity of women in the country.

Hafkin and Huyer (2006) observed that information and communication technology (ICT) is a tool that could create greater impact on day today life of women. ICTs directly influence the empowerment process of women. That is, by using information and communication technologies, one has to direct the women into economic empowerment, social empowerment and political empowerment. At the same time, he gave the warning against 'gender divide' through ICTs. Since the participation of women in the ICT sector is lower in number compared to men there is a possibility of male domination in this sector.

Caparelli, M, E, (2006) concludes her case study of 'CYBERELAS' in Brazil that the project of "Cyberelas" adopted by the local NGO named CEMINA organizes a gender & analysis perspective to explore the effects of ICTs in the personal, relational and collective dimensions of the process of empowerment of Brazilian women. 'Cyberelas' is an Internet/Radio initiative carried out by the local NGO, CEMINA.

Hannan, Carolyn (2007) observed that international community has recognized that the empowerment of girls is the key to breaking the cycle of discrimination and violence and protecting and promoting their human rights. ICT provide unique opportunities for girls empowerment

by improving access to information on health, nutrition, education and other human development opportunities, and by creating new opportunities for social interaction, including peer exchange and bottom-up communication.

CEEWA [Council for the Economic Empowerment of Women of Africa] (2008), in their study in Uganda found that as an enormous source of information, ICTs constitute a powerful learning tool that provides access to marketing information that can help women's business succeed. ICTs like mobile telephony, can also offer direct and inexpensive means of communication for women's organizations and enable them to share knowledge on a quick and collective basis. However, access to ICTs is restricted because of oppressive gender relations, social cultural barriers, distance to the ICT facilities, poor infrastructure and costs for accessing ICTs.

The study of **D.A Patil, M. Dhere and C.B. Pawar (2009)** finds that there are some key ICT based initiatives in Asia in general and India in particular which are specifically designed for the empowerment of rural and deprived women. It shows how ICT – based initiatives empower rural and deprived women; it tries to clarify a theoretical dilemma between meaning and measurement of empowerment and provides a holistic definition of empowerment.

Badran (2010) found out that the different ICTs initiatives like free internet, PC for every home, reduced broad band prices and the different e-strategies are policies adopted by the Egyptian government to enhance and expand the concept of knowledge based economy and consequently empowering all Egyptians to play a bigger role in the Egyptian society. Furthermore all these policies related to ICTs would further empower women and reduce the gender gap that exists in Egypt as well as in many other countries. Descriptive statistics like mean, standard deviations, minimum and maximum method of simple sum and method of Principle Component Analysis were used for data analysis.

1.6.2 Review of Indian Studies

We have large number of studies, relating to women and their work, in India. At the same time in-depth studies related to ICTs, women's work participation in ICTs units and its consequences are very fewer in number.

Jayanthi and Madhavan (1985) points out that it is the domestic responsibilities that hinders the career development of Indian women. They argue that there is a clash between home responsibilities and career development of Indian women. The career development in IT takes place at a younger age. At this age, Indian women's responsibility at home is the highest.

Everett and Savara (1994) examined the personal factors influencing the empowerment in the household work and community. Age and her position in the house hold were found to be associated with variation in decision making scores of women. Variations in empowerment in work and in participation levels in organizations were observed across different occupations. Organization participation was found to be associated with increased empowerment in the household and at work. Similarly, education was found associated with same indicators of household empowerment.

Singhal (1995) argued that the status of women is intimately connected with their economic position which depends on opportunities for participation in economic activities. The economic status of women is now accepted as an indicator of a society's state of development. The orientation of the society as a whole regarding the desirability that women should play an equal part in the country's development was taken as very important precondition for the advancement not only for women but of the country as a whole. Until recently in India as in many other developing countries, the role of women in the economic activities of the nation was practically ignored.

Chen (1995) observed that women's gainful employment outside the home exposes her to the outside whole world; delay her age of

marriage, provide a sense of financial independence and increase her bargaining power and autonomy within the household and society.

Choudhary (1996), in her study, stressed the need for sharpening women's empowering strategies to make them effective and result oriented. She pointed out that money earned by poor women is more likely to be spent on the basic needs of life than that by men and that these realizations would bring women as the focus of development efforts.

Pattanaik (1997) described the important areas for empowerment of women in rural areas are [a] women and their work force participation, [b] women and their education, [c] women and their health and [d] women and their political participation. He also felt that empowering women with economically productive work will enhance their contribution to rural development.

Sunita Roy (1999) argued that empowerment of women should focus on aspects like [a] direct involvement of women in programming and management, [b] effective collaboration with community organizations, [c] organizing and strengthening of women's self –help groups, [d] sensitization and advocacy for gender justice in society, [e] identifying women's need and priorities while generating employment, [f] organizing women in different groups to undertake certain productive activities to earn their livelihood and [g] elimination of violence and discrimination against women at physical, mental, domestic or social level.

Gaur (1999) finds that major factors responsible for increasing trend of female employment in the organized sector are increasing education, advancement in adopting new technology, lesser problems for management, expensive modern life style, breakdown in traditional joint family system and thinking and so on.

Puhazhendi (2000) found out that participation of women in SHGs made a significant impact on their empowerment both in social and economic aspects. The female members were able to increase their

income level manifold and contribute to the development of the family. Many female members expressed that they were participating in the financial decision of the family which they were not allowed during the pre-joining period of SHGs.

Agarwal (2000) described that training of rural women was important so as to increases their involvement in development process, enhance their skill and make them equal partners in national development. The major objectives of training for rural women should be to equip them with better skills and enhance their knowledge so as to prepare them to face new challenges arising due to technological developments.

Dutta (2000) in her study highlighted the changing pattern of employment in service sectors both in the organized and unorganized sectors. The increasing feminization of tertiary sector, especially in urban areas, depicts an overall improvement in the quality of work and status of women.

Schware and Bhatnagar's (2000) study reveals that the central and state governments give importance on significant investments in e-government applications, and attempts to push ICTs out in to rural areas.

Bajpai and Sachs (2000) explains in response to globalization and privatization, leading global software companies have set up subsidiaries and joint ventures in India and many more local entrepreneurs have started software companies.

The study of **Vijaya Bhaskar (2001**) shows that in the gender wise distribution of jobs in the Indian software industry, 60 per cent of women are engaged in 'call services' while only 6 percent are project managers and a quarter of the women workers are Consultants.

UnniJeemal (2001) in his study found that work force participation rates of men and women in rural areas is much lower than the population growth in a poor agricultural year and over-shoots in good year which implies that there is supply of workers who is actually

withdrawn from the workforce and even labour force during a poor year. This phenomenon is one of the discouraged worker effects, not one of improving conditions in the labour market. The subsidiary status workers are 'reserve army' of additional workers though not necessarily by choice. They are willing to join the workforce when work is available. They also leave when the demand does not exist.

Sify news (2003) reported that a large number of women are joining the IT sector, and are expected to be the largest segment of IT professionals in the coming years. (The number of women IT users and IT professionals has been increasing over the years). Women are expected to emerge as largest users of the internet in the next 20 years.

Nasscoms (2004) report shows women are employed in different IT companies which are located in centre cities in India like Bangalore, Poona, Chennai, Hyderabad, Mumbai and Delhi. The Nasscom report also finds that younger age group of women are largely involved in the IT industry. The overall median age of software professionals was about 25.6 years.

Ranjana Agarwal (2004) argued that it is seen that men and women have started their careers on an equal footing. However as time progresses, women start lagging behind men in terms of career performance. Women have slower rates of career mobility as compared to men. Factors as marriage, childbirth, childrearing and household responsibilities affect women's performance at the work place. Suitable support systems should be provided to women.

Nicholson and Heeks (2004) find that due to economic liberalization and privatization, the software and services component of the ICT sector has emerged as one of the fastest growing industrial segments in India [Increasing from $ 170-million worth of output in 1991-92 to $ 8.8 billion in 2003-04].

In his book, **"The Argumentative Indian" (2005), Sen, Amartya** writes that despite deep inequalities along the lives of gender, women of India have led various important forums and occupied position of

importance much ahead of the women of the west. Women like Sarojini Naidu, Nellie Sengupta etc became the president of Indian National Congress in the early part of 20th century. In contrast, Margaret Thatcher became the first women Prime Minister of United Kingdom only in 1975. Women like Gergi and Maitrey, held the position of honour in politically influential council even in ancient India.

The study by the **Durgabhavani V and Vijayalakshmi (2006)** examines the nature and source of gender variations in internet use and how cultural factors contribute to such variations. The study provides insight into the gender variations in using the internet space and forming online relationships and online discourse. On the whole, the study supports the fact that the internet provides an opportunity for women to construct their identities to challenge certain traditional norms and reconstruct their lives.

Dalal (2006) argues that, while there is recognition of the potential of ICT as a tool for the promotion of gender equality and the empowerment of women, a gender divide has also been identified and reflected through the lesser number of women accessing and using ICTs as compared with men. Unless this gender divide is specifically addressed, there is a risk that ICT may exacerbate existing inequalities between women and men and create new forms of inequality.

Jain (2006) observed that, ICT has played an important role in changing the concept of work and work place. New areas of employment such as networking, i.e working from a distance, are becoming feasible with new technology.

Meredith Anderson and Welsey Shrum (2010) argued that in India, a direct case for the positive impact of new information and communication technologies on gender equality is difficult to build. They pointed out, in light of the physical and social restrictions placed on many Indian women in terms of both domestic responsibilities and limited physical mobility, a direct case for the positive impact of new information

and communication technologies (ICTs) on gender equality is difficult to build.

1.6.3 Review of Kerala Studies

Kerala economy has special features which are quite different from that of Indian economy in relation to female work participation and living conditions of women. Certain studies that pertain to female work participation and women empowerment is discussed below.

Radha Devi (1981) studied the extent of female participation in economic activity in the state and the occupational pattern among them. She found that women in Kerala are primarily engaged in skilled or semi-skilled vocations and level of education among working-women is much higher than the rest. Here, marriage and family was found not to affect the work participation rate but family disruption due to divorce or separation did.

Prakash (1988) has observed that in recent years there has been a decline in the work participation of females in Kerala. According to him some of the major factors that contributed to the low female work participation rate were the delayed entry into the labour market consequent to longer periods spent on education, changing job preference of youth for socially and economic better jobs and the consequent long waiting period for jobs and lack of generation of sufficient employment opportunities in non-agricultural activities.

Bhat and Rajan's (1990) study points out that more women are entering the labour force not only because of increase in female population in the working age groups but also because they can do so due to the dramatic decline in the number of births per woman since the 1970's. However, female work participation rate reveals a declining trend, which is primarily due to inadequate growth in employment opportunities, more pronounced in the case of educated women.

Kumar (1994) had pointed out the nature of the economic structure in the state, which has shown reduced demand for female labour, and losses in the primary and secondary sector that has not been offset by the service sector.

Mathew (1995) explored the problem of educated unemployment in the state and identified proliferation in general higher education, changing expectations of job, as well as a faulty educational system to be responsible for such phenomenon.

In a study, aiming inter-censual comparison of trends and patterns of work force participation in Kerala, **Rajan and others (1997)** suggested that, level and nature of female workforce participation in the state has responded to census modifications over time, and although a large proportion of female workers are engaged in primary sector activities, the expansion of urban and tertiary sector activities has had a beneficial impact on the levels of female labour activity from 1981-91.

Another study of **Kannan (1998)** from the perspective of political economy of labour identified technological obsolescence, mismatch between labour demand and supply, and lack of fresh investments in the state has stood in the way of translation of social achievements into the economic sphere.

Nagaraj (1999) observed that wage discrimination shown to women is mainly for discouraging them from entering the labour force in Kerala. Over time, this can result in discouraging women from entering labour force preferring to remain primarily housewives. In Kerala, female work seekers may not be willing to accept employment at the wages which was being offered.

Sen A K (2000) points out that the instance in Kerala is one that can and should be emulated as a case that ensures high levels of gender development and consequently a high status for women.

The ICRW [International Centre for Research on women], (2000) ,in their study puts Kerala as the state with the highest incidence

of domestic violence among some of the major states in India where the survey was carried out.

The study of **Eapen (2000)** showed that in small manufacturing units in the Palakkad industrial belt, fresh female recruits were paid Rs 350 per month while their male counterparts with the same level of education got Rs 500, the argument being that women are only supplementary earners.

Nirmala and Bhat (2000) in their study revealed a significant difference in the determinants of the attainment of a higher occupational scale of male and female employees engaged in the service sector. Religion and caste factors are found to have significant influence of men's enhancement of employment scale, while it was not so in the case of women. This could be due to the reason that labour market problems of women are common regardless of religion and caste.

Mridul Eapen (2001) argues that lowly paid occupations for lower caste people aggravated by gender is the syndrome that one must break.

Arun, S and Arun, T's (2002) study on techno park, Thiruvananthapuram, reveals that the firms operating in the Techno Park are private sector; mostly either subsidiaries or joint ventures of foreign countries of larger domestic firms headquartered elsewhere in India. The government's policy actions in enabling development of the Techno Park and therefore seen as market-oriented and also as gender blind, there has been no specific consideration for the role of women.

Lakshmi Devi's (2002) study reveals that educated female unemployment arises because they had not been able to find jobs of their preference. In the study on women's education, employment and job preferences, nearly three-fourths of the unemployed women reported that they were unemployed and full-time housewives because they had not been able to find jobs of their preferences.

Balakrishnan (2002) maintains that certainly there is high hope that ICT projects can play an important role in reducing gender

inequalities. Since ICTs projects are gender blind, it gives more opportunities with high salary for women.

Pradeep and Dayasindhu (2003) finds that Kerala has caught on to the coattails of India's software boom and that further investigated has enabled to see how demand for software labour has impacted women's paid employment in the mainstream ICT sector.

Mridual Eapen (2004) underlines that there is a strong ground to consider the social context in which appropriate work for women, their own job preferences and opportunities are shaped. She emphasizes that occupational mobility in terms of domestication of women, moving from economic work to non-economic work, giving primacy in their unpaid role as housewives and mothers should be a matter of concern as it enhances women's economic vulnerability.

Shoba Arun, Richard Heeks and Sharon Morgan, (2004) observed that a gender focused ICT initiative involving significant state intervention has brought about positive changes to livelihood outcomes and empowerment of poor women.

Mukhopadhyay (2006) asserted that the Kerala's case clearly demonstrates that the indicators in terms of the human dignity, according to women, is by the society she lives in and not in terms of some instrumental indicator like literacy which may, for a variety of reasons fail to perform its transformative task of empowering the individual. She used various reviews done by economists and reports of research institutions as the methodology for her study.

Rajan, Irudaya and James K S (2007) finds out that the working age group boom in Kerala had led to a situation of growing educated unemployment. A proper management of these demographic processes is essential if maximum advantages have to be derived from the age structure. In the case of Kerala, it was observed that the state was caught unawares of such changes until recently, resulting in improper management of human resources. The respective governments need to ensure that these processes are empirically studied and policy guide lines

are provided well in advance to take care of such rapid changes occurring in the society. Perhaps, the failure of Kerala was partially also due to its failure in anticipating such drastic changes within a short span, due to lack of scientific studies in the past.

Shanta and Mohanan Pillai (2008) argue that poor women through Kudumbashree have made an entry into the lowest spectrum of IT enabled jobs. This ensures a minimum level of income adequate to meet the calorie requirement to keep them above the poverty line. If the full potential of this endeavor is attained it can provide much higher incomes and larger employment to the poor women. Over and above this, in the specific context of Kerala, with a high level of educated unemployment and a low female work participation rate, the ICT sector seems to have met the aspirations of many poor women for a white collared job.

Zachariah and Rajan, (2009) observed that Kerala is the largest labour sending state within India and the most recent survey conducted by them shows that 14.6 per cent of emigrants from Kerala are women (significantly up from 9.3 per cent in 1998 but down from 17 per cent in 2003) but only about half of them move as workers. So, the highly educated female population who exist unemployed and away from working population is the shocking feature of Kerala economy.

Thus the review of available literature reveals that number of studies has been made on women empowerment through female labour force participation. However, the specific studies on impact of ICTs on women empowerment are limited in the international, national and Kerala literatures. There is a scarcity of literature on Women empowerment through female work participation, especially through ICTs, in Kerala. Hence, the present study makes an attempt to fill this research gap on the role of ICTs for increment of female work force participation and consequent empowerment of women in Kerala context.

1.7 Theoretical Framework

The Theoretical Framework of the study has been divided into two categories: (1) Theoretical Framework on Women Empowerment and (2) Theoretical Framework of Women Employment, because the study focuses on women empowerment through employment in information and communication technologies.

1.7.1 Theoretical Framework on Women Empowerment

1.7.1.1 Empowerment and Power

While studying the concept of empowerment, we should have a concrete idea on power, which based on the specific indicators, is important for in-depth understanding of the concept of women empowerment. Power is rarely seen as the right of, or as belonging, to women. Rather, as power is based on wealth, resources, influence, control/or physical strength, it is generally understood as masculine. Power is also the ability to define a situation, to set the terms in which an issue is understood and discussed, that is, it is hegemonic and is how we are governed, socialized and conditioned.

In a number of past studies, empowerment is looked at in relation to how people understand power. It is also presented as a process through which women gain power over men. This specific understanding of empowerment is one of the possible reasons why men resist the concept. In other case, empowerment is presented as a process that enables women to gain access to decision making and making choices about their own lives (Huyer and Sikoska, 2003).

1.7.1.2 The Rights Approach

Rights approach to women empowerment has to be seen in two different angles viz Human Rights and Women's Human Rights. The United Nation Declaration on Human Rights (1948) (UN 1983) sets out the rights, freedoms and obligations of every human. Article 2 of the declaration calls for basic human rights and denies discriminations based on, amongst other things, sex. Having said so, the fact that human rights

for women have consistently been denied, neglected, and lag behind those of most men remains central. Women's human rights involve the elimination of discrimination against them and equate to their empowerment. It would not be wrong to refer to women's human rights, gender equality, and women's empowerment synonymously because of the massive areas of overlap between these concepts, the spirit, and nature of their goals, and their inter-relatedness (Joanne Green, 2005).

1.7.1.3 Feminist Approach

Feminist understanding of empowerment includes the idea of 'the personal as political' therefore calling for a consideration of empowerment as experienced by women within the public and private spheres (Rowlands, 1997). This feminist maxim, that 'the personal is political' allows women to air their grievances in the public realm and posits them and their experiences of gender inequalities and desire for empowerment as real and relevant. Empowerment could also occur at an economic, political or social level. Economic empowerment has to do with access to resources and key to women because their subordinate position is entrenchment in their level of access to and control over resources. Social empowerment is about challenging social and cultural structures. While political empowerment involves the rights and abilities of people to participate as equals in decision making process (Clement, 1994).

1.7.1.4 Empowerment by Development alternatives

Another view to empowerment has been put forward by the Development Alternatives with Women for a New Era (DAWN[4]).

[4] DAWN is concept that arose out of southern women's awareness of the need for an alternative model of development..DAWN calls for a model of social advancement which is equitable, participatory, holistic and sustainable and responds to peoples' needs. Although DAWN emerged out of an NGO forum in 1986, its philosophy reflects the dissatisfaction of many developing countries at the time with unfavorable terms of trade, protectionism and the conditionality of the World Bank's Structural Adjustment Programs (SAPs).

DAWN argues that for women to be empowered their strategic and practical gender needs have to be addressed (Moser, 1993).

DAWN uses strategies to address issues of inequality between women and men because it recognizes that women's empowerment is not a given thing and that women have to work collectively to overcome the structural inequalities (Longwe, 1994).

1.7.1.5 Empowerment by Longwe's Framework

Longwe's frame work examines the extent to which projects lead to women's empowerment. According to Longwe, only by addressing the five levels at which gender gaps exist 'empowerment' can happen. The five levels include control, participation, conscientisation, access and welfare. Welfare addresses the lowest level at which a development intervention may hope to close a gender gap; while control is the highest level at which there is a balance of power between women and men and neither has dominance. Access considers equality of access to resources and conscientisation is a level of awareness rising. For women to take appropriate action to close gender gaps or inequalities there must be recognition that their problems stem from inherent structural and institutional discrimination. Participation is concerned with the extent to which women have been able to take part in decision making process alongside men.

This framework helps in developing the notion of practical and strategic gender needs into a progressive hierarchy and also shows that empowerment is an essential element of development and enables assessment of interventions along this criterion. A potential limitation of this framework is that it examines gender relations from the point of view of equality alone and excludes interrelationship between rights and responsibilities

1.7.1.6 Liberal Feminists Theme

According to this theme there exists ‘exclusion’ of women from ICT, specifically in terms of access to ICT (computers, the internet) at various stages and in various settings across their life course (Home, school, work). This theme concentrates on the under-representation of women in IT education courses and within the IT industry. This approach also looks at the condition of work for women in the IT sector, including the low pay and limited progress. According to this approach the most notable aspect of the ‘liberalist’ agenda is the recommendations for more action. It is concerned with the women in Science, Engineering and Technology (SET). Henwood (2000) encourages more women into computing courses (and more generally SET courses) at all levels of education. He also points out to the need for better equal opportunities and managing diversity legislation and initiatives to advance the lot of women in ICT and more generally SET. The feminist theme on the impact of technological change on the welfare of women is considered to alter the gender inequality. Plant (2000) referred to the “cyber feminism” and predicts the creation of an alternative feminized cyberspace network which speaks of a freeing space for women unrestricted by social location.

1.7.1.7 Social constructionist Theme

Social constructivism highlights possibilities for change on the intrapersonal, interpersonal, and societal levels and hence offers a perspective for achieving women’s empowerment and gender equality. The Social Constructionist theme argues that technologies are the product of social interactions. This means that what we think them to be capable of, and not capable of, or who we think they are ‘suitable’ and ‘unsuitable’ for, and so on, as determined by social interaction. Hence our understandings of information and communication technologies are culturally and historically entrenched, and profoundly according to gender (Akrich, M 1992).

There are inherent features of the new technologies, like the internet, for example, in terms of 'labour-saving' devices and these technologies supposedly liberate women, through the introduction of new forms of working such as 'tele-work' for example. ICT offers new employment opportunities for women in call centers, mobile telephone service and software industry.

In conclusion, based on discussed conceptual framework, it is found that some theories are relevant to highlight the there exists a gender imbalance in society and elucidates requisite changes. Women empowerment entails to developing the capacities of women to overcome social and institutional barriers and strengthening their participation in the economic, political and social process so as to produce an overall improvement in their quality of life. Certain perspectives show that technology is also gendered and that technology can equally perpetuate and maintain gender constructions that subordinate and oppress women whilst simultaneously being used to invoke a dialogue and means of women's empowerment and gender equality.

1.7.2 Theoretical Framework of Women Empowerment through Employment

The first phase for empowerment is economic empowerment. Economic empowerment depends on female participation in productive sector. While it can be seen that definitions of women's empowerment have, from the outset, encompassed an economic dimension, this dimension has become increasingly visible within the international policy discourse in recent years.

1.7.2.1 The Neo-classical Framework

Neo-classical economic theory assumes that women have lower levels of education, training and on the job experience than men because families tend to allocate household resources to the education of male

family members while expecting the females, as they grow up, to spend their time on housework and child care for which training is not required. The theory further explains gender differences in employment in terms of differences in human capital where women are disadvantaged because of their family responsibilities, physical strength, education, training, hours of work. By this theory we can understand that disadvantages of women lie in their lack of skill, awareness, education and burden of responsibilities. The analysis of female labour force participation should take place within the context of the family or the household. Occupational segmentation in the labour market is viewed in the neo-classical theory as an extension of the biological division of labour. F.Y.Edgeworth[5] explained with the help of his model, Overcrowding Hypothesis, that women are crowded into unskilled jobs with low wage rate and poor working conditions.

Human capital hypothesis, put forward by P. Sargent Florence[6], argues that the differences in wages and separation in work are largely due to differences in the human capital content of male and female work reflected in differences in productivity. The theory argues that

- Women's prior commitment is to home, they are less committed to work in the labour market
- Women's needs and dependence are relatively less compared to men and
- Women are engaged in the less-skilled/experienced and less-efficiency jobs and they are less rewarded than man.

1.7.2.2 <u>The Institutional approach</u>

The study of Oppenheimer (1970) and Krishnaraj (1984) show that it is the market which decides what job women would do. That is the demand for and supply of women labourers is controlled by market

[5] Edgeworth,F,Y,(1922),"Equal Pay to Men and Women", Economic Journal,December,1922,pp.431-457.

[6] P, Sargent Florence,(1948),"Investment, Location and Size of Plant", Cambridge University press.

forces. Institutional economists show that sex inequality takes the form of job discrimination and not 'wage discrimination', that is, sex discrimination manifests not as unequal pay for equal work but rather as unequal job assignments.

1.7.2.3 The Feminist Approach

The feminist approach in 1960s points out the oppression of women in the labour market. This theory argues that women are exploited by men in the household and work field. House hold work activities are seen as the major source of exploitation and that extends to the market also. The theory takes attention on domestic labour and gender division of labour in the workplace with women's oppression in the labour market. The feminist notions of empowerment see women as acting agents and not as beneficiaries, clients, participants, etc. and they deal with the question of power. Feminist economists have been working for decades to show how currently used indicators of economic activity and progress such as GDP and GNP exclude the domestic, social and caring work of women.

1.7.2.4 The Marxian Approach

The idea of the 'Reserve Army of Labour' developed by Karl Marx was later adopted by many authors within the socialist feminist frame work, Anthias (1980). The disadvantaged position of women in the labour market has led to the identification of women as reserve army of labour automatically. In the Marxist frame work reserve army of labour is the result of capitalist development - due to the replacement of labour by machines. Women labourers were identified as the most volatile part of the labour force that will be thrown out or absorbed depending upon the conditions of business cycle. The increased participation of women in the labour market during the 19th and 20th century, even during the period of recession was left up to the inconsistency of the theory.

Modified versions of reserve army model, the Substitution hypothesis and the model of Compositional Change have tried to solve the inconsistency in the theory. The Substitution Hypothesis model postulates an increase in women's employment and subsequent displacement of men in sectors where women's employment is high. The Compositional shift theory supports this and argues that women's employment can increase only when there is a shift in relative importance of different sectors. But all theories failed to provide any strong theoretical base for the observed reality.

The theory of segmented labour market, which provided important points in explaining the changes in women's employment, was developed during the 1970's. The theory of patriarchy is central, which determined the placement of women in a predetermined hierarchy of occupations. Three factors are prominent in the theory of segmentation. They are:

(i) The male dominance and male strategies leading to the exclusion of women from employment.

(ii) The restructuring of jobs with accumulation of capital and changes in the organizational forms of production and management central and

(iii) The restructuring of sexual division of labour based on the pre-existing notions of feminity and masculinity.

The labour process theory of Braverman (1974) argued that skills are socially constructed and hence gendered. In the process of capitalist development, skills are reconstructed through deskilling of work as labour is being increasingly displaced by machines. This leads to the creation of hierarchy of jobs. The sexual division of labour within this hierarchy is determined by the theory of patriarchy, thus women occupy inferior positions in the labour market. Moreover, skilled male labour being reluctant to take up less skilled jobs, results in concentration of women in these jobs.

The debate which took a new direction in the 1980's led to the development of duel exploitation models explaining the exploitation of

women in paid work and at home. Walby (1988) distinguishes between two types of patriarchy, public and private. In private patriarchy man either as husband or father, is the oppressor and women are excluded from all public arenas. The role of religion and state is also important in stabilizing and perpetuating the domination of men. On the other hand, public patriarchy allows for public access of women, but subordinated and segregated them as in capitalist patriarchy. However, commercialization of housework in these models was seen to free women from unpaid domestic work to paid work.

All the given theories - Neo-classical, Institutional, Feminist and Marxian framework on women participation in labour market shows that the sexual division of labour and gender based division of jobs existed during the early days, which, became more pronounced in recent years. In our country, jobs are clearly segregated on the lines of sex and men are found concentrated in many high status and well-paid occupations, thereby pushing aside women to occupy peripheral low status jobs. There are severe and multi dimensional gender inequalities at different levels that adversely affect women's occupational performance and bargaining power in the labour market.

Although this trend has changed in recent years and more women are joining the labour force, there still remains a wide gap between the genders that might lead to different attitudes and behaviors in everyday life, including adoption and usage of new information and communication technologies.

1.8 The Problem Identification of the Study

The state of Kerala has enjoyed high social development in terms of high female literacy as well as other favorable social indicators much earlier than other Indian states, thus leading to a more rapid rate of demographic transition. As a first step, this study will examine the age

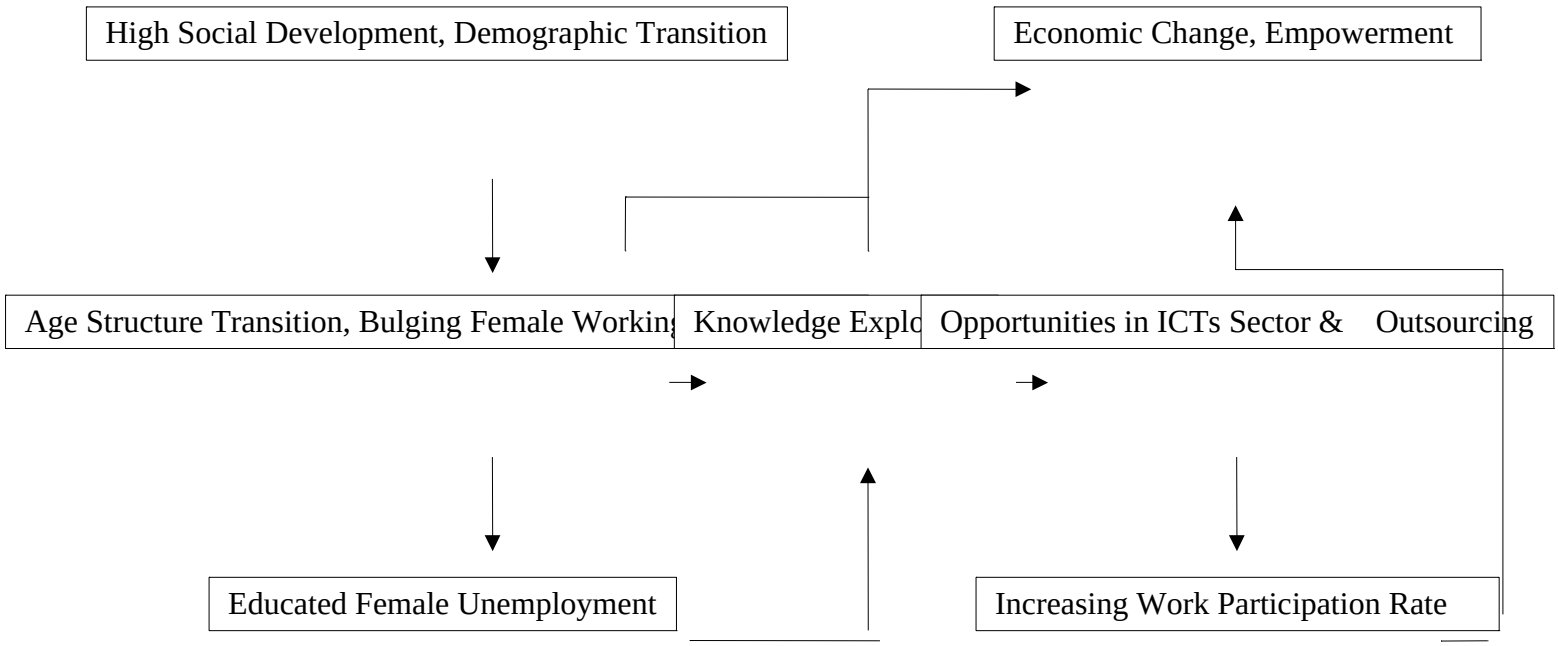
structure transition and its impact on the economy of Kerala. The working age group boom in the state had also led to a situation of growing educated unemployment. The unemployment situation is also aggravated due to poor economic performance in the earlier years, although the economic performance of the state has improved which was mainly driven by the service sector and could not make deep inroads into solving the educated unemployment, especially, female unemployment. In Kerala, female labour force participation rate lag behind as compared to the statistics of India (-7%), even with the wonderful achievements in education, health and standard of living of the people. In the globalised system, due to knowledge explosion, ICTs sector and Outsourcing have become the important source of white collar jobs in private sector of Kerala with good remuneration package. The study further intends to analyze the structure of ICTs sector and its performance in Kerala. The impact on educated female labour market in Kerala through employment opportunities in the ICTs sector is also summarized in this study. Hence, the present study makes an attempt to fill the research gap of the role of ICTs for increment of female work force participation and consequent empowerment of women in Kerala context.

1.9 The Frame Work of the Study

The impact of 'Knowledge Explosion' and its consequences on Kerala female labour market may be summarized as shown in the following Figure 1.2.

Figure 1.2

The Frame Work of the Study



1.10 Objectives of the Study

The main Objectives of the study are as follows:

1) To examine the trends of female work participation rate in Kerala.

2) To assess the impact of economic and social enhancement of women workforce in Information and Communication Technologies (ICTs).

3) To asses ICTs infrastructure in rural areas vis-à-vis in urban areas for women empowerment.

4) To suggest the policy implications for the effective implementation of further ICT based programmes under the objectives of women empowerment.

1.11 Hypotheses

To give specific focus to the Objectives, the following hypotheses are formulated:

1. The employment in the ICTs sector are significantly supporting for socio- economic enhancement of women.
2. The Women's employment in the ICTs sector are significantly supporting for Empowerment.

1.12 Sampling Design & Methodology

The study is based on primary and secondary data. Secondary data are collected from various Census reports, NSSO 66th round up, National Family Health Survey-3, Economic Reviews, Kerala Development Reports, Newspapers, Publications and Journals for analyzing the ICTs sector and trends of female work participation rate in Kerala. For primary data collection and analysis, Kerala economy was divided into two viz., Urban and Rural Kerala. Urban Kerala was represented through ICTs Parks and Rural Kerala was represented through Kudumbashree ICTs units. Further the state of Kerala was divided into three regions viz., south Kerala, middle Kerala and north Kerala for ease of collection of data used in the study. The study was conducted through judgment sampling method using a structured questionnaire covering ICTs units- ICTs Parks (Techno park- Thiruvananthapuram, Info park- Ernakulum and Kinfra Park near to Kozhikode) and Kudumbashree ICTs Units, of three regions

in Kerala. The regions selected for the study was taken keeping in mind that their locations-south Kerala, middle Kerala and north Kerala-and access to ICTs. All the respondents were women who were working in the ICTs Units. From the three study areas, a total of 310 women respondents were interviewed by the researcher in the various ICTs parks and a total of 110 women respondents from the Kudumbashree ICTs units. For analyzing the data thus collected Multiple Regression model, Percentile method, Case studies, Method of Averages, The Friedman Two-way Analysis of Variance by Ranks, Testing of Hypotheses and Chi-square (χ^2) Test were made use of. The data has been represented using Graphs and Diagrams.

The functional relationship between Women Empowerment through Employment in the ICTs sector (represented as W), with its parameters[7] are given below:

W = f [C, E, P, S, F, I, H, D, R]

Where,

W = Women Empowerment through employment in the ICTs sector and

- Self Confidence (C),
- Provides Increased Economic Prospects (E),
- Decision making Power (P),
- Change of status in the family and community (S),
- Support from the family for working in the ICTs units (F),
- Her contribution to family income (I),
- Freedom in household expenditure (H)
- Increased Flexibility and Skill development (D) and
- Support from the family for sharing the household responsibilities (R).

[7] Parameters selected the Researcher from UNDP's, Planning Commission of India's and Planning Commission of Kerala's Empowerment Analyses.

With the help of notations (symbols), the functional relationship between Women Empowerment through Employment in the Kudumbashree ICTs sector, W_1, can be explained with its parameters in the following way:

$$\mathbf{W_1 = f\ [C_1, E_1, P_1, S_1, F_1, I_1, H_1, D_1, R_1, A_1],}$$

Where,

W_1 = Empowerment through employment in the Kudumbashree ICTs units and

- Self Confidence (C_1)
- Provides Increased Economic Prospects (E_1)
- Decision-making Power (P_1)
- Change of status in the family and community (S_1)
- Support from the family for working in the ICTs units (F_1)
- Her contribution to family income (I_1)
- Freedom in household expenditure (H_1)
- Increased Flexibility and Skill development (D_1)
- Support from the family for sharing household responsibilities (R_1) and
- Participation in Political Activity (A_1).

1.12.1 The Multiple Regression Model

Financial Empowerment in the context of Functioning of the Family

A multiple regression model can be developed to analyze the factors influencing financial empowerment (y_i) of the female ICTs employees in the context of functioning of the family. The following model and variables are identified for the analysis.

The model that fits the study is

$$\mathbf{Y_i = a_0 + a_1x_1 + a_2x_2 + a_3x_3 + a_4x_4 + u,}$$

Where**,**

- the criterion variable (dependent variable) is financial empowerment of the employees, Y_i, measured in Likert Scale and
- the predictor variables (independent variables) are

1. Monthly salary income in rupees(x_1),
2. Age of the ICTs worker (x_2),
3. Consumption Expenditure of family in Rupees(x_3),
4. Decision-making power (x_4), and

- the dummy variable (u), which is measured in the scale one if satisfactory; otherwise zero.

1.12.2 Friedman Two-way Analysis of Variance by Ranks

Friedman Two-way Analysis of Variance by Ranks is used to measure the socio-economic enhancement of women through the employment opportunities in Information and communication technologies sector in Kerala with the following indicators:

- Financial Status of the family,
- Savings level of the family,
- Infrastructure Development of the family,
- Standard of living of the family,
- Interaction with family &society and
- Involvement in the Cultural activities.

The Friedman statistic $= \frac{12}{Nk(k+1)} \sum_{j=1}^{k} (R\,j¿¿2¿) - 3N(k+1)¿¿$,

where,

N= number of rows, k= number of columns

R_j =Sum of ranks in j^{th} column, and

$\sum_{j=1}^{k} directs\,one¿ \sum the\,squares\,of\,the\,sums\,of\,\frac{ranks}{all} k\,.¿$

1.12.3 Chi-square Test (χ^2Test)

In order to investigate the association of various empowerment parameters with its levels of improvement based on the collected data the following formula was used, χ^2 test has been applied.

$$\chi^2 = \sum (O_i - E_i)^2 / E_i$$

Where,

O_i= Observed frequency,

E_i = Expected frequency and

i=1, 2, 3….10.

1.13 Plan of the Study

The present study is an attempt to analyze the 'Role of ICTs for Women Empowerment in Kerala'. The study is divided in to six chapters. In the first chapter, an extensive review of earlier work, which have direct or indirect relevance to the present study and the theoretical models of female labour force participation are explained in detail. The chapter also details the importance and scope of the study, the objectives of the study, sampling techniques, the methodology and plan of the study. In the second chapter, a detailed analysis of the trends of female work participation rate in Kerala has been included. In the third chapter, the IT parks and ICTs sector in Kerala has been discussed. In the fourth chapter, the researcher presents the findings of the field survey conducted in various ICTs parks in Kerala. In the fifth chapter, in the first section the structure of Kudumbashree organizations in Kerala has been examined and the analysis of the data collected from various Kudumbashree ICTs units is given in the second section of the fifth chapter. In the last chapter, the summary of the important findings of the study are presented.

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Chapter 2

Woman in Kerala

2.1 Introduction

The state of Kerala was formed on 1st November 1956, consequent to the reorganization of states in India on a linguistic basis. Kerala accounts for 1.3% of India’s land area but it supports 3.1% of the country’s population. The population of Kerala was around 33.39 million[8] in 2011 living in

[8] Census,2011

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Chapter 2

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[8] Census,2011

around 7 million households. The average household size in Kerala is 4.77 persons. At the same time, Kerala achieved high-quality demographic indicators, the state had good social development indicators as well (Krishnan 1976; Bhat and Irudaya Rajan 1990; Dev et al 2002). Kerala has had the highest literacy rate in India since a long time ago. Even at the time of its formation in 1956, nearly half the Keralite population was literate, for the population aged seven years and above. The literacy rate in the 2011 census was 93.91% as against 89.81% in 1991.

The gender gap is nearly six percent for Kerala as against 22% for India. The economic changes in Kerala over the past few decades have been fascinating. The state was always rated as a low income region with poor economic growth but having high social development achievements. This paradox has received wide attention both nationally and internationally. The state has achieved demographic and health indicators similar to western countries even more than three decades ago.

The faster rapid demographic transition in the state had led to significant changes in the age structure of the population, with a bulge in the working age group and a negative growth in the young age population. As a result, the dependency ratio has come down drastically. This period, which is generally found to be the boom period for any economy from the experience of West and East Asian countries, seems to be favoring Kerala as well. The Kerala economy is growing fast since the late 1980s. The analysis carried out at the state level also showed that the working age group boom has had a significant positive impact on the growth of its per capita income.

However, the per capita income of the state has increased significantly during the past decade. The per capita income, which had been lower than the all-India average in the 1970s and the 1980s, at the peak of demographic transition in Kerala, has now overtaken the all-India figure. The per capita income (per capita net national product at factor cost) is estimated as Rs: 16754 for 2010-11 (at 2003-04 prices). The Net State Domestic Product at constant prices (2003-04) is estimated at Rs: 460790 million in 2007-08 as

against Rs: 544500 million[9] in 2010-11. The calculation of state income does not include remittances arising out of migration. If remittances were included in the state income, it would have been 20% higher than the reported state domestic product.

Notwithstanding all these positive attributes that the state possesses, it is equally true that the famed "Kerala model of development" is facing a crisis. The states' achievements in the social sector did not go hand in hand with its progress in material production sector. The crisis in production sector is manifested in the virtual stagnation of the agricultural sector, deplorably lower level of productivity of important crops, growing apathy among cultivators, structural decay of the industrial sector dominated by ailing traditional industries and overburdening of the fragile eco-system. The development paradox of Kerala lies in its high social development not being matched by its economic performance. This imbalance is largely explained by Kerala's stagnant agricultural and low industrial development. The logical outcome of this pattern of growth, which has evolved in Kerala, is the mounting unemployment in the state.

2.2 Features of Kerala Economy

Contemporary development process in Kerala has been an unusual instance of contradictions. It is clear that, for the state, social and economic development were not simultaneous. Acceleration in social development in the context of demographic transition has led to a mismatch between labour supply and labour demand, resulting in a vast population of educated, young labour force in a stagnant economy, surviving largely on expansion of service sector, facilitated by international remittances. As we find from our analysis, limiting of options had been more severe for the women. Remarkable changes in the cropping pattern have displaced large volume of the women workforce from agriculture, especially in the rural areas, and the primary sector is no longer the most significant channel of employment.

[9] Reserve Bank of India ,Database,.2011-www.rbi.org

Manufacturing industries, both at the household level as well as others, has also been largely stagnant. Economic activity among women has only increased in the tertiary sector. These have further led to the intensification of unemployment in the state, more so among the educated females. Large-scale emigration and outmigration from the state brought about prosperity to a certain extent, but has failed to provide tenable solution to the problem of unemployment. Convergence of these factors has led to a declining trend in work force participation among females, besides widening the gender gap in employment during the last decade. The trends in work participation are equally acute in the districts. All the northern Malabar districts have witnessed a fall in the work participation rate among females, whereas the southern districts have witnessed marginal increase. Agriculture dominated districts of Palakad, Iduki and Wayanad continues to be the highest women-employing districts.

Theoretically, it is natural for economic activity among women to follow a U-shaped curve along the course of development. In the initial stages of development, when society was primarily agrarian, increase in demand of female labour lead to higher workforce participation among women. Industrialization gave rise to greater demand for skilled labour, and consequently involved displacement of women labour and its substitution by male labour. It was only in the later stages of development, as a result of the emergence and expansion of tertiary sector, demand for women labour also renewed. However, it was felt that the exact same pattern was not followed in Kerala. Although women labour has been systematically displaced from agriculture and household industry- their traditional sectors of employment -growth of tertiary sector which mainly manifest in the proliferation of service sector, has not been able to entirely absorb the redundant labour. Although, Kerala has attained commendable achievements in the field of general education among females, the same is not true for the spread of professional and vocational education. Again, the domains within the service sector that has been witnessing vibrant growth in other parts of the country, viz., consultancy, customer care services,

financial services, business support activities etc. have not yet emerged in the state as viable channels of employment. Information technology enabled services (ITES), another sunshine sector of employment in urban India, is yet to establish itself in the state, although recent initiatives like the "Akshaya Project" of the state IT mission is aimed towards achieving the same goal. The service sector in Kerala is largely comprised of hotels and restaurant, shops and commercial establishments and sales and servicing of consumer appliances, which has limited potential of expansion. Even tourism, the sector that has been held as a promising sector of self-employment generation, does not seem to offer much promise for unemployed females, mainly because of sex-selective occupational segregation of available professions in this field like guides, tour operators etc. Out-migration of educated females to other states of the country, mainly to take up employment as teachers or medical personnel, cannot continue indefinitely, mainly in view of spread of higher education among females in other parts of the country as well in the past few years. Emigration to the gulf has already started to show signs of decline. In such a situation, there seems lack of plausible explanation as to how work participation of females can rise along with the development process, when the very process in the state appears to be not sensitive and accommodative enough to ensure greater participation of women, in changed roles, in the economic activity. Thus, in all probabilities, as the recent trends indicate the U-curve depicting women's economic participation along the course of development, one can reasonably expect to have a rather longer through, a relatively wide flatter portion, for some periods to come.

There has also been significant change in perceptions about jobs among the educated women, even in rural areas. As a natural corollary of spread of education and social progress, an increased number of women now aspire for salaried jobs, preferably government jobs or even economically less rewarding private jobs, as compared to getting employed in either fields or factories. This has led to disequilibria in the job-market with too many

women vying for not enough jobs, and in the process unemployment has increased.

In Kerala, there is lower gender gap on the basis of conventional basic capabilities, such as education, health, employment and property ownership. Kerala is considered relatively free from the conventional restriction against women's education, employment or property ownership than in any other parts of India. This achievement is the outcome of the early 20th century social reforms done in Kerala. An evaluation of women status in Kerala from early 20th century to current period of 21st century, gives contradictory results.

The claims about the high levels of gender development in Kerala have been based, primarily, on high levels of recorded gender development indicators such as female literacy and life expectancy levels, and women's earnings in the labour market relative to that of men as expounded by United Nations. One has to take cognizance of the fact that a note of caution was indeed sounded in the original UNDP document, with a plea to take these figures with a degree of caution and to desist from reading too much into them. Subsequent years however, witnessed a virtual flood of research in gender studies with the collection and analysis of data on conventional 'gender development' indicators, in a range of social, economic, demographic and political areas, over time and across space. Participation in the labour market may bring in earnings for the woman, but not necessarily ensure her control over those earnings.

In the 'Gender Development Index' (GDI) in terms of Education and Health, Kerala has first rank compared to rest of India (Planning Commission of India, 2011). However, when we decompose the GDI in terms of Education, Health and Employment the picture is quite different. The female work participation rate is ranked only 15 in Kerala compared to the rest of states in India. High rate of literacy (Table 2.1), impressive levels of female education and employment opportunities through globalization did not help for rapid increment of paid employment for women in Kerala. In addition, occupational inflexibility of women, growth of violence against

women, sexual violence, growth of dowry system and violence relating to dowry issues, domestic violence, rapid increase in the blind belief, increase in liquor consumption and intoxication objects, involvement in the meaningless violence, the tendency for doing anything for money etc lead us to think as to what happened in our society!

A study[10] shows that the GEI (Gender Empowerment Index) ranked first in Kerala. At the same time, the factors which are closely relating to GEI viz., decision making power, mobility, and control over money, 'gender biased violence etc position of Kerala is way back of Gujarat, which had lower level of literacy rate. (National Family Health Survey, India, 1998-99 &2005-2006)

2.2.1 Female Literacy Rate

Kerala's literacy rate is comparable to the most advanced regions of the world. Table 2.1 given below pictures the gender analyses of literacy rate in Kerala and India.

Table 2.1

Gender wise analysis of Literacy rates in India and Kerala 1961-2011

Year	India (%)		Kerala (%)	
	Male	Female	Male	Female
1961	40.4	15.4	64.89	45.56
1971	46..0	22.0	77.13	62.53
1981	56.4	29.8	84.56	73.36
1991	64.1	39.3	93.62	86.17
2001	75.3	53.7	94.2	87.72
2011	82.1	65.5	96.02	91.98

Source: Census, various years.

In Kerala, the female literacy rate which was only 45.56% in 1961 has almost doubled to 91.98% in 2011. At the same time, female literacy in India became more than four times during the period 1961-2011. The comparison of literacy rate in India and Kerala shows, the gender gap in terms of literacy in Kerala is very low.

[10] National Family Health Survey,2009-10

2.2.2 Gender Analysis of Educational Status

For the purpose of the study the educational status of gender in Kerala has to be explained with following points: SSLC results, Plus Two enrollments, Degree and PG enrollments, Engineering admissions and ITI strengths in various disciplines.

2.2.2.1 Gender Analysis of SSLC Results

Kerala ranked first in female literacy. The same way gender disparity is extremely low in the 10th standard. The SSLC (Xth) results of March 2010 shows 51.15% of girls and 48.85% of boys were eligible for higher studies. Only two districts in Kerala, Pathanamthitta and Alappuzha, had high percentage of boys (50.31% and 50.04%) eligible for higher studies than girls. The Table 2.2 shows that girls in the Palakkad district got good results (53.12%) than boys. In short, the performance of girl students in S.SL.C results was good compared to any other region in India.

Table 2.2

Gender wise analysis of SSLC Results, 2010

	Districts	Boys	% of boys	Girls	% of girls	Total
1	Thiruvananthapuram	17379	47.64	19102	52.36	36481

2	Kollam	14453	49.50	14743	50.50	29196
3	Pathanamthitta	6417	50.31	6338	49.69	12755
4	Alappuzha	11965	50.04	11946	49.96	23911
5	Kottayam	11185	49.02	11633	50.98	22818
6	Idukki	5718	49.65	5799	50.35	11517
7	Ernakulum	17741	48.77	18637	51.23	36378
8	Thrissur	17830	47.60	19631	52.40	37461
9	Palakkad	15357	46.88	17403	53.12	32760
10	Malappuram	30496	49.34	31309	50.66	61805
11	Kozhikode	20912	49.40	21419	50.60	42331
12	Wayanad	4894	49.44	5004	50.56	9898
13	Kannur	16555	49.25	17060	50.75	33615
14	Kasargod	8500	49.13	8800	50.87	17300
Total		199402	48.85	208824	51.15	408226

Source: Directorate of Public Instructions

2.2.2.2 Students Enrollment in Higher Secondary Schools

Women exceeded men in Higher Secondary, Graduate and Post Graduate degrees in the Arts and science courses. The enrollment of students in the higher secondary courses of 2010 has the following features: Out of 291351 students, 53.8% were girls and 46.2% were boys. That is there was increase of 7.6% girls in the total enrollment. This tendency clearly explains the picture of female education status in the state. The Table 2.3 shows that in all fourteen districts in the state, the number of girl students exceeded in Higher Secondary classes.

Table 2.3

Gender wise analysis of students' enrollment in Higher Secondary Schools, 2010

SI.NO	Districts	Total		Grand Total	%of Boys	%of Girls
		Boys	Girls			
1	Thiruvananthapuram	14709	16718	31427	46.80	53.20
2	Kollam	11219	11835	23054	48.66	51.34
3	Pathanamthitta	6281	6701	12982	48.38	51.62
4	Alappuzha	9300	9851	19151	48.56	51.44
5	Kottayam	9589	10705	20294	47.25	52.75
6	Idukki	3905	4509	8414	46.41	53.59
7	Ernakulum	13149	16297	29446	44.65	55.35
8	Thrissur	10291	13232	23523	43.75	56.25
9	Palakkad	8778	11041	19819	44.29	55.71

10	Malappuram	16633	20236	36869	45.11	54.89
11	Kozhikode	11686	13807	25493	45.84	54.16
12	Wayanad	3332	3764	7096	46.96	53.04
13	Kannur	10286	11965	22251	46.23	53.77
14	Kasargode	5457	6075	11532	47.32	52.68
Total		134615	156736	291351	46.20	53.80

Source: Directorate of Higher Secondary Educations

2.2.2.3 Gender Analysis of Degree and P.G enrollment

The study of gender difference in Higher education sector reveals that girl students exceeded by more than twice that of boys in the Degree and P.G courses. In the B.Sc discipline, the boys' enrollment was only 28.44%, the M.A, MSc discipline the enrollment showed very minimum; 20.91% and 18.04% respectively. The Table 2.4 shows girls' performance in the higher education is good compared to the rest of India.

Table 2.4

Gender wise analysis of Degree &PG enrollment in Colleges, 2009-10

Degree	No. of Students				
	Boys	% of Boys	Girls	%of Girls	Total
BA	22663	30.59	51433	69.41	74096
BSc	18931	28.44	47624	71.56	66555
BCom	10252	40.22	15236	59.78	25488
Total	51846	31.21	114293	68.79	166139

Source: Directorate of Collegiate Education

2.2.2.4 Gender Analysis of Annual intake of Students in Engineering Colleges, 2010-11

The statistics from Engineering and Technical institutions in Kerala shows that the strength of male students exceeded that of the female students. In the graduate level, the strength of male students were approximately double that of female students. At the same time in the

post graduate level there exists a balance in the strength of male and female students. Thus, in Arts and Science colleges, female exceeded male students, while statistics of the student strength in the Engineering colleges and Technical institutions showed a general male domination. Women lag far behind men in professional/technical education except in the fields of nursing and teaching. Female strength in the engineering colleges is less than half of the students enrolled (Table 2.5).

Table 2.5 Gender wise analysis of Students in Engineering Colleges at Graduate and P G level, 2010-11

Discipline	Boys	%	Girls	%	Total
Graduate Level	2896	64.13	1620	35.87	4516
PG Level	237	49.79	239	50.21	476

Source: Directorate of Technical Education, 2010-11

In the same way, the ratio of girls in the technical educational institutions which are job oriented is below 10%. In the ITIs and ITCs [Industrial Training Institutions and Industrial Training Centers], their participation is between 13% and 23% and between 30% and 40% in polytechnics (Refer Table 2.6)**.**

Table 2.6 Gender wise analysis of Trade wise Intake and Out Turn in Govt. ITIs as on 30.11.2010 (One year course), in numbers.

Sl.No	Name of Trade	Students Admitted in 2003		Students passed in 2003	
		Boys	Girls	Boys	Girls
1	Plumber	435	-	238	-
2	Mech.Diesel	243	-	191	-
3	Secretarial Practice	-	47	-	21
4	COPA	132	419	112	365
5	Steno (English)	56	292	29	140
6	Steno (Hindi)	5	78	4	51
7	Dress Making	1	90	1	76
8	Welder	735	-	561	-
9	Foundry men	121	-	62	-
10	DTPO	-	69	-	68
11	FHT	2	-	-	-

12	Upholstery	33	-	21	-
13	SMW	255	12	146	9
14	Carpenter	343	-	175	-
15	PPO	55	3	47	3
16	Mech.Tractor	65	-	39	-
Total		2481	1010	1626	753

Source: Government of Kerala publications

However, in short term courses (one year or less than one year) like stenography, dress making, cutting and tailoring, secretarial practice and data preparation conducted by various technical institutions female students have superior percentage (45% to 100) of enrollment (See Table 2.6). Clearly women have limited entry in to 'masculine' specializations but dominate in professions identified as 'feminine'. This orientation of women's enrollment in Arts and Science colleges for Degree and PG courses reveal largely a reflection of their hope for white collared jobs.

2.2.3 Demographic Transition and Educated Unemployment in Kerala

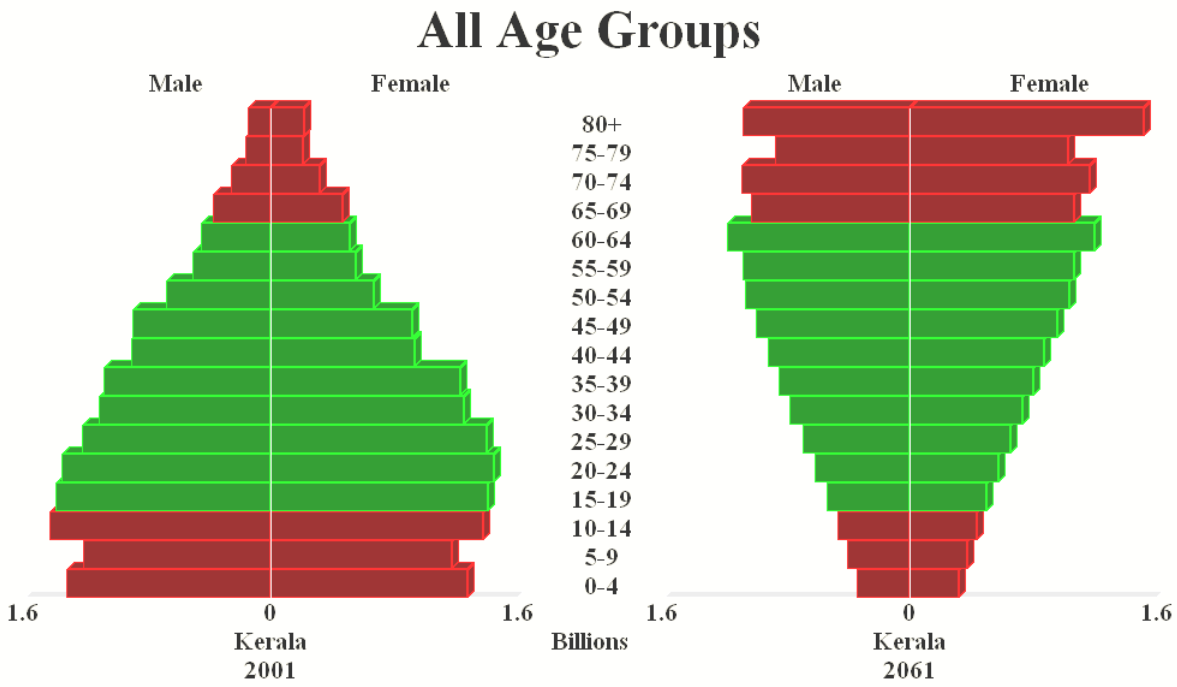
An important effect of demographic transition is the change in the age structure of the population. Age structure transition is a process of the shifting of age structure from the young to an old population. However, in the course of this shift from the young to the old there would be a short period of rapid growth of adults in the working age group (15-59 years). It is found that this short period is manifested by low dependency ratios and increase in the working age population. Economic demographers call this period, the period of demographer bonus" or "window of opportunity" brought out by the demographic transition. In the prime working ages of 25-59 years, a phenomenal increase of 10 percentage points was registered for Kerala during the past four decades. In fact, among the major states of India, Kerala is leading with the highest proportion of working age population (about 46 percent). An increase of around five percentage points was reported for states such as Gujarat, Karnataka, Punjab and Tamil Nadu. With the help of Population Pyramids (Figure 2.1) for Kerala, 2001 and 2061, one can picture the age wise composition of Kerala population with gender base. The population pyramids explain the quantity of working age

population in the current period. Such huge qualified human resources must be utilized for the development of our nation. Demographic Bonus Stage is expected to have the following characteristics:

- Growth in Labour force at the macro level
- Decline of young and old dependency ratios at the macro level
- Increase in the saving rate among households
- Spurt in Government Saving and Investment
- Spurt in economic growth.

Figure 2.1

Population Pyramids for Kerala, 2001 and2061



The empirical evidence from various countries shows a significant positive impact of labour force growth during the second stage of the age structural transition on the economy (Bloom and Williamson, 1998). A proper management of these demographic processes is essential if

maximum advantages have to be derived from the age structure. In the case of Kerala, it was observed that the state was caught unawares of such changes until recently, resulting in improper management of human resources. The respective governments need to ensure that these processes are empirically studied and policy guide lines are provided well in advance to take care of such rapid changes occurring in the society. Perhaps, the failure of Kerala was partially also due to its failure in anticipating such drastic changes within a short span, due to lack of scientific studies in the past.

2.2.4 Female Labour Market in Kerala

Women in Kerala have scored poorly in terms of participation in paid employment and labour force. At all India level, the Female Work Participation Rate (FWPR) increased from 19.7% in 1981 to 25.7% in 2001. But in Kerala FWPR has decreased from 16.6% in 1981 to 15.3% in 2001. In Kerala women enjoy higher wage rates for casual employment in both rural and urban areas than in other parts of the country; however Female Work Participation Rate (FWPR) is 15.3% which is comparatively less than national average of 25.7 % (See Table 2.7 and Figure 2.2).

Table 2.7

Work Participation Rate in India and Kerala

Year	Kerala			India		
	Male	Female	Total	Male	Female	Total
1981	44.9	16.6	30.5	52.6	19.7	36.7
1991	47.6	15.9	31.4	51.6	22.3	37.5
2001	50.4	15.3	32.3	51.9	25.7	39.3

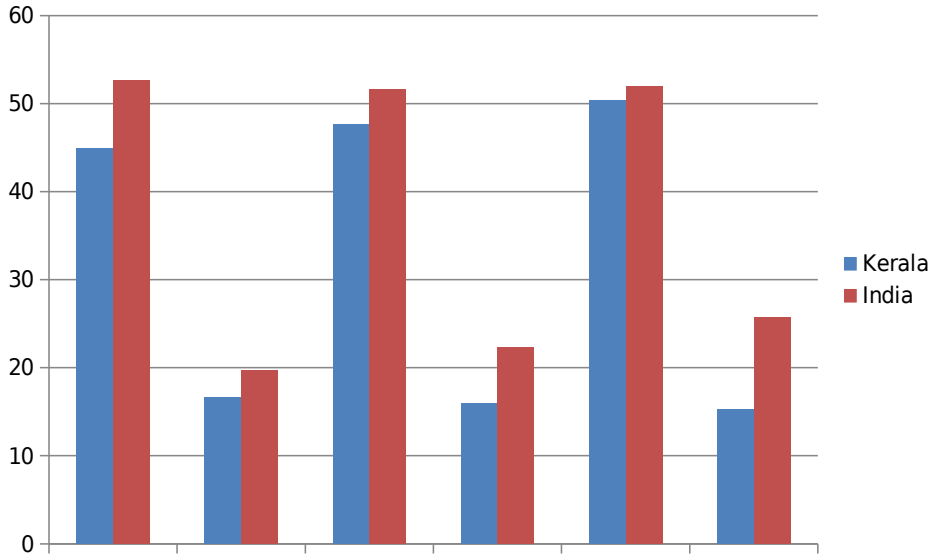
Source: Census of India, 2001

The Table 2.7 and Figure 2.2 show that Labour Force Participation rate in Kerala is low compared to the rest of India. In Kerala, the labour force participation rate lag behind as compared to that of the statistics of India (-7%) with wonderful achievements in education, health and standard of living of the people. The gender base analysis also shows a downward trend

in Kerala against the upward trend of female labour Force participation in India during the period 1981 to 2001.

Figure 2.2

Work Participation Rate in Kerala and India



The National Sample Survey Organization (NSSO) data also substantiate the downward trend of female work participation rate in Kerala. The analysis of data from 1987-88 to 2009-10 shows that continuous diminishing trend in the female labour force participation rate, but male participation rate in the labour force has increased. The table 2.8 clearly depicts this phenomenon.

Table 2.8

Work Force Participation Rates (Usual Principal and Subsidiary Status)

Particulars	Kerala			India		
UPSS/USS	1987-88	1993-94	2009-10	1987-88	1993-94	2009-10
Rural Male	50.6	53.7	55.3	53.9	55.3	53.1
Rural Female	28.6	23.8	23.8	32.6	32.8	29.9
Urban Male	53.0	55.9	55.8	50.6	52.1	51.8
Urban Female	19.8	20.3	20.3	15.2	15.5	13.9
Total Male	51.2	54.3	55.4	53.1	54.4	52.7

Total Female	26.5	22.9	22.9	28.1	28.3	25.4
Total	38.6	38.3	38.7	41.1	41.8	39.5

Source:NSSO various rounds

2.2.5 Female Employment in Organised Sector

As on March 2010, the organised sector (public and private) together employed 11.09 lakhs of employees in Kerala. Public sector accounts for 55.18% of employments and private sector accounts for 44.82% of employees in the organised sector. The female participation in private sector was 50.10% where as in public sector it was only 31.70%. The poor participation of female in public sector is a serious issue in the state.

Table 2.9

Employment in Organised Sector of Kerala, 2010

Sector	Male (in lakhs)	%of Male	Female (in lakhs)	% of Female	Total
Public sector	4.18	68.30	1.94	31.70	6.12
Private sector	2.48	49.90	2.49	50.10	4.97
Total	6.66	60.05	4.43	39.95	11.09

Source: Directorate of Employment 2010

It is well known that due to strong labour unions and greater labour awareness, manual labourers within state have decent working conditions and high wage rates compared to other parts of the country.

2.2.6 Levels of Unemployment

The working age group boom has created significant changes in the labour market conditions in the state. While on one hand, it created significant educated unemployment in the state, on the other it also led to large scale emigration of persons, resulting in considerable inflow of remittances to the state. There has been a plethora of studies on the unemployment situation in the state, particularly on the question of educated unemployment. Unemployment is widely considered to be more as

a result of economic backwardness than of change in age structure created by demographic transition in the state. The demographic factors coupled with social development, undoubtedly, have created a peculiar supply-demand crisis leading to higher levels of unemployment particularly among the educated. While on one hand there exist an abundance of educated labour seeking job unable to find them, on the other there also exists a scarcity of labour within the state for manual work in general.

The state of Kerala has the highest incidence of unemployment in the country. It needs to be emphasized, however, that while general unemployment can largely be overcome through achievement of adequate growth of the economy, unemployment of the educated is not solved through higher rate of economic growth alone, although it is a necessary condition. It really requires an innovative strategy to create large-scale employment. Though late, the government has now realized that ICT can play an important role in generating large-scale employment opportunities, suitable to the educated unemployed in Kerala.

Educated unemployment is clearly a serious problem in Kerala. In Kerala, female unemployment rate exceeds that of men. Educated unemployment among women is as high as 34% in urban areas (in 1999-2000) as compared to about 7% for men. Women's job preferences have also played a role in constraining their opportunities for work. Nearly three-fourths of the unemployed women, according to a recent study of women's education, employment and job preferences, reported that they remained unemployed because they have not been able to find jobs of their own preferences. (Lakshmi Devi, 2002). Of the factors that constituted preference, social status and proximity to home were the most important.

Table 2.10

Unemployment Rates for the Educated (UPSS/USS)

Particulars	Kerala		India	
UPSS/USS	1993-94	2009-10	1993-94	2009-10
Rural Male	15.6	11.2	6.5	5.6

Rural Female	32.3	36.7	15.0	14.6
Urban Male	11.2	7.4	6.0	6.2
Urban Female	34.9	34.2	18.2	14.3
Rural Male	18.5	15.0	8.8	6.8
Rural Female	49.6	49.1	24.9	20.4
Urban Male	12.6	9.9	6.9	6.6
Urban Female	40.6	41.9	20.6	16.3

Source:NSSO various rounds

The analysis of change of unemployment rate in India and Kerala from the period 1993-94 to 2009-10 is given in the Table 2.10. The unemployment rate of rural male shows continuous decline in the study period in both India and Kerala. The casual employment opportunities from various sources like Mahatma Gandhi Employment Assured Scheme have directly resulted in the declining trend of unemployment among rural male.

However, the unemployment rate of rural female shows an increasing trend in Kerala, but in India employment opportunities increases at a very slow rate. The seeking of white collar jobs is the main reason for huge unemployment rate in Kerala. In urban Kerala, employment opportunities for male is continuously increasing due to the impact of globalization and huge international migration, but female unemployment rate slowly shifs downward due to immobility of female labour market and a general hunt for feminine type jobs.

2.2.7 Gender and Migration

While migration to destinations both outside and within the country is a significant employment option for men, it is certainly a factor in the intensity of female unemployment in the state. A gulf migration study undertaken in 1998 found that only 10% of the 3752000 migrants from the state were women. (Zachariah and Irudaya Rajan, 2004). The male migration have affected the reservation wages of many women in the upper and middle classes of Kerala, many of whom choose to remain unemployed until they find professional jobs to their liking.

2.2.8 Demographic and Health Status of Women

The role of women's literacy in achieving health transition in Kerala has been well documented. Achievements with regard to health status are reflected in life expectancy and the percentage of girls marrying after 21 years of age.

While these factors have contributed greatly to this demographic and development service in Kerala, sole emphasis on them tends to mask the fall outs of health transition in the state and particularly its adverse implications on women. These implications are particularly strong where reproductive health of women is concerned. Low and declining levels of fertility have bought women in the reproductive age under tremendous pressure in terms of dictions on child birth and prenatal care. This pressure is reflected in the rising level of caesarean section deliveries in Kerala and its possible association with private sector institutions. In the same way, the prevalence of the common type conditions such as depression and anxiety is higher among women across socio-economic levels in societies. Also Divorce rate shows $^{2}/_{3}$ increment in 2008 (Women commission, Kerala).

Table 2.11

Demographic and Health Status of Women in India and Kerala

Indicators	Kerala	India
Life expectancy (female),2011	76 .3yrs.	64.2yrs.
Infant mortality rate,2011	12	53
Maternal mortality rate,2011 (Out of lakhs)	110	301
Couple protection rate,2002	66	52
Effective age at marriage of girls(yrs.),2001	22	19.5
Proportions of girls marrying after 21 years,2001	63	25.9
Proportions of girls marrying between 18 and 20 years,2001	32.3	53.4
Percentage of institutional deliveries	93.0	33.6
Total fertility rate	1.9	2.9
Sex ratio,2011	1084	940

Source: A Situational Analysis of Women in Kerala, National Commission for Women.

2.2.9 Violence against Women

Violence against women is clearly embedded with patriarchal structures. In Kerala 70.2% (69.4% -for all India) of women who had experienced violence at least once, agreed with at least one reason for beating wife as did 60.8% (53.3 of all India) of women who had never experienced violence (National Family Health Survey, India 2008-09). The NCRB (National Crime Records Bureau) data reported that CAW (Crimes against Women) fall into six categories - rape, kidnapping and abduction, dowry deaths and cruelty at home which are strongly associated with the domestic context as against rape, molestation and sexual harassment which involve different degrees of a genre of crime against women, not necessarily associated with the domestic context. The Table 2.12 reveals the magnitude of cruelty of men against women in Kerala. The data in the table shows crimes of husbands & relatives and molestations that are placed under first and second category of crimes against women in Kerala. Figure 2.3 shows ratio of various crimes against women in Kerala.

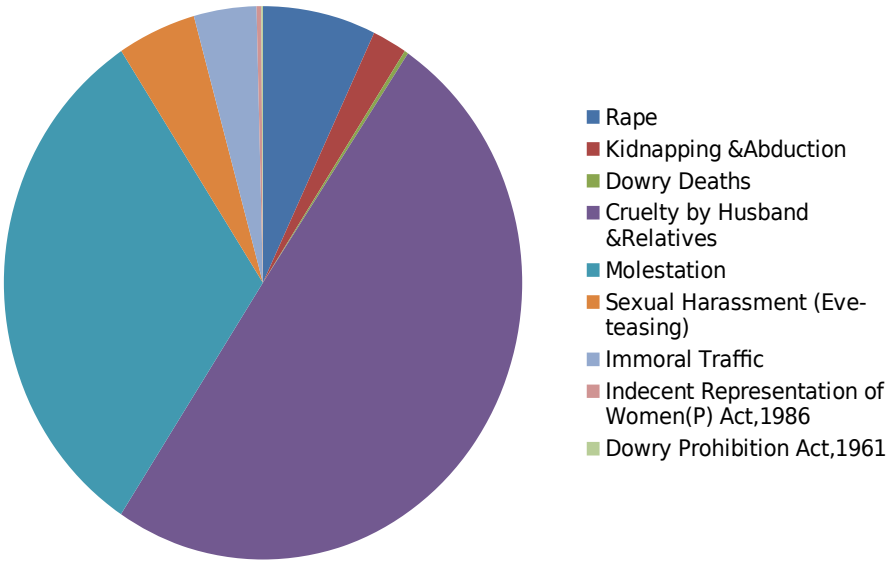
Table 2.12 Crime against women in Kerala

Sl. No.	Nature of Crime	Incidence in Kerala	Percentage Share with India
1	Rape	568	2.7
2	Kidnapping &Abduction	173	0.7
3	Dowry Deaths	20	0.2
4	Cruelty by Husband &Relatives	4007	4.5
5	Molestation	2540	6.6
6	Sexual Harassment (Eve-teasing)	395	3.6
7	Immoral Traffic	314	12.7
8	Indecent Representation of Women(P) Act,1986	24	2.8
9	Dowry Prohibition Act,1961	8	0.1
Total		8049	3.9

Source: Crime in India, 2009.

Figure 2.3

Crimes against women in Kerala



The state has enjoyed high social development in terms of high female literacy as well as other favorable social indicators much earlier than other Indian states, thus leading to a more rapid rate of demographic transition. Despite Kerala's higher human development and gender development index, there is still an entrenched patriarchy and reduced space for women's voices in public and private spaces. As a first step, this study will examine the age structure transition and its impact on the economy of Kerala. The working age group boom in the state had also led to a situation of growing educated unemployment. The unemployment situation is also aggravated due to poor economic performance in the earlier years, although the economic performance of the state has improved, it was mainly driven by the service sector and could not make deep inroads into solving the educated unemployment, especially, female unemployment.

The study found that the work participation of females is declining even though female education in the state is making headway. Faulty education system in the state of Kerala, predominance of arts and science colleges with conventional courses, increasing rate of attack against women, very minimum rate of female migration, women being unable to find jobs of

their own preference, religious beliefs, limited entry of women in to 'masculine' specializations but domination in professions identified as 'feminine' traditional concepts, inflexibility of women in labour market, gender discrimination etc are some of the factors identified leading to low work participation of women. Kerala has a high percentage of highly 'qualified' or 'educated' women, and yet there is relatively little space for women in leadership and empowered roles, and fewer articulate voices in public and private life. But the fact that these issues are being discussed suggests the beginning of a process of change. Such a process of transformation requires more affirmative action and more active political participation of women in all areas -- academics, politics, media, and social actions.

2.3 References

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Chapter 3

Information and Communication Technologies (ICTs) in Kerala

3.1 Introduction

The advent of ICT has changed the global scenario and many unexplored areas are now open for encashment. The phenomenal growth of

NSS 66th Round, July 2009-June 2010.,National Sample Survey Organisation, Government of India.

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Chapter 3

Information and Communication Technologies (ICTs) in Kerala

3.1 Introduction

The advent of ICT has changed the global scenario and many unexplored areas are now open for encashment. The phenomenal growth of

Microelectronics during the period 1970 to 1980 sowed the seeds of information technology revolution. The ongoing ICT revolution, which resulted due to the integration of computer technology and communication technology, has been accelerated due to innovations in fiber-optics and satellite communication on one hand and computer hardware and software on the other. Over the last three decades, the world has witnessed unprecedented revolution in every aspect of ICT. The Internet and other ICTs have fundamentally changed the way world works. ICTs are increasingly recognized as a powerful instrument for reducing poverty, providing good governance and facilitating sustainable development.

Information technology (IT) plays an important role in the economic development of modern India. The IT led knowledge era had ushered in, a new found status for India in the global space helping the country attain a leadership position in supplying quality human resources in this sunrise sector. In 2009-10, the size of Indian IT- BPO (Business Process outsourcing) industry has crossed 70 billion US Dollar, contributing 5.8% of country's GDP. As the country makes further advances in the knowledge economy, it is necessary that adequate skills in information and communication technology are imparted to the population at early stages of education itself. Such education schemes will not only create future professionals who can lead the growth in IT industry but create an "IT way of thinking" among the people making India a leader in Knowledge economy as a whole.

3.2 The ICT Context in India and Kerala

Shaped by economic liberalization and privatization, the information strategy in India since 1991 has seen moves such as the de-licensing of the electronics industry and liberalization in foreign investment and trade Policies. The software and services component of the ICTs sector has emerged as one of the fastest growing industrial segments increasing from US$170 million worth of output in 1991-92 to US $8.8 billion in 2003-04. Operating within a competitive business environment with successful

networking through overseas entrepreneurs and supportive government policies, the software industry benefits from impressive human capital and has gained a sustainable competitive advantage. ICT played an important role in changing the concept of work and workplace. New areas of employment such as tele-working, i.e. working from a distance, become feasible with new technology. Internationally outsourced jobs such as medical transcription and software services opened up tremendous work opportunities in developing countries like India. In response, leading global software companies have set up subsidiaries and joint ventures in India, and many more local entrepreneurs have started software companies.

Government started initiatives to develop standards and implementation of ICT policies to help in strengthening India's position in the software driven ICT sector in the world. Spurred on by this, many governments in the individual Indian states initiated micro reforms to attract more investment in the ICT sector to their respective regions. The Government of Kerala was no exception and it has developed policies that emphasize ICTs as an engine for industrial growth and employment. Though the government had initiated some activities in early nineties, it was only in 1998, that the government formulated a comprehensive IT policy, with a view to step up ICT promotion activities (Prasad, 2003). The IT policy was revised in the year 2001, incorporating many new features, with a view to increase the employment opportunities through the application of ICT. Before 1995, the Government of Kerala did not make any serious attempt for the promotion of ICT. This was because there was a general fear that computerization would ultimately lead to destruction of job opportunities, which will be fatal for a state like Kerala, where unemployment is the main problem and that the benefits of ICT would remain confined to the higher classes of the society. However, the growth of ICT in nearby states and all over the world, along with the lucrative jobs obtained by Keralites in ICT outside the state were eye-openers and the potential of ICT in creating large scale employment was realized by the state, albeit a little late. Kerala is a potential ground as it has many positive factors, which are conducive to the

growth of ICT industry. Some of the factors, which contribute to the promotion and growth of ICT industry in Kerala, are (Prasad P N and Sreedevi V, 2007):

- High literacy and phenomenal growth in education, health and other services
- Ease of geographical access in extent and stretch both longitudinal and lateral
- Large migrant population with extensive demands for connectivity
- Extensive telecom network reaching all towns and villages
- Availability of educated youth
- Export based trade and commerce
- Potential for tourism industry

The state's ICT policy in this domain articulates a three-fold strategy viz.,

(1) Establishment of vibrant ICT industry

(2) Building up a robust infrastructure, and

(3) Up gradation of the quality of human resources.

3.3 State Intervention ICTs Projects in Kerala

The Government of Kerala's ICT policies stretch on gender-blind, market-oriented initiatives to direct ICT project interventions that tap into the broader range of relations between ICTs and enhanced social and economic development. Table 3.1 shows some of these projects initiatives that link ICTs with state policies on governance, poverty alleviation and public service delivery. One area (IT @School) of emphasis is, on increasing IT literacy in the state by promoting use of IT in school curriculum, training of teachers and supply of IT hardware. In line with e-governance projects in other Indian states, initiatives such as Package of Effective Administration of Registration of Land (PEARL) and Fast Reliable Instant Efficient Network for Disbursement of Services (FRIENDS) enable citizens to access a number of public services such as payment of bills through computerized networking systems. 'Akshaya', a recent initiative by the Kerala State IT Mission,

aims to act holistically by providing skills, information and services to citizens. In all of these, the state has a direct ownership and/or delivery role.

Table 3.1

State-Intervention ICT Projects in Kerala,2010

Name	**Programme and Objectives**	**Location/level of implementation**	**Intended impacts**
FRIENDS	Payment of bills	State-wide	Transparent administration, access to services
PEARL	Registration of land	State-wide	Transparent Administration access to services
Project Grameen	Education of local Citizens and formulating grassroots programmes	Local Council (Gramapanchayat)	Employment, empowerment and increased local participation
Information Kerala Mission	e-governance	Local Council (Gramapanchayat)	increased participation and empowerment

Akshaya	Providing e-services	State-wide	Governance, Employment, participation.
Kudumbashree	Poverty alleviation scheme through women's self-help groups	State-wide	Self employment, empowerment and poverty reduction
IT @School	Learning and teaching	All Kerala Government Schools	Training and education

Source : Adapted from GOK (2010)

3.4 Kerala State IT Mission (KSITM)

In Kerala, Kerala State IT Mission (KSITM) established in 1999 is the nodal IT implementation arm of the government. KSITM performs diverse roles including, e -governance and development of human resources, disseminating information across citizens and government, interfacing between government and industry, bridging digital divide, investor interactions and achieving speed and transparency in governance.

The activity of thrust is e-governance; conceptualization and implementation have been guided by citizen centricity and enhancing for citizen's efficiency. The various e-governance projects have been broadly classified under the head of

- Core IT infrastructure
- Common IT infrastructure
- Common applications of IT and
- Capacity building / Enhancement Initiatives.

3.4.1 Core IT Infrastructure

The Core IT infrastructure components of the e-governance projects can be enumerated as follows:

3.4.1.1 State Data Centre

State Data Centre Located at Co-Bank Towers, Palayam, Thiruvananthapuram provide the infrastructure backbone for the running of the various e-governance initiatives of the Kerala Government. Available 24 x 7, the State Date Center together with Network Operating Centres (NOCs) hosts government applications, including websites. The bandwidth from various providers are aggregated at the three NOCs and one linked to the Government Departments through leased lines, wireless, cable modem and Integrated Service Digital Network (ISDN).

3.4.1.2 New Data Centre

The New Data Centre has been kicked off and is located at Thejaswini, Techno Park, Thiruvananthapuram. Cloud computing to be tried out in the State Data Centers after completing the feasibility study for which a Tripartite Agreement has been signed between KSITM, IIITM-K and C-DAC.

3.4.1.3 Kerala State Wide Area Network [KSWAN]

Envisaged to provide connectivity all over Kerala, the KSWAN project functions with three network Operating Centres in Thiruvananthapuram, Kochi and Kozhikode. Operational at the Block Headquarter level, it now covers all 14 districts. 152 blocks have been connected and connectivity provided to 1122 offices in remote locations of Kerala. The project is expected to cover all government Offices shortly.

3.4.1.4 SecWAN

The largest Campus-Area-Network (CAN) of the Government of Kerala in the state, the secretariat WAN (Sec WAN) connects about 3000 desktop computers and more than 100 laptop computers. It is hosted on local application servers and supported by 24 x7 uninterrupted power supplies, an Information Touch Screen Kiosk and Network Management System called DARPAN from integral parts of the project.

3.4.1.5 Department WAN

To be set up under the KSWAN, the Department WAN envisions bringing Government Offices under the State Information Infrastructure. The work for establishing network infrastructure at Vikas Bhavan and Public Office has been initiated. The 14 District Collectorates are also being brought under the purview of the Department WAN.

3.4.1.6 Civil Station Wan

Civil Station WAN envisages setting up of Wide Area Networks (WANs) in 14 Civil Stations / Collectorates in the state to provide common network for the provision and use of IT related services like e-mail, payroll, file flow, file tracking and videoconferencing under a single information infrastructure.

3.4.1.7 Akshaya

Envisioned as an e-literacy project, the project Akshaya was launched in the year 2002 in Malappuram District of Kerala. After successful pilot work in Malappuram, Akshaya was rolled out in another seven districts in 2005. Eight districts in total achieved near hundred percent e-literacy statuses. A detailed analysis indicates that e-literacy was achieved partly by the efforts of Akshaya and partly by the efforts of other institutions. As per records 30.82 lakh people (one per family) have been trained through Akshaya centers which amounts to 44% of families. The third phase of e-literacy started in the balance districts in 2008-09. During this period the mandate of Akshaya centre was enlarged and they were to function as Common Service Centres. Presently there are over 2000

Akshaya e-Kendras spread over 14 districts with an average of two in each Grama panchayat. These centers provide various services for the benefit of the common man, including commercial services like e-payment, railway e-ticketing and e-filing, educational programmes of IGNOU and services with social imperative like the Entegramam community web portals. The details of transactions and earning from 1-4-2009 to 30-09-2010 are given in the Table 3.2.

Table 3.2

Transactions and Earnings through Akshaya Centres

Sl No	Name of the Project	No. of Transactions	Income (Rs)
1	e-payment	2,101,458	1,05,07,290
2	e-filing	3,70,011	85,10,253
3	e-consignment	43,000	
4	Registration of APL beneficiaries under health insurance scheme	1,67,191 families	25,07,865
5	e-manual	41,137	6,17,055
6	Online application of Ration card	12,292	3,07,300
7	Entegramam web portal	137 created	
8	LIC micro Insurance	1,36,82,032	13,68,203
9	Intel Learning	33,109	99,32,700
10	Medical Transcription	462	26,75,660
11	IGNOU	2373	36,07,013
12	Registration for BPL beneficiaries under Health insurance scheme	3,92,986 families	47,15,832
13	Railway e-ticketing	41,350	6,20,250
	Total Income		4,53,69,421

Source: Government of Kerala, IT Department-2011

3.4.1.8 FRIENDS

Piloted at Thiruvananthapuram in 2000, FRIENDS centres are now available in all districts of Kerala. To enhance the scope of operations, KSITM has also pilot launched an application called Friends Reengineered and Enterprise Enabled Software (FREES) Thiruvananthapuram Centre in May, 2010. A web enabled application; this software once fully implemented would enable citizens to make utility payments, taxes and other fees from any Akshaya and FRIENDS Centre. During the year 2009-10, Rs. 22,283 lakh were generated in the FRIENDS centers, from 3239308 transactions.

3.4.2 Common IT Infrastructure

As an IT enabled single window facility, the Call Centre is positioned as a platform that enables easy and effective interaction between the citizens and the Government, besides quick delivery of authentic information. Examples for organizations with this facility are Directorate of Culture, Calicut University, Akshaya Help line, Kerala Women's help line, Bharat Bhavan, etc.

As of July 2010, details of as many as 30 Kerala Government departments, 12 Government organizations, four Universities and four projects each could be accessed through Call Centre database. Sutharya Keralam, the innovative initiative of the Government of Kerala that helps to bring the complaints and grievances of citizens direct to the notice of the Honorable Chief Minister has been integrated with the citizens call centre.

3.4.2.1 E-mail server

The 'email server' project was conceived to provide email ids to Kerala government employees, considering the increasing efficacy of email as an effective medium of communication. Designed in Open Source Software, the phase I Project was initiated in September 2008 by KSITM, with C-DIT as the Team Software Process (TSP). The Email

sever was made operational in March 2009 and caters to approximately 6000 employees of the Government of Kerala.

3.4.2.2 Video Conferencing

The video conferencing project was launched to enable officials to make and implement decisions irrespective of geographic and time differences. Video conferencing is presently available across 19 locations and provide 24 hours service. An online calendar is available at IT Mission's web site that helps in scheduling sessions. Sutharya Keralam also uses this infrastructure.

3.4.2.3 State Spatial Data Infrastructure

The Kerala State spatial Data Infrastructure (KSDI) is seen as mechanism to promote geospatial data sharing at all levels of government, private, non-profit sectors and academia. The KSDI is conceived as a single window-access to the spatial/ non-spatial data for both the professional and amateur users, by building an open, interoperable and decentralized architecture accessible from a common web portal, from where users can successfully download and process data as per their requirements.

3.4.2.4 State Service Delivery Gateway

State Service Delivery Gateway (SSDG) has been formulated under the National e-Governance plan 2006 (NeGP) to facilitate the delivery of a host of citizenry service, easily and conveniently. The SSDG will enable Common Service Centres (Akshaya Centres) to provide Government related services, thus eliminating citizens' need to visit multiple offices. The key components for the service delivery gateway are State Portal, e-Form, application and computing Infrastructure. The project has identified 57 services across 13 Departments.

3.4.2.5 e-District

A Mission Mode Project under NeGP, it aims at providing easy access of Government services to citizen through Akshaya centres. The Project, to be pilot launched in two districts of Palakkad and Kannur will deliver around 30 services, has witnessed re-engineering internal processes of District Administration, subordinate offices and participating departments to increase functional efficiency. To facilitate delivery of services, KSITM has also brought out the Kerala Information Technology (Electronic Delivery of services) rules, 2010, which has been published as an Extra Ordinary Gazette.

3.4.2.6 Malayalam Computing

Computers traditionally have used English as the medium of interface and this has put the English-not-savvy population at a disadvantage. To overcome this KSITM has initiated the Malayalam Computing project, which would enable all sections of population make best use of computer aided technologies. Implemented in all districts of Kerala, 25000 Malayalam computing CD Kits and nearly one lakh Malayalam keyboard stickers have been distributed. Started in February 2008, the campaign is active at present in five districts of Kerala viz. Kannur, Malappuram, Kollam, Pathanamthitta and Kozhikode.

3.4.2.7 Content Management Framework

The project, Content Management Framework, based in Free and Open Source software enables migration of all Government websites, facilitating timely updating and thereby increased transparency. As part of this project, all government websites have been migrated to the State Data Centre. About 60 websites (including websites of 20 ministers) have been migrated to CMF.

3.4.2.8 Integrated Government Service Gateway

The integrated government service gateway (IGSG), a free open source software (FOSS) based on geographical information portal, has been designed to serve as a ready record of all the government offices, tourist destinations, and other places of historical significance in Kerala. To start with, details of six departments have been updated in the gateway.

3.4.2.9 e-Government Procurement

A Mission Mode Project under the integrated services category of the National e-governance plan, 2006 of the government of India, e-procurement has been taken up as a major e-governance initiative by the Government of Kerala. Being implemented by KSITM, e -procurement promises transparency in Government procurements, reduction of time and cost of procurement, equal opportunities to all vendors and harnessing economies of scale through demand aggregation.

3.4.2.10 Public Key Infrastructure

The project Public Key Infrastructure (PKI) targets at building a mechanism for providing digital signatures to the personnel in government and also to the other people closely related to government like enlisted contractors, vendors, etc. By providing digital signatures to the people in government, authenticity of communication can be established, especially in electronic transactions that happen in e-governance and other services delivery. Thus Public Key Infrastructure will help in providing secure communication of G2G (Government to Government), G2C (Government to Customer) and G2B (Government to Business) transactions and provide legal validity to electronic documents besides facilitating secure communications and information processing for sensitive E- governance applications.

3.4.2.11 e-payment gateway

The e-payment gateway is envisaged as a common platform for all users to facilitate online payments relating to all Kerala government departments. It is now proposed to establish an e-payment gateway as part of the state portal and State Service Delivery Gateway (SSDG) under the NeGP and to link all the State government e-pay services to this portal.

3.4.2.12 Mobile infrastructure

Leveraging the high tele-density levels of Kerala including mobile phone penetration, KSITM, on behalf of Kerala Government, has initiated action to set up about 20 mobile governance services offered by eight departments, as a pilot project. Encapsulated M-Governance Service Delivery Platform (SDP) including setting up of services for SMS, MMS, USSD, voice ad IVR platform (stack of hardware and software) is ready. A unique short code 537252 ‘KERALA’ has been opened across all the network operations in Kerala and all the government mobile services can be availed by all subscribers of all the mobile network operators in Kerala. Currently over 25 services spanning six departments are live. Dr. SMS is a significant mobile based project that provides users with a comprehensive list of medical facilities available in a chosen locality, like hospitals having expertise in various medical specialties etc. integrated with the Kerala short code; the facility is available all over Kerala.

3.4.3 Common applications of ICTs

3.4.3.1 SPARK

The project service and payroll administrative repository for Kerala aims at having an up-to-date database of all government employees of Kerala. It is a web based solution for service and payroll management and can process and generate pay bills/ reports/orders etc. Digitized Service

Books of all the government employees in the state are captured into the system and Permanent Employment Numbers (PEN) are to be allotted. The PEN will be the code to identify the employee in the SPARK database. Ultimately it can facilitate online data transfer between government Departments, Treasuries and Accountant General's Office.

SPARK is online in 81 departments and salary processing of NGOs in 25 departments is done through SPARK. The service books over 4,28,000 Government employees have already digitized. The number of employees who processed their salary bill through SPARK is 211407 and the number of online offices is 10293 as of September 2010.

3.4.3.2 IDEAS

IDEAS (Information and Data Exchange Advanced System) are envisaged as a file tacking system for government offices. The information technology department has implemented 'IDEAS', an advanced file information system, to track files of the offices of the State Government, in manageable realm of electronic governance, utilizing the core strengths of Information Technology. This system makes the government more transparent and approachable for the citizens, bringing benefit in its overall governance.

3.4.3.3 MESSAGE

MESSAGE (Modern Electronic Systems & Services Agility & Governance in Enterprises) is an intranet based centralized application for the internal use of offices and internet based application for the citizen services. MESSAGE can be instantiated for multiple offices from the same intranet database. The files, staples, petitions are captured at source and their movements across the office can be easily tracked.

3.4.3.4 AASTHI

AASTHI is an automated e-Inventory Management of computers and related equipment, based on open source software. Implemented in Kerala State IT Mission, the AASTHI Version I is currently under test implementation.

3.4.3.5 SPARSH- Information Kiosk

To provide information quickly to the not-so-computer savvy and untrained citizens visiting the Secretariat for various needs, KSITM has installed four touch Screen Information Kiosks at the secretariat. Available for free access to citizens coming to the State Secretariat, visitors are now able to make enquires and find the replies displayed on the monitor before them. Some enquires that can be accessed through the kiosk are fair-value of land, PSC notifications, SPARK salary slip etc. Currently information pertaining to more than 25 departments has been made available through this Kiosk. Similarly, two kiosks have also been set up at the Kerala University Campus.

3.4.3.6 **Digital Software Repository**

A Digital Software Repository model ensures better managerial support to various IT related initiatives of the Government. The main objective of the project is to enhance the infrastructure for managing software within a development environment so that the repository will serve as a non- stop destination from where the software implemented in government organizations shall be archived and can be accessed and ensures permissions to view and download the required software to concerned government departments, among others.

3.4.4 Capacity Building /Enhancement Initiatives

3.4.4.1 e-Governance Mission Teams –NeGP

The national e-governance Plan, under its capacity building component, has authorized the provision of technical support to the policy and decision making bodies for the overall management of

NeGP. KSITM has been assigned as the nodal agency for implementing the Capacity Building Scheme in Kerala.

The Capacity Building Scheme is meant mainly for provisioning technical and professional support to state level policy and decision making bodies, and to develop specialized skills for e-governance. The Capacity Building Scheme imparts training and supports the creation of State e-governance Mission Team (SeMT) and project e-Governance Mission Teams (PeMT). The state Nodal Agency has appointed a seven-member team of consultants from M/s Wipro as the SeMT and is functional since august 2009. The formation of Project e-Governance Mission Team (PeMT) across six Departments is currently underway.

3.4.4.2 Entegramam

Digital divide manifests not just by access and tools of access but also by the inability to provide locally relevant information. The project Entegramam is designed to overcome this by developing web portals in Malayalam with Unicode encoding. By virtue of this, it would become possible to add information on Grama Panchayats of Kerala, including information on the history of the land, governance and public services apart from locally relevant news and announcements. The project has been designed with a view to making the portal in a forum of community interaction. The project is underway in the four districts of Kannur, Malappuram, Thrissur and Kollam.

3.4.4.3 INSIGHT

An initiative of KSITM established in May 2007, the INSIGHT project embodies the Kerala government's IT Policy 2007 that the benefits of ICT should reach all sections of the society. Into its fourth phase, INSIGHT is now providing training to Akshaya entrepreneurs in its bid to reach out to the differently-abled across the State. The trainings

are held with the support of the Grama Panchayats. Release of the Alpha Version of Malayalam Text to speech system, based on the festival engine and job fair at Tehnopark exclusively for the differently-abled students of INSIGHT, are the other highlights of the project.

3.4.4.4 e-Krishi

e-Krishi is a market driven agricultural initiative through IT enabled agri-business centres in Kerala to address the existing gap in agriculture information flow and transaction management. The project envisages facilitating and enabling farmers and other stakeholders through agri-business centres to interact with service providers in the private, government and non-government sectors. K-Krishi project, which envisions a connected farmers with access to information on market demand, prices, good agricultural practices and quality agricultural inputs supported by a technology enabled robust transaction platform that facilitates all their offline activities, is slated for roll-out across the state.

3.4.4.5 YES @ Kerala

The youth Employability and skills – 'YES @ KERALA' was launched in the State in June 2008, to provide soft skills and technical skills training to students from various colleges in the state. The purpose of this project is to hone the skills of the students and make them ready for employment in the industry; especially considering that Kerala is making sustained efforts at attracting investments in the IT sector all over the State. In its pilot phase, the programme targets 3750 students from 15 colleges and polytechnics in the State.

3.4.4.6 ICT for Women

To promote use and access of ICT among women, especially women from marginalized communities, KSITM has initiated ICT training based on FOSS for the women of fishing communities. Training for the first

batch of 100 women has been successfully completed and training is ongoing for the second batch.

3.4.4.7 Women's Skill Enhancement Progamme

This programme aims at establishing exclusive ICT infrastructure and trained resources for imparting differentiated skill up gradation programmes for the women students in the selected women's colleges in Kerala. As part of this, fully equipped Resources Centers including labs have been set up in H.H. Maharaja's College for women, Thiruvananthapuram and Krishna Menon Memorial Govt. Women's College Kannur. Around 1200 students have completed the training including pre and post test from two Government Colleges.

3.4.4.8 Finishing Schools in Association with IHRD

To impart hands on experience on live projects and soft skills/communication skill enhancement programmes for the engineering / technically qualified graduates, KSITM has set-up finishing schools in association with IHRD. The first Finishing School was opened in Thiruvananthapuram in February 2008. The second Finishing School began functioning at Kochi in July 2010.

3.4.4.9 PG Diploma in e-Governance

As part of building capacities in e-governance, as recommended by Administrative Reforms Commission on e-governance, Kerala has launched a Post Graduate Diploma Program in e-Governance. Being conducted jointly by Institute of Management in Government (IMG) and Indian Institute of Information Technology and Management-Kerala (IIITM-K), the objective of the course is to help the participants understand how to manage e-Governance projects implemented in the State. The course is spread over two Semesters with a total duration of one year. The scheme shall be open to all Government employees in Group A, B and C subject to fulfilling the eligibility conditions set down

by the Board of Studies of the Programme. The programme was officially inaugurated on October 2009. The first batch has successfully completed the course and sessions on the second batch begin in August 2010.

3.4.4.10 Special Post Education Expansion Drive in IT (SPEED-IT)

To encourage higher education in the field of IT, Government of Kerala has introduced a new scheme called "Special Postgraduate Education Expansion Drive in IT" (SPEED-IT). The scheme is available to both government and private engineering colleges and targets students in two categories. The first category is scholarship holders and second category is the sponsored students. Scholarships are available for M.Tech and PhD programmes.

3.4.4.11 FOSS Training for Government Employees

The Kerala Government IT policy- 2007 has identified Free and Open Source Software (FOSS) as a major strategic component in its efforts to build an inclusive information society. To equip Government employees on the effective use of FOSS tools, KSITM has been providing free training to employees. Around 278 employees from various departments in the Secretariat have undergone training. 90 employees have completed training in all modules. Around 55 Master Trainers from different departments have trained on RH 133.

3.4.4.12 Centre for Advanced Training in Free and Open Source Software (CATFOSS)

KSITM in association with C-DIT has set up the Centre for Advanced Training in Free and Open source software (CATFOSS) at Kochi to provide trained manpower that can fuel the development of a FOSS based information technology infrastructure domain in the state. A software development division has been set up in CATFOSS to cater to solutions on FOSS platform to government / private organizations. Advanced

training in FOSS has been provided in two batches and training for the third batch is presently ongoing.

3.4.4.13 International Centre for FOSS (ICFOSS)

In order to sphere-head Kerala's vision in ICT and FOSS, an International Centre for Free and Open Source Software (ICFOSS), which will function as an independent organization. ICFOSS has been registered as a society under Travancore-Cochin Literary, Scientific and charitable Societies Registration Act (Act XIII of 1955)

3.4.4.14 Kerala State e-Governance Awards

To recognize pioneering e-governance projects and the contribution made by the officials concerned, Government of Kerala has launched the Kerala State e-governance Awards in the year 2008. The Awards are a joint activity of KSITM and IMG which has been designated as the nodal agency for the implementation of the Awards. The first edition of the Awards for the year 2008 was given away in 2009. Nomination has been invited for the second edition of the awards.

3.4.4.15 ITES habitat-Incubation Centre

KSITM also plays another significant role towards promoting investment and enhancing investor confidence. It has set up the ITES habitat Centre at Kochi to serve as an incubation centre for emerging IT companies and for providing facilities at par with industry standards at affordable cost. Inaugurated in April 2003, the ITES Habitat centre is located at Jawaharlal Nehru International Stadium Complex, Kallor. As of September 2010, 27 organizations have occupied space in ITeS Habitat, which employ around 300 people.

3.4.4.16 Investment and Promotion Management Cell

As the nodal implementation agency of the Government of Kerala, one of the enshrined roles of KSITM is to work towards making Kerala an attractive IT destination. Towards this, KSITM functions as the

administering agency for financial incentives to eligible IT units of Kerala. This has been made responsible through the constitution of a dedicated Cell at KSITM called the Investment and Promotion Management Cell. As of march 2010, an amount of 68, 84,001 have been disbursed by way of Standard Investment Subsidy.

3.5 INDIAN INSTITUTE OF INFORMATION TECHNOLOGY & MANAGEMENT- KERALA

With a view to take positive steps toward establishing leadership in the fast growing information technology field, Government of Kerala decided in the year 2000 to set up the Indian Institute of Information Technology and Management-Kerala (IIITM-K), a non-profit making autonomous institution which is registered under Section 25 of the Companies Act. The management of the Institute is vested in Board of Directors comprising eminent industrialists, academicians and senior Government officials appointed by Government of Kerala.

IIITM-K's mission is to be an institution of excellence in education, research, development and training in basic and applied information technology and management and to be a leader in educational networking and services provider for higher education and professions. Since 2001, the institute has been offering a post graduate diploma in information technology, abbreviated PGD-IT. This diploma programme was being offered as a two- year on- campus programme for students admitted through IIITM-Ks admission procedure. IIITM-K has successfully conducted programme with a good number of intakes with almost 100% placement and the industries also rated the programme with good appreciation.

Recently, the institute had taken further steps to make the institute courses as a recognized technical course and the demand has come from the students to pursue their studies for masters or PhD. Institute tried for AICTE recognition for offering Master's programme, but the application got rejected because of absence of full-fledged campus. Since IIITM-K functions in a temporary set up in Techno Park without land, building,

hostel etc. the students' intake had deplorably come down and the fee income was not sufficient to meet the operational cost. Being a company registered under section 25 of Companies Act, institute's plea for grant-in-aid for non-plan expenditure was also not favorably considered. The overall situation was viewed at the highest level and initiatives at the government level enabled IIITM-K to accomplish starting of three new courses viz., (i) Master of Science in Information Technology (ii) M.Phil programme in Eco-informatics and (iii) Post Graduate Diploma in e-governance in the year 2009-10 with affiliation from Cochin University of Science & Technology.

During 2009-10 IIITM-K was allotted 1 acre in the Techno park campus and a building measuring 3300sq.ft was under construction and was ready by December 2010. Funds to the extent of 9.16 crores had been made available by government of Kerala for the purpose.

IIITM-K also intends to offer three more courses during the current year itself viz.,: (i) Master of Science in Computational Science, (ii) Master of Science in Geo-Informatics and a (iii) Post Graduate Diploma in Agri-Informatics.

The students' strength currently is 165 and with the introduction of the additional three courses, it is expected that the students' strength would be around 275. Government of Kerala provided 200 lakhs during the year2009-10 and 260 lakhs during 2010-11 for implementing specific schemes.

Apart from Academic courses, IIITM-K conducts high–end research of new technology and areas that resulted into establishing state of the art lab also. IIITM-K is also an implementing agency for software development for Government departments using latest technology that highlighted IIITM-K into a good track record in e-governance project initiatives.

3.5.1 Research

IIITM-K's research work involves theoretical Science, Computational, Knowledge Management and educational technologies

IIITM-K has produced more that 15 national and international papers of high Science, Informatics standards and a number of Conference papers of national and international levels. Under the SPEED IT, Government has sanctioned scholarship to students of IIITM-K for doing PhD in Computer Science.

3.5.2 Areas of Research

3.5.2.1 Artificial Intelligence and Soft Computing

In Artificial Intelligence and Soft Computing, major research work is carried out in Pattern Recognition using Artificial Neural Networks-Fuzzy Systems and Dynamic programming. Identification of Micro-calculations in Mammogram images using soft computing, patterns and sequence identification in Biological sequences, Protein Motif Extraction, Artificial Neural Network in control systems etc. are the other research topics. A number of papers have also been published in reputed journals, which include IEEE (Institute of Electrical and Electronics Engineers) also.

3.5.2.2 Natural Language Processing

The goal of Natural Language Processing (NLP) is to design and build software that will analyze, understand and generate languages that humans use naturally, so that eventually you will be able to address your computer as though you were addressing another person. Machine Translation, Lexical and grammar analysis POS tagging, semantic web are the major areas of work.

3.5.2.3 Software Engineering and Object Modeling

Software Engineering research basically concentrates on principles and the development of technologies, especially Object Modeling Technologies to support the engineering of large and complex software systems, constrained objects for modeling complex system and a constraint language for verification to build robust software.

3.5.2.4 Computational Sciences

The areas of research involve Molecular Electronic Structure computation, Design and development of nano-mechanical systems, electronic gates, and organic reaction mechanism in computational chemistry. They have to their credit published 15 papers in internationally reputed journals of highly impact factor in this area. A computational Chemistry Portal is running for exchanging information and also to perform high-end calculations in molecular and other complex problems in Chemistry.

3.5.2.5 Ecological Informatics

The research in ecological informatics is a new thrust area to make use of IT in ecological Sciences for the protection of nature. The major work involves in ecological modeling, Quantitative Ethno botany etc. Published10 papers in proceedings and journals papers in this area.

3.5.2.6 Information systems and Services

IIITM-K has contributed pioneering work in the area of Educational Technology, GIS, Agri-informatics, and Information Management Systems. A Technology Enhanced Learning and Teaching-a pedagogy model is developed at IIITM-K using ICT that enable to strengthen the quality of education using web based e-learning collaboration tools and knowledge portals.

3.5.2.7 Agri-informatics

The research work in Agri-informatics provides a broad emphasis in agricultural extension activities; developing farming system research and extension having location-specific modules of research and extension and promoting market extension, sustainable agricultural development, with the use of ICT. IIITM-K has been working on frontier areas of Agri-informatics research during the last seven years. Several projects have

been funded by various agencies and the institute has conceptualized some of the best information systems and solutions in his area. Geo-informatics and Remote sensing application in agriculture is also a major thrust area, and IIITM-K has been working in dynamic geospatial information and spatial intelligence for business application

IITM-K has been a pioneer in conceptualizing, developing, implementing, commissioning and servicing some of India's well recognized IT initiatives in Education, Agriculture and e-governance. Some of these are:-

- Implementing Agency of Kerala Education Grid.
- Major technology partner to develop and implement various Agricultural information systems under National Agricultural Innovation project, along with IIT-Kanpur, IIT-Mumbai, Govind Ballabh Pant University of Agriculture and Technology (GBPUAT), Pantnagar,Uttarakhand, University of Agricultural Science (UAS), Dharwad-Karnataka and International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).
- Department of Information Technology (DIT), Govt. of India has assigned IITM-K with the task of developing and implementing various research and academic programs in Information Security.
- INDIAN LANGUAGE CONSORTIA INITIATIVE (ILCI) by department of Information Technology, Government of India.
- Implementation of Karshaka Information Systems, Services and Networking (KISSAN Kerala) Project in the entire state.
- Virtual University of Agricultural Trade (VUAT) project of Government of Kerala, as per the recommendations of the commission of WTO concerns in Agriculture headed by Prof. M.S. Swaminathan.

IIITM-K is envisioned as a premier institute with a strong core postgraduate school that offers Masters, M Phil and PhD programmes.

Currently around 5% of the students passing out of the engineering colleges in the state have facilities available for postgraduate studies. The situation is not any better at the national level. There is an urgent need to increase the seats available for postgraduate studies in the state and also at national level and therefore IIITM-K has a larger role to play in the years to come. This is the only post graduate education centre in IT in Kerala and promotion of the institution is inevitable as IT plays an important role in the economic progress of the state.

3.6 Kerala State IT Infrastructure Limited

Kerala State Information Technology Infrastructure Ltd (KSITL) is a public limited company for the creation of infrastructure or IT/ITEs in the state with 51% share capital contribution of the Government. The company has been incorporated under the companies Act. The business model for the company is to acquire land, create value addition providing basic infrastructure like electricity water and road, obtain SEZ status and such other Government approvals that may be required and then allot land to private developers for development either SEZ or IT Parks, realizing value of land based on market prices etc. Revenue so generated is reinvested in projects it promotes as company's share capital. The company holds up to 26% share in the projects.

The company is currently in the process of acquiring land for the following projects; phase three expansions of the Techno Park, Techno city at Thiruvananthapuram, Cyber Park at Kozhikode and Info park expansion at Kochi. In Kozhikode nearly 28 acres of land out of the 43 acres have been acquired through negotiated purchase and taken into possession. Steps for acquiring the remaining 15 acres through LA Awards are also progressing. In Ambalappuzha 80 acres out of the 100 acres allotted were assigned to KSITL. From the 20 acres to be acquired 12 acres have already been acquired through negotiated purchase. Steps for acquiring the remaining 8 acres are also progressing.

Besides, the company was also provided with government land in the districts of Kollam, Alapuzha (Ambalapuzha and Cherthala), Thrissur, Kannur and Kasaragod for development of IT by setting up IT parks. The process of effecting transfer of land through mutation in the name of the company is under progress. The value of these lands, except that in Cherthala, will be treated as equity of Government in the company. The company is simultaneously in the process of developing basic infrastructure necessary to set up parks and constructing the first IT buildings. The locations at Ambalappuzha, Cherthala, Kollam, Kannur and land parcels in Tehnopark phase-III and Techno city have been notified as SEZ. Approval for SEZ status has also been received in respect of Kozhikode and Kasaragod and Infopark phase II.

IT Park at Koratty in Thrissur has commenced business in the existing buildings with 14 companies functioning from there. Steps are also initiated to get additional land to move for SEZ status for the park. The construction of one lakh sq.ft IT building at Kollam and 2 lakh sq.ft. IT building at Cherthala is under progress and likely to be completed in the first half of 2012. Steps are also initiated for the construction of IT buildings at Ambalappuzha and Kozhikode. Infrastructure development at Kannur and Kasargod has commenced. So IT parks in 7 more locations in various parts of Kerala are going to be realized within a period of two years.

Another scheme being implemented by KSITIL is the technolodge scheme. Technolodge scheme proposes to promote setting up of rural IT Parks thereby promoting development of IT in smaller towns also. Technolodge scheme proposed to be undertaken wherever Government land (one or two acres) or vacant Government building (about 5000 sq.ft to 10000 sq.ft.) is available. Government has already issued order for identifying such buildings/ lands which are suitable for transfer to KSITIL for setting up of Technolodges on lease for 90 years on a nominal rent. Technolodge may be developed either directly by KSITIL or partnership with private investment. 10% of rent received from the

companies operating from the Technolodge will be given to the Grama panchayat. Two such technolodges at Perinad and Kadakkal in Kollam have commenced business in buildings leased from the Grama Panchayat. Two more at Thirumarady and Veliyam are ready to commence business. Administrative sanction has been received for seven more Technolodges at Anchal, Poothakulam, Pathanapuram, Kakrimkunnam, Kodakara, Veloor and Mayyil and steps had been taken to get the buildings under lease.

3.7 TECHNOPARK

Technopark is the only IT Park in India having ISO 9001:2008, ISO: 2004, OHSAS 18001:2007 and CMMI Level 4 certifications. Spread over 750 acres, and about 5.1m.sq.ft. of built-up space, Technopark hosts over 200 IT and ITES companies, including many CMMI Level 5, level 4 and Level 3 and several ISO 9000 certified companies, employing over 28000 IT professionals. The summary of achievements is given in the Table 3.3.

Table 3.3

Achievements in Techno park, 2011

Sl No.	Particulars	Land / Area/ Rs. Crore
1.	Total land (Phase I, II, III)	310.63 acres
2.	Land for Technocity	451 acres
3.	Land for Kollam	40 acres
4.	Total built up space for Industries	20,81,500 sq.ft.
5.	Total space for support facilities	1,78,100 sq.ft.
6.	Total built up space by companies	16,98,000 sq.ft.
7.	Total built up space by companies in SEZ	80,02,400 sq.ft.
8.	Number of companies in Techno park	200

9.	Total employment	28000
10.	Total Investment (up to 10/10)	2040 crore
11.	Total turnover (up to 10/10)	2000 crore
12.	Total Export (up to 10/10)	1850 crore

Source: Government of Kerala, IT Department.

Details of total area created for Industrial modules in Techno Park are enumerated in Table 3.4 given below:

Table 3.4

Area Created for Industrial Modules in Techno Park

Sl No.	Name of Building	Area Sq.ft.
4.1	Pamba	36,000
4.2	Periyar	36,000
4.3	Nila	4,69,500
4.4	Chandragiri	60,000
4.5	Gayathri	1,50,000
4.6	Bhavani	4,80,000
4.7	Thejaswini	8,50,000
	Total	20,81,500

Source: Government of Kerala, IT Department

Details with respect to the space created by Techno Park for other Support facilities are represented in the Table 3.5.

Table 3.5

Space created by Techno Park for other support facilities

Sl No.	Name of Building	Area Sq.ft.
1.	Park centre	60,000
2.	Restaurant & Cafeteria	17,000
3.	Guest House	16,000
4.	Club House (Including guest house)	60,000
5.	Techno mall	23,500
6.	Reception Building	1,600
	Total	1,78,100

Source: Government of Kerala, IT Department

It is almost 20 years since the Techno Park has been dedicated to the nation. Techno Park, Thiruvananthapuram is managed by an autonomous society - Electronics Technology Parks-Kerala (ETPK) - under the administrative control of the Department of Information Technology of Government of Kerala. The companies in the Techno Park contribute more than 75% of software exports from the State.

Techno Park being the first greenest IT park in India proved to have the most conducive working environment for a technology business Incubator in generating the in-house entrepreneurs with their innovations through incubation. It houses Techno Park Technology Business Incubator (T-TBI), the most successful Technology business incubator in India. The success story of Techno Park's incubation initiative goes back to the early part of this decade, when the Techno Park Business incubation centre (T-BIC) was established in 2002 with the support of Government of Kerala and Government of India, for incubating business enterprises. The T-TBI is acting as a platform for the new and innovative entrepreneurs to develop their ideas into products and services and build business out of them. Techno park has launched several other complementary initiatives viz., National Centre for Innovation, Incubation and Entrepreneurship (NCIIE) etc which acts as the training wing that caters to the training needs of the TBI, the Techno park -TePP outreach Centre (T-TUC), which helps the

young innovators by providing seed capital through TePP funding of DSIR for each stage of evolution of their idea, namely support for making prototypes of their products, product development and patenting and finally commercialization of the idea. In addition to this the Techno park Software Engineering Competency Centre (TSECC) acts as the software engineering arm which altogether creates an eco system that nurtures and supports entrepreneurs. NCIIE and TSECC jointly conduct workshops for business for business start-ups, students and academic research community as well as IT entrepreneurs for enhancing their software engineering competency.

Apart from this, Techno Park has been sanctioned SEZ status for its Phase III, Techno city and Kollam parks. The Kollam campus will host an IT building of one lakh sq.ft in the 40 acre and it is expected to be completed by March 2011. Earlier Techno Park has got the SEZ status for 31.25 acres of land in its Phase I campus. With the ongoing expansion activities getting partially completed in three years, it is expected that more than 1, 00,000 professionals will be working out of Techno Park in few year's time.

Techno Park was among the global participant at CeBIT 2010, the world's largest conglomeration of IT Professionals, industrialists, investors and entrepreneurs. CeBIT 2010 got off to a powerful start and ended on a successful note, boosting optimism in the world ICT industry. Chief Executive Officer of Techno Park represented in the grand show and fielded queries and inquires at the Kerala Stall in the Indian Pavilion in CeBIT. Also Gitex 2010, the global IT exhibition, reputedly the largest conglomeration of ICT companies and professionals in the Middle East was hosted form October 2010. Gitex 2010, Asia's largest IT fair, has always attracted industry majors from around the world, including PSUs and private players from India. The most important and interesting development during the fair was that many high profile investor groups from around the world have come forward seeking investment opportunities in IT sector in Kerala, even in the period of recession.

Techno park is currently on an expansion mode by adding another 92 acres as Tehnopark Phase III expansion and 450 acres of Techno city-an integrated IT Town ship nearly 40 acres of land is developed for setting up Techno park -Kollam and Kundara.

3.8 Info Park, Kochi

Info Park Kochi is located in 100.86 acres of land at Kakkanad village, Kanayannur Taluk, Ernakulum district. Around 80 acres has been notified as an IT sector Specific Economic Zone by Ministry of Commerce, Government of India. Apart from Info Park owned infrastructure, parallel developments by co-developers such us Leela Soft, L&T Tec Park and Brigade Enterprises are also taking shape in the campus. Thus offering IT companies a choice of office space solutions to fit their requirement and budget. Major Private IT campus by Wipro, TCS and IBS Software are also in progress. When Info park Kochi Phase-I is fully developed a total super built-up area of 4.50 million sq.ft would be completed. The campus includes amenities such as food courts, banking counters, ATM, shopping arcade, etc.

For further expansion of Info Park Kochi, considering the requests of various IT companies and developers for space and land, Info Park Kochi is expanding its activities to the neighboring Kunnathunad and Puthencruz villages of Kunnathunad Taluk of Ernakulum District as its second phase in 160 acres. Master plan for second phase envisages infrastructure development for cost effective BPO complexes, software development blocks in SEZ and non SEZ clusters, utility services including substation, water treatment plant, sewage treatment plant, road net work etc. The park will be designed as an eco- friendly green park with high energy saving measures and least carbon emission. The existing eco- system will be maintained to the highest possible level. Apart from the built up space for IT, the park will have a large business convention centre the first of its kind in Kochi, budget hotels, shopping complexes, commercial centres, recreation and entertainment centres etc. Infrastructure development will be

undertaken in a phased manner and on full completion, the total employment is expected to be generated in this new campus is 50,000.

The ICT industry has been found to be ideal for Kerala in terms of its potential to generate employment opportunities, with little pressure on land, environment and other resources. It is fortunate that the state has a conducive environment for the promotion and growth of ICT based activities. The state's core competence in education can be transformed into economically rewarding and employable skills by deploying the tools offered by ICT. From the above mentioned particulars and discussions, we get a clear picture of ICTs infrastructure in Kerala.

3.9 References

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Chapter 4

SOCIO-ECONOMIC ANALYSIS OF FEMALE EMPLOYEES IN ICTs PARKS IN KERALA

4.1 Women Empowerment

The study is carried out in the state of Kerala, one of the economically and technologically advanced states. In the recent years, the state is successful in implementing various ICTs related projects and reap benefit from it. By seeing the growth in this sector and the potential work force in the state, various foreign agencies, Government of India and other non-governmental agencies have seriously involved for the further development of the ICTs sector. Their mission is to improve the quality of life of people, with the aid of ICTs in all respects. There are also many projects for the greater involvement of women and more particularly poor and rural women with the main objective to make the women both economically and socially strong.

The analysis is based on the data collected from various ICTs parks located in three districts of Kerala viz., Techno park- Thiruvananthapuram, Info park- Ernakulum and Kinfra Park near to Kozhikode, through judgement sampling survey using a structured questionnaire**.** The districts selected for the study were chosen keeping in mind their locations-south Kerala, middle Kerala and north Kerala- and access to ICTs.

For primary data collection and analysis, Kerala economy is divided into two viz., Urban and Rural Kerala. The data for Urban Kerala is represented through ICTs Parks and that of Rural Kerala is represented through Kudumbashree ICTs units. The study is conducted through a judgement sampling method using a structured questionnaire covering ICTs units- ICTs Parks and Kudumbashree ICTs Units, of the three regions in Kerala.

For analyzing the data thus collected Multiple Regression model, Percentile method, Case studies, Method of Averages, The Friedman Two-way Analysis of Variance by Ranks, Testing of Hypotheses and Chi-square (χ^2) Test and Graphs &Diagrams were used.

The functional relationship between Women Empowerment through Employment in the ICTs sector (represented as W), with its parameters are given below:

$$\mathbf{W = f [C, E, P, S, F, I, H, D, R]}$$

Where,

W = Women Empowerment through employment in the ICTs sector with

- Self Confidence (C),
- Provides Increased Economic Prospects (E),
- Decision making Power (P),
- Change of status in the family and community (S),
- Support from the family for working in the ICTs units (F),
- Her contribution to family income (I),
- Freedom in household expenditure (H)
- Increased Flexibility and Skill development (D) and
- Support from the family for sharing the household responsibilities (R).

4.2 Profile of the sample respondents

All the selected 310 respondents were women who are working in the various ICTs Parks of Kerala. The respondents include women ICT employees from three regions of Kerala i.e. south Kerala, middle Kerala and north Kerala, urban areas, various age groups, income groups, and education level. A profile of the respondents on the above basis, family status, caste, and different problems faced are presented below.

4.2.1 Age wise classification of the sample

A total of 310 women respondents were interviewed by the researcher from the ICT parks of selected three districts of Kerala. The respondents comprised of different age groups. The sample respondents classified on the basis of their age is shown in the Table 4.1

Table 4.1

Age wise distribution of the sample

Age Group	No. of Respondents	Percentage (%)
18-23	96	30.97
23-28	123	39.68
28-33	79	25.48
33-38	09	02.90
38-43	03	00.97
Total	310	100

Source:Survey

Majority of the respondents belonged to the age group ‘23-28’ years. There were 123 women which constituted about 39.6 percent of the sample size in this group. 96 respondents (30.97%) were in the age group of ‘18-23’ years; 79 respondents (25.48%) were in the age group of ‘28-33’ years; and 12 respondents (3.87%) were aged more than 33 years. **The median age of women employees is 25.4years**.

Figure 4.1

Graphical presentation of Age wise distribution of the sample

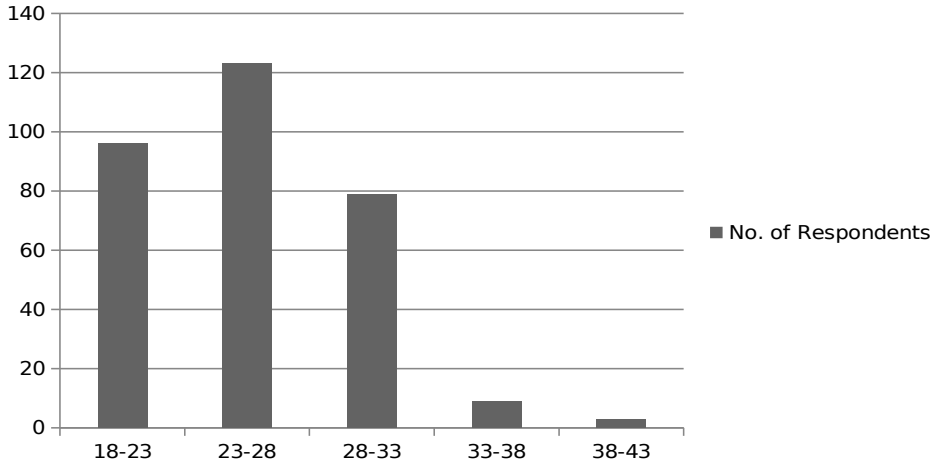


Figure 4.1 depicts that majority of the women employees of ICT sector are young as their age pattern suggests they are below 30 years.

4.2.2 Education wise classification of the sample

The ability to cope up with new technologies is an important quality in the ICT jobs. Education helps provide a base for developing the aforesaid quality. Kerala is one of the highly literate and educationally advanced states in the country. Hence it is appropriate to classify the sample respondents according to their level of education (Table 4.2).

Table 4.2 Education wise distribution of the sample

Educational Status	+2/VHSC/ ITI	Degree			PG			Total
		Traditional BA/BSc/Bcom	Professional Bsc(IT)/BCA/ Computer	Engineering/ B.Tech	Traditional MA/MSc/ Mcom	Professional MCA/Msc	Engineering/ M.Tech	
No. of employees	4	76	87	44	38	49	12	310
Total	4(1.29)	207(66.77)			99(31.94)			310 (100)

Source::Survey

Majority of the employees i.e. 207 (66.77%) out of 310 respondents are graduates in various disciplines while 87 respondents hold a BA/BSc/BCom degree, 76 respondents hold BSc (IT)/BCA/Computer degree and 44 respondents hold Engineering/B.Tech degree. 99 (31.94%) respondents held Post graduate degree in various disciplines. 38 respondents hold MA/MSc/M.Com degree, 49

respondents hold a Professional PG and 12 respondents hold Post graduate degree in Engineering.

The Table 4.2 shows that, graduate qualified employees are high percentage (66.77%) in the ICTs field among total workers. In addition to this, professional graduates among degree holders show higher numbers in the given sample: 131 out of 207 employees. Thus it can be said that those employed at ICT parks held at least a minimum qualification of graduation further inferring that women with aforesaid qualifications have better chance of employability at ICTs parks.

4.2.3 Type of Employment and Income wise classification of the sample

Table 4.3 depicts the salary structure of respondents. The monthly salary of the employees varied from Rs 5000 to Rs 100000. Majority of the distribution of sample concentrated on Rs 15,000-Rs 25,000 salary scale: 138 employees out of 310. Most of them have ICTs job with 1 or 2 years of service in the field of software development and testing. Numbers of female employees with higher salary range was found to be fewer. In the Table 4.3, the salary range of 65,000 - 85,000 include only 4 women and at 85,000 - 100000 salary range there was only 2 female workers.

Table 4.3

Types of Employment and income wise distribution of the sample

Type of Employment	Junior Engineering Trainees	Senior Engineers	Specialists	Project Leaders	Project Managers	Unit Manager	Total
Salary Pattern	5000-15000	15000-25000	25000-45000	45000-	65000-	85000-10000	-

(in Rs.)				65000	85000	0	
No. of employees	59	138	93	14	4	2	310

Source: Survey

Mainly there were two reasons for the fewer number of female employees in higher salary scale in ICTs Parks in Kerala which can be surmised as follows (i) After three or four years of service in industry, the female employees tend to take long leave for pregnancy/delivery and child care. So, due to the gap in the service both the evaluation criteria as well promotion possibility of such employees are affected. (ii) The reluctance of female employees to shift from one firm to another even when offered with higher pay scales. Due to these reasons the female employees is discriminated with lower salary range in comparison to their male counterpart. Here it is interesting to note the fact that of the two females in higher salary scale [85000 - 100000], one of them was unmarried and the other was married with no children. The government and ICTs firms should be giving attention to this matter. The role of women in procreation should not be a basis for discrimination.

Various positions held by the employees and the names of the jobs in the ICTs sector tend to vary from firm to firm. Hence classification was done into the following categories of jobs in the ICTs parks: Junior Engineering Trainees, Senior Engineers, Specialists, Project Leader, Project Manager and Unit Manager. It was found that the salary scale of employees depends on experience, qualification, performance and flexibility of employees in the ICTs field.

4.2.4 Problems faced at work place classification of the sample

It was asserted that, in Kerala, the female employees did not face any type of sexual harassment or discrimination on sex basis in ICTs field. All respondents who worked in the various ICTs units unanimously agreed that they are safe in their workplace. At the same time, they were faced with other types of problems related to work in the ICTs field.

Table 4.4

Problems faced at work place: Distribution of the sample

Types of problems	Sexual harassment	Burden of work	Demand for performance	Any other	No problem (Enjoyable)	Total
No. of Respondents	0	98 (31.61%)	76 (24.52%)	51 (16.45%)	85 (27.42%)	310 (100)

Source: Survey

Table 4.4 shows that completion of work within the time period is a headache for employees. 98 respondents (31.61%) suffered from burden of work. Another problem faced by them was demand for performance. 76 respondents (24.52%) out of 310 feel unhappy with regard to this issue. Similarly, 51 employees face physical and psychological problems such as eye pain, back pain, mental tension, headache etc. On the other hand 85 (27.42%) respondents enjoy their life with ICTs jobs.

4.2.5 Earlier Family Income and Marriage status wise classification of the sample.

Based on performance and caliber, the ICT Company offers good remuneration packages to workers irrespective of gender or caste or financial status. So, there is no doubt, the initiatives to setup new ICT enterprises is a good step for providing employment opportunities for the youth in Kerala, especially women in the ICTs sector with good compensatory package. ICTs jobs have acted as a turning point in their life. Also unmarried women employees from BPL families could now expect a colorful marriage life.

Table 4.5

Earlier Family Income and Marriage status wise distribution of the sample

Income Status	Marriage Status		
	Unmarried	Married	Total
BPL	64	78	142
APL	80	88	168
Total	144	166	310

Source: Survey

Table 4.5 shows the family income status and marriage status of respondents before joining ICTs jobs. The data reveals that 142 respondents (45.81%) belonged to Below Poverty Line (BPL) Families. 64 respondents (20.65%) from BPL were unmarried women and 78 respondents (25.16%) were married employees from BPL families. It is clear that ICTs job is a good factor for turn of educated youth from poor income status into sound living status. In fact, the respondents from ICTs jobs, especially, females from BPL families feel their life would become enjoyable and safe.

4.2.6 Caste wise classification of the sample

People belonging to various castes and religions are living in Kerala. Even though social justice of Kerala is better as compared to other parts of India, people belonging to various backward communities are still not getting the required representation relative to their population.

Table 4.6

Caste wise classification of the sample

Reservation Status	General	OBC	OEC	SC	Total
No. of employees	204 (65.81%)	104 (33.55%)	1 (0.32%)	1 (0.32%)	310 (100)

Source: Survey

Table 4.6 indicates that out of 310 samples collected there were no workers belonging to scheduled tribe (ST) category; only one respondent (0.32%) belonged to OEC (Other Eligible Caste) and scheduled caste (SC). In the given sample 65.81% respondents belonged to general category and 33.55% from OBC. So, it may be inferred that even though people belonging to different castes are getting representation in ICTs work force it is not according to their share in total population.

4.2.7 Job opportunities to women in ICTs sector

The responses of the selected sample in relation to the question 'women's opportunities in the ICTs sector' is given below in the table 4.7.

Table 4.7

Job opportunities to women in ICTs sector

Responses	Strongly agree	Somewhat agree	Do not know	Disagree	Total
No. of Respondents	219 (70.64%)	85 (27.42%)	6 (1.94%)	0	310 (100)

Source: Survey

Majority of the respondents claimed that ICTs sector provides large employment opportunities and externalities for the bringing improvement in their life. 70.64% employees positively responded to this question. The remarkable fact is that there was no negative response towards this question. Only 6 respondents responded as 'Do not know'.

4.2.8 Satisfaction level of the sample towards work culture

The special feature of ICTs jobs is flexi-time work based on shift working system. Generally, the working hours of workers varies from 8 hours to 9.5 hours based on the rules of various companies. For example, Infosys has 9.5 hours of working time per employee per day. At the same

time TATA Company's working hours are only 8 hours. On the other hand, the working hours of top most companies are 24 hours with two holidays per week. So, generally the workers have the freedom to choose appropriate working hours. However, sometimes they suffer from tiredness due to the irregularity in the time of work.

Table 4.8

Distribution of satisfaction level of the sample towards work culture

Response	Yes, satisfied	No	Cannot say	Total
No. of Respondents	217 (70%)	54 (17.42%)	39 (12.58%)	310 (100%)

Source: Survey

The Table 4.8 shows that 70% respondents are very happy with work culture of ICTs firms while 54 respondents (17.42%) out of 310 feel unhappy with the work culture of ICT organisations.

4.2.9 Observing behaviour of the sample towards Current Affairs

The knowledge about the current affairs is a part of life of people of Kerala. At the same time, the study shows that female employees in the ICTs sector were reluctant in observe the current affairs inferring that their general knowledge quotient was low.

Table 4.9

Distribution of observing behaviour of the sample towards current affairs

Response	Yes, watching	No	Rarely	Total

No. of Respondents	119 (38.39%)	113 (36.45%)	78 (25.16%)	310 (100)

Source: Survey

Table 4.9 shows that 119 respondents (38.39%) out of selected 310 samples replied positively to the question while 113 respondents (36.45%) replied negatively towards the query.

4.2.10 Availability of leisure time for the sample with family

Leisure is an integral part of life for rejuvenating the mind and body. The working hours and family liabilities may hurt the leisure time of employees.

Table 4.10

Distribution of availability of leisure with family of the sample

Response	Yes	No	Cannot say	Total
No. of Respondents	102 (32.90%)	179 (57.74%)	29 (9.36%)	310 (100)

Source: Survey

Table 4.10 indicates that 179 respondents (57.74%) agreed to the fact that there is no leisure time after delivering employment and family duties. At the same time, it they also conveyed the fact that many ICT organizations conduct tour programmes and cultural programmes for rejuvenating the mind and body their work force.

4.3 Factors influencing Financial Empowerment

The study aims to analyze the factors influencing financial empowerment (y_i) of the female ICTs employees in the context of functioning of the family. A multiple regression model can be developed to understand the direction and magnitude of each influencing factor of financial

empowerment. The following model and variables are identified for the analysis.

The model that fits the study is

$$\mathbf{Y_i=a_0+a_1x_1+a_2x_2+a_3x_3+a_4x_4+u,}$$

Where**,**

- the criterion variable (dependent variable) is financial empowerment of the employees, Y_i, measured in Likert Scale and
- the predictor variables (independent variables) are
  1. Monthly salary income in rupees(x_1),
  2. Age of the ICTs worker (x_2),
  3. Consumption Expenditure of family in Rupees(x_3),
  4. Decision-making power (x_4), and
- the dummy variable (u), which is measured in the scale one if satisfactory; otherwise zero.

The reason for considering x_1 to x_4 as more important is because these variables are prime factors in deciding the financial empowerment of women. The index is framed by reviewing many of the earlier literatures.

Table 4.11

Financial empowerment estimates on functioning of the family

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig(p)
	B	S.E	Beta		
x_1	1.298	0.252	0.406	5.159	0.001
x_2	-0.162	0.110	-0.144	-1.469	0.149
x_3	0.53	0.156	0.394	3.393	0.002
x_4	1.254	0.165	0.786	7.584	0.001

Source: Survey

$R = 0.923$, $R^2 = 0.852$ and $R^2_{(adj)} = 0.838$ Std. Error of the estimates = 9.638.

F value = 64.12 (0.00) at 5% level of significance.

R is a measure of the correlation between the observed value and the predicted value of the criterion variable. In this analysis R would be the correlation between the levels of financial empowerment reported by ICTs Workforce and the levels predicted for them by predictor variables. R Square (R^2) is the square of this measure of correlation and indicates the proportion of the variance in the criterion variable which is accounted for the regression model; in this study the proportion of the variance in the financial empowerment scores accounted for a set of predictor variables (viz., salary). In essence, this is a measure of how good a prediction of the criterion variable can made by knowing the predictor variables. However, R square tends to somewhat over-estimate the success of the model when applied to the real world, so an Adjusted R Square ($R^2_{(adj)}$) value is calculated which takes into account the number of variables in the model and the number of observations (participants) the model is based on.

From the analysis, it was found that the critical factors influencing the financial empowerment of the female ICTs employees in the context of functioning of the family are x_1, x_3 and x_4. Rational thinking also suggests a positive association among these variables.

The result shows the value of R-square in the analysis as 83.8 per cent, so it may be inferred that the model accounts for 83.8% of variance in the financial empowerment of the female ICTs employees in the context of functioning of the family. The t and Sig (p) values give a rough indication of the impact of each predictor variable; x_2 having smaller ‘t’ value (1.469) and big ‘Sig (p)’ value (0.149 which is greater than 0.05 significant level). Hence it suggests that the predictor variable ‘age of the ICTs worker’ have only very less impact on the criterion variable financial empowerment.

4.4 Socio-Economic Enhancement Indicators

In order to examine the economic and social enhancement of female employees in ICTs enterprises the following indicators have to be analyzed:

- Financial contribution of employees to the family income,
- Savings Level of the employees,
- Infrastructural Development of the family,
- Interaction with the family and friends,
- Involvement in the cultural and social activities in the workplace and
- Standard of Living of the family.

The aforesaid indicators were surveyed using responses taken from the employees in four point scales viz., highly improved, improved, less improved and No change. Table 4.12 shows the details of socio-economic enhancement of employees with ICTs jobs.

4.4.1 Financial Status of the family

The data collected from the sample shows that there is positive contribution of the female members towards the family income. In this modern age, where the cost of living is high, for the smooth functioning of a family (which includes expenses like consumption, education, health and other needs), the income from every working age group members of the family is essential. The participation of the female educated members in the paid work improves not only the income of the family but also for their own mental development. The Table 4.12 shows that 70.64% respondents assert that their income imposes positive influence on family income. Only 29.36% respondents felt that their income does not have much impact on family total income.

4.4.2 Infrastructural Development

Infrastructural development of the family means furnished houses with basic facilities, vehicles, modern electronics, Information Technology instruments and other modern facilities along with land. Recent trends highlights that malayalies give most importance to the furnished luxurious house with modern facilities. The data collected reveals that improvements found in terms of the infrastructural development is snail-paced. Only 7.1% respondents confess that there is a high improvement in the infrastructural development of the family. However, 47.1% employees (146 employees out of 310) opined that there is only slow improvement with regard to this indicator. Having said this it should be noted that the family gives more importance to providing education to their children, health care, dress and other facilities to family members.

4.4.3 Standard of Living of the family

An important turning point of the study is that majority of the employees are of the opinion that the remuneration from ICTs jobs highly influence their standard of living. From the collected data, 251 respondents out of 310 (80.97%) disclosed that there were positive changes in their standard of living after joining the ICT's parks. Due to the financial contribution of the female members into the family income, there has been notable economic enhancement thereby improving the overall standard of living of the family. It is observed that 95% of the income from women was spent on her family's improvement. So, the contribution of female income towards the family status enhancement does a multiplier impact on welfare and over-all development of her children and other members in the family. Thus the study underlines that after joining the ICT parks, due to the financial contribution of the female member into family there has been much improvement in the economic condition and standard of living of the family in general.

4.4.4 Savings Level of the employees

It is clear that, generally, the disposable income is divided into consumption and savings. The analysis of the collected data shows that the consumption level of the respondents' family has greatly improved. However, the savings level of the employees did not improve well. More than half of the employees [56.78%] were of the opinion that the savings component did not improve well. On the other hand, 26.45% of respondents were very happy with respect to this parameter; main schemes of savings being accepted by the employees chitties and saving deposits in banks.

4.4.5 Interaction with family and friends

The employees opined that they enjoy a smooth and good relationship between family members, friends and neighbors. 77.10% respondents kept good relationship with their friends, on various ranges. Even with the job schedule they are able to communicate frequently with their relations through mobile phones and e-mails. By using the modern communication technologies, they keep sound relationship with the family members, relatives and native place. However, 22.90% responded that they prefer to live in their own atmosphere.

4.4.6 Involvement in the cultural activities

For the refreshment of the employees, the ICTs have set up their own Arts Club and conduct cultural meets on a frequent basis, in which the employees tend to participate. The employer also arranges tour programmes for the employees with the purpose of refreshing them. The study shows that the respondents are happy as far as this parameter is concerned, (See Table 4.12).

Table 4.12

Socio-Economic Enhancement indicators - ICTs parks

Sl. No.	Indicators	Conditions				Total
		Highly Improved	Improved	Less Improved	No Change	
1	Financial Status of	36(11.61)	75(24.19)	108(34.84)	91(29.36)	310(100)

	the family					
2	Infrastructure Development	22(07.10)	93(30)	146(47.10)	49(15.80)	310(100)
3	Standard of living of the family	50(16.13)	63(20.32)	138(44.52)	59(19.03)	310(100)
4	Savings Level of the Employees	82(26.45)	39(12.58)	13(04.19)	176(56.78)	310(100)
5	Interaction with family and friends	42(13.55)	112(36.13)	85(27.42)	71(22.90)	310(100)
6	Involvement in the Cultural Activities	45(14.52)	98(31.61)	87(28.06)	80(25.81)	310(100)

Source: Survey

The column wise analysis of the table 4.12 shows that a large number of responses came under the category of Less Improved (577). Similarly, the responses related to the category of 'Improved' and 'Highly Improved' was '480' and '297' respectively. However, the response for the choice 'No change' was '526' due to the weak performance of savings indicator. So, it may be assumed that the life of paid employees, in the ICT parks, with their families show a general improving trend, but some indicators should still progress positively for best well-being of employees.

4.5 Friedman Two-way Analysis of Variance by Ranks

The following six variables are used to understand the socio-economic enhancement of women through the employment opportunities in Information and communication technologies sector in Kerala. These Six variables are statistically comparable to determine the socio-economic enhancement of women employee as it was collected at single point of time

in an ordinal scale. Therefore, Friedman Two-way Analysis of Variance by Ranks can be used to examine the socio-economic enhancement.

- Financial Status of the family,
- Savings level of the family,
- Infrastructure Development of the family,
- Standard of living of the family,
- Interaction with family &society and
- Involvement in the Cultural activities.

The Friedman statistic $= \frac{12}{Nk(k+1)} \sum_{j=1}^{k} (R\,j¿¿2¿) - 3N(k+1)¿¿$**,**

where,

N= number of rows, k= number of columns

R_j =Sum of ranks in j^{th} column, and

$\sum_{j=1}^{k} directs\,one¿ \sum the\,squares\,of\,the\,sums\,of \frac{ranks}{all} k.¿$

H_0 = the variables supporting for socio economic enhancement of women workforce have the same distribution of scores.

H_1 = the variables supporting for socio economic enhancement of women workforce have different distribution of scores.

Table 4.13

Friedman Two-way Analysis of Variance by Ranks - ICTs parks

Sl. No.	Indicators	Conditions			
		Highly Improved	Improved	Less Improved	Not Change
1	Financial Status of the family	1	2	4	3

2	Infrastructure Development of the family	1	3	4	2
3	Standard of living of the family	1	3	4	2
4	Savings level of the family	3	2	1	4
5	Interaction with the family &society	1	4	3	2
6	Involvement in the Cultural activities	1	4	3	2
R_j		**8**	**18**	**19**	**15**

Source: Survey

The calculated Friedman statistic is 7.40. The F value from the Table IV of Fisher and Yeates[*11], is F (k=4, N=6, a = 0.05) = 7.60. The calculated critical value is less than table value. Hence, **the test has failed to reject H_0.** Consequently, the **Friedman statistic is significant** at a ≤0.05 level; therefore, it may be inferred that the aforesaid variables are significantly supporting for enhancing socio economic status of female workforce at ICTs organisations and they have same distribution score.

4.6 Empowerment Parameters

Based on the analysis of empowerment studies done by UNDP, Planning Commission of India and Planning Commission of Kerala, *empowerment of women through employment* can be quantified by using the parameters given below. It is required in this context to explain the empowerment of women through employment in the ICTs parks with nine parameters. These nine parameters are:

- Self Confidence. (C)
- Provides Increased Economic Prospects. (E)
- Decision making Power. (P)

[11] Table IV of Fisher and Yeats: Statistical tables for biological, agricultural and modern research, published by Oliver and Boyd Ltd., Edinburgh.

- Change of status in the family and community. (S)
- Support from the family for working in the ICTs units. (F)
- Her contribution to family income. (I)
- Freedom in household expenditure. (H)
- Increased Flexibility and Skill development. (D) and
- Support from the family for sharing the household responsibilities. (R).

With the help of notations (symbols) given above, the functional relationship can be explained between Women Empowerment through Employment in the ICTs sector, W, with its parameters in the following way:

$$W = f [C, E, P, S, F, I, H, D, R],$$

Where,

W = Empowerment through employment in the ICTs sector.

4.7 Analysis based on Percentile method

The Role of paid jobs in ICTs Parks for Empowerment with the given parameters can be explained by using the Table 4.14.

Table 4.14

Analysis of Data from ICTs Parks

Sl.No.	Empowerment Parameters	Opinion				Total (%)
		No change	Less Improved	Improved	Highly Improved	
1	Self Confidence	12 (3.87)	91	113	94 (30.32)	310

			(29.36)	(36.45)		(100)
2.	Provides increased Economic prospects	4 (1.29)	95 (30.64)	100 (32.26)	111 (35.81)	310 (100)
3.	Decision making power	31 (10.00)	110 (35.48)	93 (30.00)	76 (24.52)	310 (100)
4.	Change of status in the family and community	22 (7.10)	60 (19.35)	108 (34.84)	120 (38.71)	310 (100)
5.	Support from the family for working in an ICTs units	19 (6.13)	89 (28.71)	108 (34.84)	94 (30.32)	310 (100)
6.	Contribution to family income	8 (2.58)	85 (27.42)	99 (31.94)	118 (38.06)	310 (100)
7.	Freedom in household Expenditure	15 (4.83)	97 (31.29)	127 (40.98)	71 (22.90)	310 (100)
8.	Increased flexibility and skill development	27 (8.71)	121 (39.03)	93 (30.00)	69 (22.26)	310 (100)
9.	Sharing the household Responsibilities	40 (12.90)	112 (36.13)	97 (31.29)	61 (19.68)	310 (100)

Source: Survey

4.7.1 Self Confidence (C)

One of the very important factors concerning women empowerment is Psychological development. In Kerala, families give more protection to girls than boys. Up to marriage, the girls live under the safe protective wings of their parents. For their travel and all other activities they are accompanied by guardians.

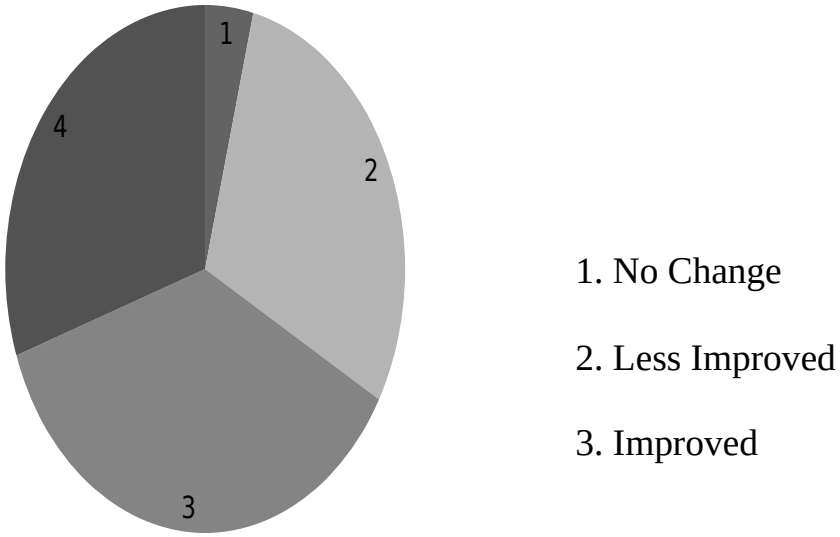
At present the situation visibly states that most of the skills the girls have are least unexploited, when compared to boys. The study of K.R. Mallika among college students in Kozhikode found out that while

more than 61% of boys are engaged in the physically exerting jobs like construction work, painting and catering jobs, less than 15% of girls get engaged in work, that too, which required less amount of physical or intellectual skills such as doing primary tuitions and tailoring. [12]

For empowerment the psychological development and a degree of Self confidence is necessary. In the study, we examine the confidence level of female workers. Out of 310 respondents, 36.45% employees confess that their Self confidence level improved with the ICTs jobs. Only 3.87% of (12) employees felt that there was no change in their Self confidence with ICTs jobs (See Figure 4.2).

Figure 4.2

Opinions on Self Confidence



[12](K.R. Mallika, [8th March, 2011], Mathrubhumi Daily).

4. Highly improved

At the same time, 30.32% of respondents are happy with very good Self confidence level. Majority of the respondents' (298 out of 310) view is that jobs in the ICTs sector have helped them to improve their thinking level and confidence in life (Refer Table 4.14 & Figure 4.2).

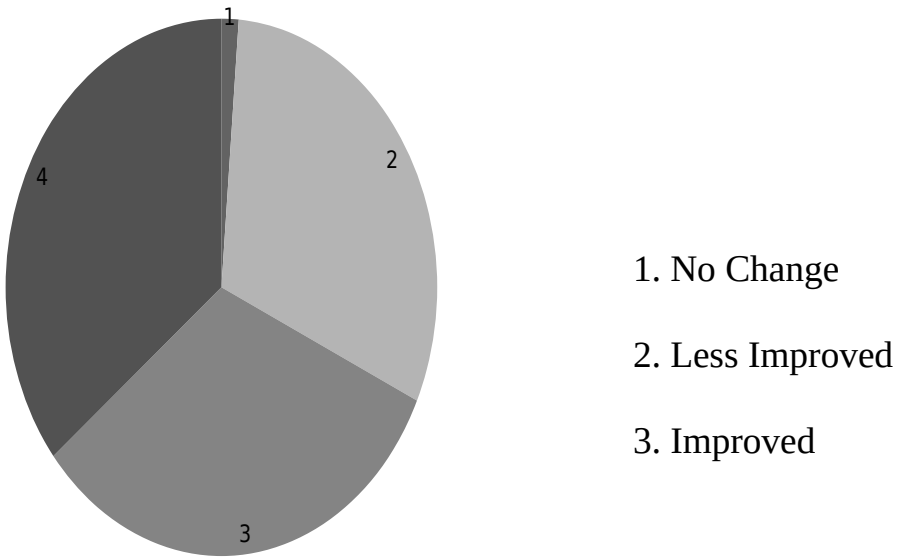
4.7.2 Provides Increased Economic Prospects (E)

Another important dimension of empowerment is Economic empowerment. Employment in ICTs parks brought considerable economic benefits in the basic monthly salaries of employees. Generally, this salary package is up to two or three times higher than the comparable non- ICTs work units in both private and public sector. So the experience in ICTs sector shows that this sector provides better economic rewards than other sectors for women.

From the data collected, it is clear that majority of the respondents stated that their economic background sufficiently improved after getting a job in the ICTs parks. Out of 310 respondents, 111 (35.81%) employees accepted that their economic prospects highly improved with ICT sector. (Refer Figure 4.3).

Figure 4.3

Opinions on Economic Prospects



4. Highly Improved

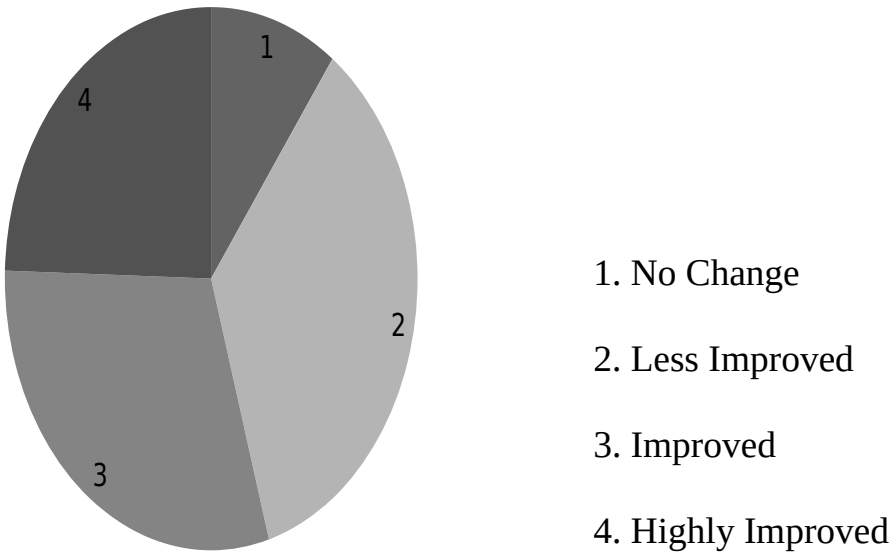
Similarly, 100 (32.26%) employees said that their economic status and standard of living also nurtured with ICTs employment. Only 4 (1.29%) employees were not satisfied with the salary in the ICTs sector [See Table 4.14].

4.7.3 Decision Making Power (P)

All the theories relating to empowerment argue that Decision Making power is the threshold for empowerment. It is clear that the decision making power at home, community and state are necessary for empowerment. The responses of the sample shows that more steps have to be initiated for the establishment of power for women in the decision making process in their home as well as in society. 31 (10%) respondents out of 310 answered that they are unhappy with respect to this parameter. That is they opined that there was 'no change' in their status even after joining ICTs sector jobs. At the same time, 110 (35.48%) respondents believe that they could slightly improve the power parameter positively (Refer the Figure 4.4)

Figure 4.4

Opinions on Decision Making Power



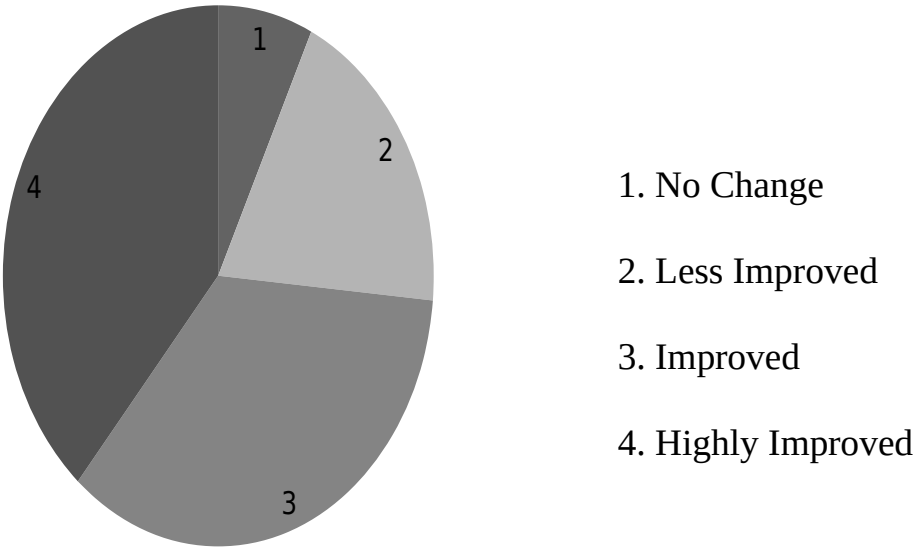
However 93 (30%) respondents said that there was improvement and 76 (24.52%) employees claimed remarkable change in their authority at home and society.

4.7.4 Change in the status in the family and community (S)

Status is directly related to education, remuneration, income and type of employment. Education, financial capacity and standard of job provide good personality status in the family and society. Majority of respondents felt happy with regard to the status component (Refer Figure 4.5).

Figure 4.5

Opinion on Change in the status in the family and community



Out of 310 respondents, majority were female employees. 120 (38.71%) agreed that they experienced good reputation in the family and society after joining the ICTs jobs. In the same way, 108 (34.84%) respondents answered that there was improvement and 60 (19.35%)

female employees felt that their status in the family and society was improving but slowly.

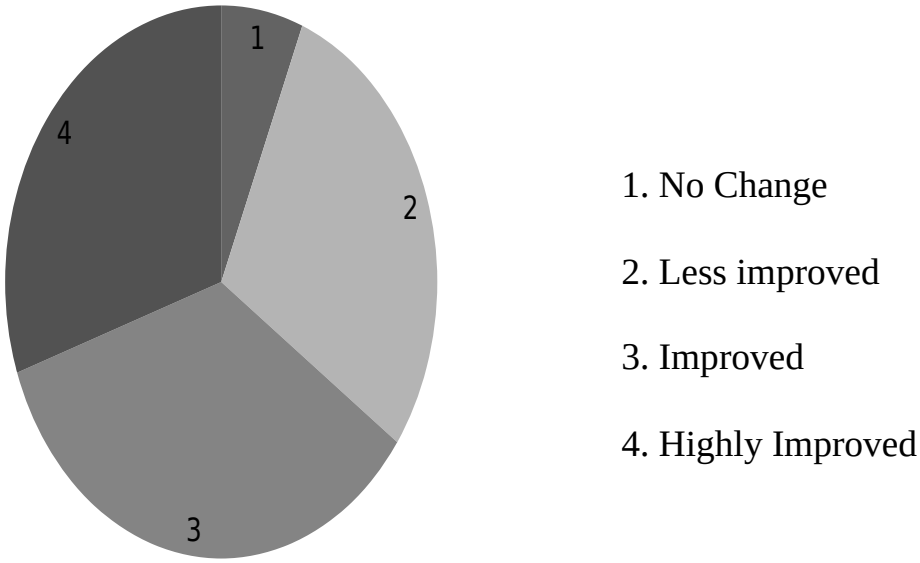
4.7.5 Support from the family for working in a ICTs units (F)

The distance between native place and work place is a constraint before the female employees. In Kerala, the ICTs parks are located only in Kochi, Kozhikode and Trivandrum. So, for working in the ICTs units the overall support and help from family members and society is needed.

Majority of the employees stressed that the support from family members is inevitable for their own development. Out of 310 employees, 28.71% (89) said that the support from inside and outside the family improved slowly. On the contrary, 19 (6.13%) female workers suffer from the lack of support they should have gotten from their family (Refer Figure 4.6). At the same time, 108 (34.84%) respondents commented that there has been improvement in the support that they receive from the family

Figure 4.6

Opinion on Support from the family for working in a ICTs units



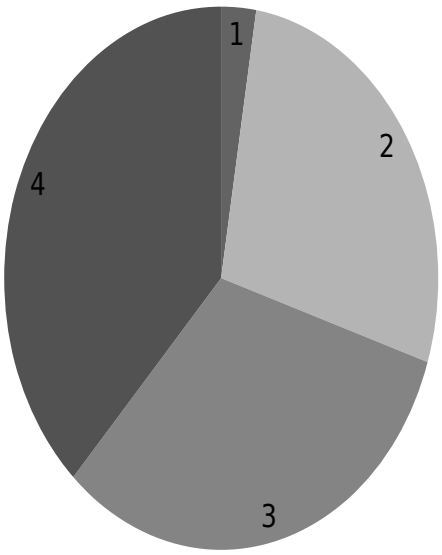
94 (30.32%) female workers are very happy with, highly improved, support from family and community for their work participation in the ICTs parks.

4.7.6 Contribution to family income (I)

For the wellbeing of the family and growth and structural change of the society, the work participation of youth is essential irrespective of their gender. To meet high cost of living and participation in national development, the utilization of educated females' talent along with that of their male counterpart is inevitable in a state like Kerala. The jobs at ICTs sector are gender blind, white collared, utilizes brain and provides with financial support. Out of 310 respondents, 118 (38.06%) workers were satisfied with their financial contribution to family income (Refer Figure 4.7)

Figure 4.7

Opinions on Contribution to family income



1. No Change
2. Less Improved
3. Improved
4. Highly Improved

An interesting point is that the female employees from BPL families achieved high standard of living with better financial safety after their participation in the ICTs sector. Out of 143 married respondents, 83

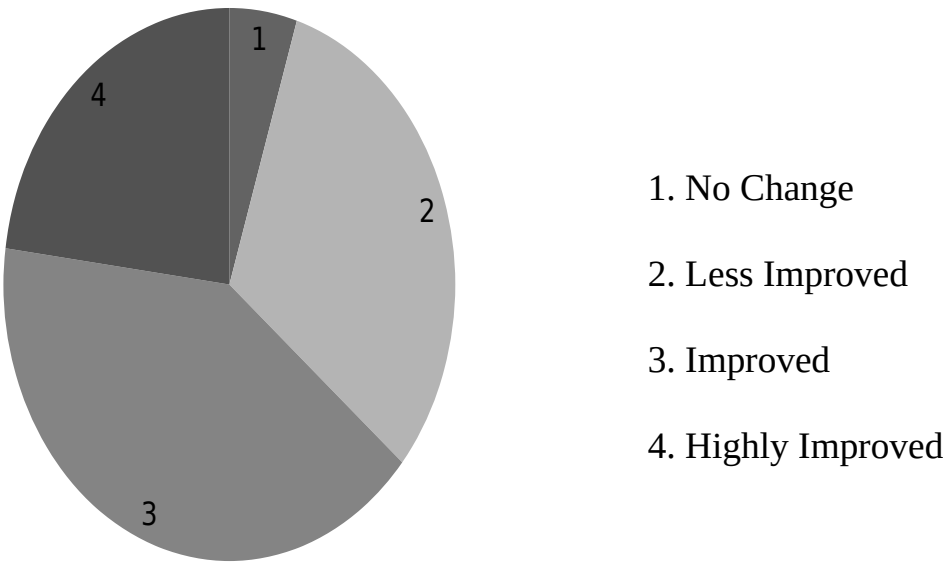
employees confessed that they got a better choice in life partner due to jobs in the ICTs Park.

4.7.7 Freedom in Household Expenditure (H)

In Kerala, the traditional culture dictates a male dominated society. Day-to-day expenditures and other expenses related to family are absolutely managed by the male; such as husband, father or uncle etc. In the survey, the researcher had to observe in detail whether there is any improvement in the freedom to handle household expenditure for female employees in the ICTs Parks. The Table 4.14 shows that 40.98% employees (127 out of 310) argued that they got more freedom in dealing with day-to-day household expenditure. In the same way, 71 employees (22.90%) felt very happy for their highly improved freedom in household expenditure matters. Only 15 employees (4.83%) were found to be unhappy with respect to this parameter (Refer Figure 4.8)

Figure 4.8

Opinions on Freedom in Household Expenditure

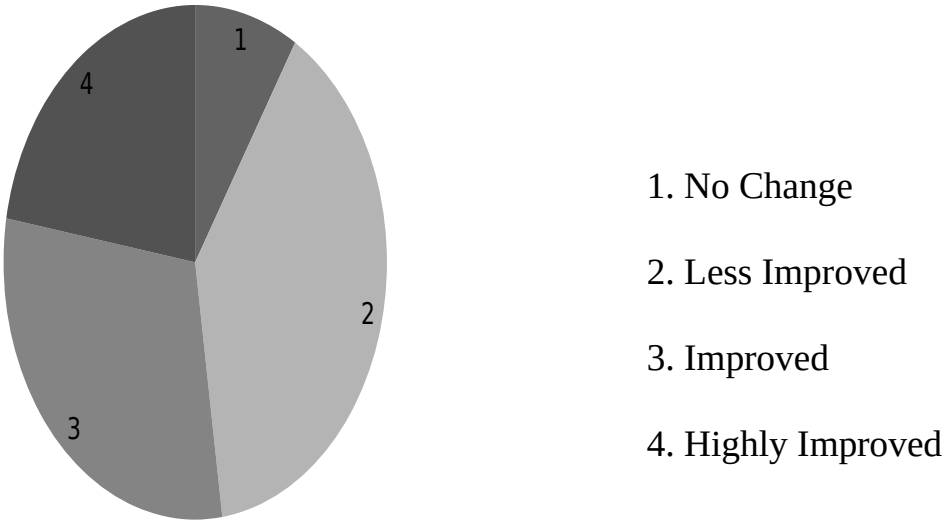


4.7.8 Increased flexibility and skill development (D)

The important feature of ICTs jobs is the flexibility in workplace. The employee has the freedom to choose the appropriate ICT Company. Based on the talent and experience, they have freedom to choose the top companies. Discussions showed that staff in the firms was offered positions for the upgrading and maintenance of software systems. The employees would work long, even continuous, hours in order to finish projects on time. (Refer Figure 4.9).

Figure 4.9

Opinions on flexibility and skill development



In the given sample, 69 respondents (22.26%) admit that highly improved flexibility and possibility for skill development was offered in ICTs jobs. In the same sense, 30% respondents (93 workers out of 310) said that there was improved flexibility and skill development due to involvement in the workplace and 121 female employees (39.03%) opined that there is only slow improvement. However, 27 employees (8.71%) were unhappy in this regard (See the Figure 4.9).

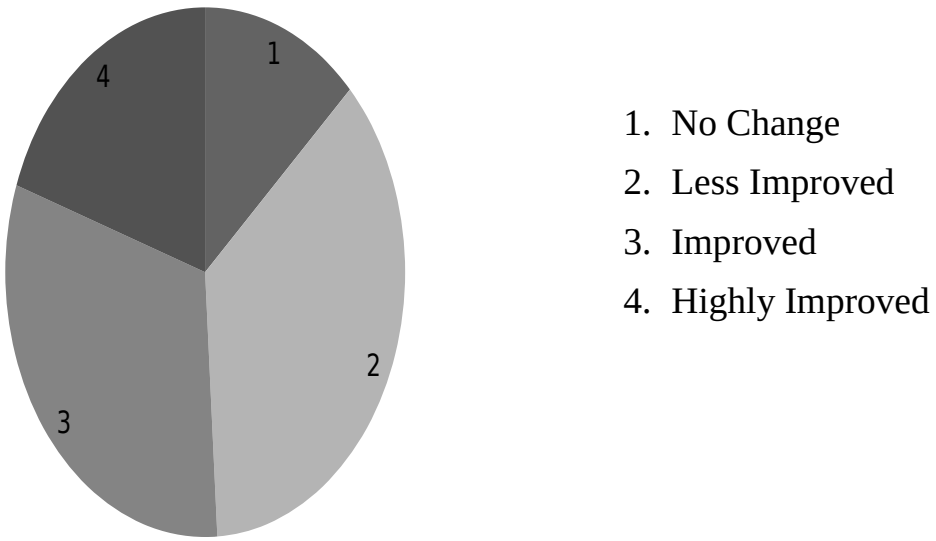
4.7.9 Sharing the household responsibilities (R)

Women are still burdened with the traditional expectations of particular roles in family and in society. In the given sample, 40 female employees out of 310 [12.9%] felt that domestic responsibilities were affected by the longer working hours. Respondents reported that, when children or husband or relatives were sick at home or hospital, it is women who are typically expected to take leave off from work. Similarly, many women discontinued software work on becoming pregnant or having children. There is no law to support women's possibility to continue work in the ICTs sector when they become pregnant (See the Figure 4.10).

There should be particular policies and practices such as flexible office hours, maternity leave, daycare centers and other facilities implemented for the welfare of employees, especially, women workers. Absence of these policies and regulations in the ICTs sector may lead to a negative gender-skewed effect.

That being said, 31.29% respondents (97) said that the sharing mentality of husband and relatives in the household responsibilities improved and 61 respondents (19.68%) felt that it has improved remarkably. Likewise, 112 respondents expected to there would be improvement in the sharing mentality of family members.

Figure 4.10 Opinions on sharing the household responsibilities



4.8 Non-Trade unionism in ICTs sector

There are three phases in women empowerment: Economic Empowerment, Social Empowerment and Political Empowerment. The first indicator, economic factor can be achieved to a level in the ICT sector. Social factor is also indispensable. However political empowerment is impossible through ICTs parks employment.

The survey shows that there are two interesting facts relating to political aspects: (1) the companies always oppose to politics or unions' interference in the functioning of ICTs Parks and [2] the youth in the ICTs sector also have a negative attitude towards political influence in their work place. Almost all workers are happy with the payment and existing gender blind working conditions in the ICTs sector. At the same time they pointed out how there was more social security for female employees even without the help of trade unions. They are happy with the team work, holidays, snacks, tours and other perks offered by IT companies.

4.9 Analysis of the Data based on χ^{2-} test

Chi square test is one of the best statistic techniques for examining the association of different variables. In order to investigate the association of various empowerment parameters with its levels of improvement following formula was used.

$$\chi^2 = \sum (O_i - E_i)^2 / E_i, \quad \text{Where,}$$

Oi= Observed frequency,

E_i = Expected frequency and i=1, 2, 3….9.

H_0 =There is no significant association between empowerment parameters and levels of improvement with regard to the sample.

H_1 = There is significant association between empowerment parameters and levels of improvement with regard to the sample.

The Table 4.14 shows that three factors for Empowerment viz., (1) Household Responsibilities, (2) Decision-making Power and (3) Increased Flexibility and Skill Development have become highest in the 'no change' opinion group. 40 respondents out of 310 [12.9%] face the problem of being tired of complete family responsibility along with competitive work in the

ICTs sector. Similarly 10% [31/310] respondents felt unhappy with the decision making parameter. Their decisions were absolutely controlled by guardians.

The society of Kerala should have in-depth deliberation and find out a suitable solution to improve the flexibility parameter of women. Flexibility and skill development parameter is directly related to the biological structures and responsibilities of female employment. Efforts must be undertaken to implement suitable measure for female workers to do their natural duties like pregnancy and delivery and child care, without affecting their 'flexibility and skill development' factor, in the work place, especially in the ICTs sector.

Table 4.15

Cross tabulation of Empowerment parameters and Levels of Improvement with regard to the sample

			Levels of Improvement				Total
			No change	Less Improved	Improved	Highly Improved	
Empowerment Parameters	Self confidence	Actual	12	91	113	94	310
		Expected	19.8	95.6	104.2	90.4	310.0
	Economic prospects	Actual	4	95	100	111	310
		Expected	19.8	95.6	104.2	90.4	310.0
	Decision making power	Actual	31	110	93	76	310
		Expected	19.8	95.6	104.2	90.4	310.0
	Status in the family and community	Actual	22	60	108	120	310
		Expected	19.8	95.6	104.2	90.4	310.0
	Support from the family for ICTs job	Actual	19	89	108	94	310
		Expected	19.8	95.6	104.2	90.4	310.0
	Contribution to family income	Actual	8	85	99	118	310
		Expected	19.8	95.6	104.2	90.4	310.0
	Freedom in household expenditure	Actual	15	97	127	71	310
		Expected	19.8	95.6	104.2	90.4	310.0
	Flexibility and skill development.	Actual	27	121	93	69	310
		Expected	19.8	95.6	104.2	90.4	310.0
	Sharing the Household Responsibilities	Actual	40	112	97	61	310
		Expected	19.8	95.6	104.2	90.4	310.0
		Total	**178.0**	**860.0**	**938.0**	**814.0**	**2790.0**

Source: Survey

0 cells (0.0%) have expected count less than 5. The minimum expected count is 19.78

Pearson Chi-Square value is 134.155, df 24

Table Value of Chi-square at $\alpha = 0.05$, degrees of freedom (r-1)*(c-1) = 24 is 36.415. Since the calculated value 134.155 is greater than the table value, we fail to accept the H_0 and accept H_1. Hence, it may be inferred that

ICTs jobs are contributing towards the women empowerment with the improvement in different parameters of women empowerment being statistically significant. In nut shell, the levels of improvement are significantly associated with empowerment parameters of ICTs women workforce.

The above study was carried out in the state of Kerala, one of the economically and technologically advanced states. In the recent years, through the implementation of various ICT related projects, the state was successful in poverty eradication. There are also many projects for the greater involvement of women. The main object is to make the women both economically and socially strong. The study clearly found that the women were immensely benefited from the use of ICT. ICT has made a tremendous impact in imparting knowledge on modern technology and its uses. NGOs, SHGs working in the field, governmental agencies and other private agencies have also extended their help to promote ICT among the women. This study concluded that the ICT (information and communication technology) empower a woman in various areas like social, educational, psychological, political, technological and economical and well as to bring about few degree of disempowerment due to some internal and external reasons.

To summarize, the findings of the study from various ICTs initiatives in Kerala, shows that there is significant impact on Women's employment, income, social roles and Empowerment of women by being employed at ICTs parks. The ICT initiative is "gender blind" and pursued within the globalised, competitive context for an increased role in markets and 'flexibility' and has generally reinforced gender equalities. All the statistical studies used in this study put forwards that the employment opportunities in the ICTs sector provide bright future for the youth of Kerala.

Chapter 5

Structure of Kudumbashree System and Socio-Economic Analysis of Employees in Kudumbashree ICTs Units

5.1 Introduction

The State Poverty Eradication Mission - Kudumbashree - aims at eradicating absolute poverty within a definite time frame of 10 years under the leadership of Local Self Governments formed and empowered by the 73rd and 74th Amendments of the Constitution of India. The Mission launched by the State Government with the active support of Government of India and NABARD has adopted a different methodology in wiping out absolute poverty by organizing the poor in to community-based organizations. The Mission follows a process approach rather than a project approach.

5.2Mission Statement

Kudumbashree is a Mission working for the fulfillment of a shared vision. The Mission Statement of Kudumbashree is as given below:

"To eradicate absolute poverty in ten years through concerted community action under the leadership of Local Self Governments, by facilitating organization of the poor combining self-help with demand led convergence of available services and resources to tackle the multiple dimensions and manifestations of poverty holistically".

5.3 Structure of CBOs in Kudumbashree

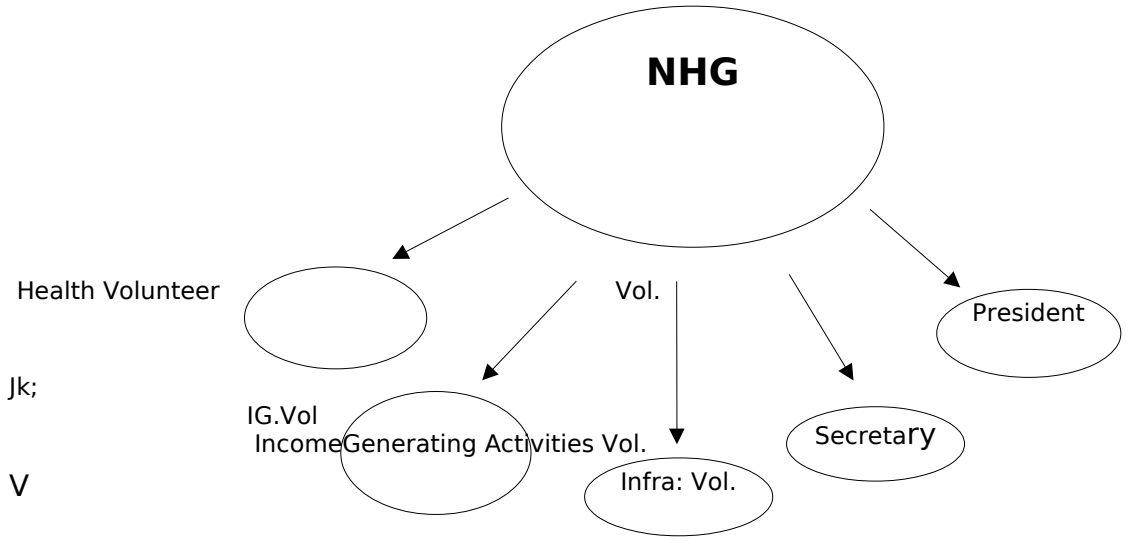
5.3.1 Neighborhood Group (NHG)

For effective convergence of the Programme, a three tier Community Based Organization (CBO) is in action. The lower most tiers constitute the Neighborhood Group consisting of 20-40 women members selected from the poor families. Meetings are convened on a weekly basis in the houses of NHG members. In the meeting the various problems faced by the Group Members are discussed along with suggestions for improving the situation. Government officials are also invited to the meeting for explaining the schemes implemented by them. In the weekly meeting, all members bring their thrift, which will be collected and

recycled, to the system by way of sanctioning loans. Micro plans are also prepared after taking stock of the situation. In each Neighborhood Group, from among the poor women, five Volunteers are selected for undertaking various functional activities. Structure of Neighborhood Group is given in the Figure 5.1

Figure 5.1

Structure of Neighborhood Group



- Community Health Volunteer - She will look after the various health-related aspects of the group members including children, women and the aged. Convergence of various programmes undertaken by Health and Social Welfare Departments are also carried out under the leadership of the Community Health Volunteer.
- Income generation activities volunteer - The collection, consolidation and maintenance of books of accounts and registers in connection with thrift mobilization is looked after by this volunteer. Necessary training is imparted by NABARD for increasing their capability.
- Infrastructure Volunteer - Infrastructural backwardness of the group is tackled with the help of various ongoing governmental programmes under the leadership of this volunteer. It is proposed to take micro contracting as an income generating activity by this group after sharpening their functional skills through a series of training

programmes. She will liaison with the local bodies and act as a catalyst for local development.

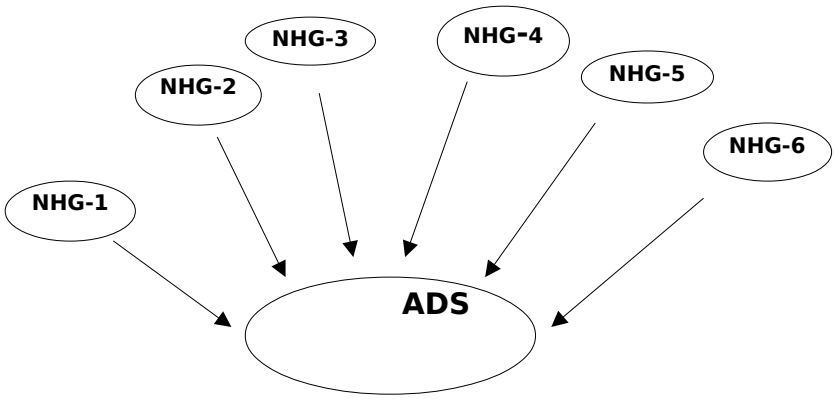
- Secretary - The secretary records the proceedings of the meeting and undertakes necessary follow up. Activities including motivation and team building are the responsibilities of the Secretary.
- President - She will preside over the weekly meetings and will impart necessary leadership and guidelines to the group members.

5.3.2 Area Development Society (ADS)

The second tier is the Area Development Society, which is formed at ward level by federating 10 - 15 NHGs. The structure of_Area Development Society is illustrated in the Figure 5.2. The activities and decisions of ADS are undertaken by the representatives of the poor elected from various NHGs.

Figure 5.2

Structure of Area Development Society



An Area Development Society functions through three distinct bodies viz,

- General Body - Consists of President/Chairperson, Secretary & three sect- oral volunteers such as Health, Income Generation and Infrastructure volunteers of federated NHGs.
- Governing Body - Constituted by electing a President, Secretary and a five member Committee from among the General Body.

- Linkage with Local Self Government Institutions:
  a) Rural

     In Gramapanchayats, the ward member is the Patron of the ADS.
  b) Urban

     In Urban Local Bodies (ULB), a separate Monitoring & Advisory Committee is constituted with ward Councilor as chairperson. The salient feature of this arrangement is the fixation of priorities by the poor; in tune with the policy framework of Local Self Governments.

5.3.3 Community Development Society (CDS)

At the Grama Panchayat/ Municipal level, a Community Development Society (CDS) - a registered body under the Charitable Societies Act - is formed by federating various ADSs. The CDS has three distinct bodies viz.,

1. General Body - It consist of all ADS chairpersons and ADS Governing Body members along with representatives of Resource Persons, Officers of the Local Body who are involved in implementing various Poverty Alleviation and Women Empowerment Programmes.
2. Governing Body - The Governing Body consists of President, Member Secretary and five selected Committee Members. The President is usually elected whereas the Member Secretary is the Project Officer of UPA (Urban Poverty Alleviation) programmes. Other Government Officials and representatives of Resources Persons will be nominated to the Governing Body.
3. Linkage with Local Self Government Institutions:
   a. Rural - The President of the Gramapanchayat is the patron of the CDS. The standing committee chairperson (welfare), all women members of the Gramapanchayats and the Secretary of the Gramapanchayat are ex- officio members of the CDS. The Block

Panchayat member/Members of the respective Block division/Divisions are also ex-officio members of the CDS.

b. Urban - A monitoring & advisory committee at ULB level will be constituted with Mayor /Municipal Chairperson as Chairperson. The Municipal Secretary will be the convener of the committee. In every ULB there is an Urban Poverty Alleviation (UPA) wing and the Project Officer of the UPA will be the Joint Convener.

The advantage of such a system is that it is managed wholly by the representatives of the poor and has the leverage of a non- governmental organization, which helps in channeling additional resources from various sources both internal and external. The CDS at local body level facilitate both autonomy and effective linkage with Local Self Governments.

The aspirations of the poor along with their genuine demands are voiced out in the NHG meetings from the “micro-plans” and will be scrutinized and prioritized to form a mini-plan at the level of ADS. After consolidating the mini-plans by judicious prioritization process at the level of CDS, the “CDS Plan” is formed which is also the “anti-poverty sub-plan” of the Local Self Government. Preparation of micro, mini and CDS plans facilitate the poor to participate in planning process as a major stakeholder. The local body monitors the implementation of the plan and thereby proper linkage, coupled with autonomy is ensured in the CDS system.

Other than participating in the planning process, the work done for eradication of poverty is worth mentioning. Poverty is caused mainly as a result of the unequal access to and distribution of wealth and resources. The resources meant for the poor, through various antipoverty programmes, have not been reaching the deserving families due to weaknesses in the transfer process. The poor were destined to receive the benefit only as doles of charity. The poor are incapacitated and are vulnerable to all calamities including environmental degradation. They

are even denied of their basic human rights. This denial or rather deprivation is checked in a big way through the implementation of Kudumbashree. In a nutshell, in Kerala Kudumbashree is perceived and accepted by all Local Self Governments as a further step to decentralization process.

Figure 5.3 Structures of CBOs in Kudumbashree

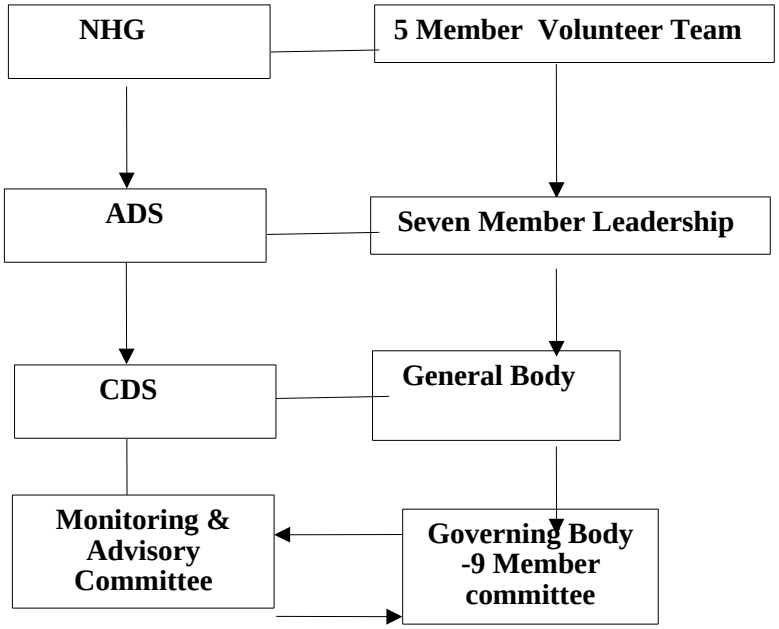


Table 5.1 Status of CBOs in Kudumbashree

SI No.	Name of District	No. of NHGs Formed	No. of ADSs Formed	No. of CDSs Formed
1	Trivandrum	17814	1253	83
2	Kollam	12455	1092	72
3	Pathanamthitta	5943	656	57
4	Alappuzha	12581	1012	78
5	Kottayam	9361	992	78
6	Idukki	8900	611	52
7	Ernakulam	12451	1236	98
8	Thrissur	15521	1288	99
9	Palakkad	19430	1328	94

10	Malappuram	11859	1556	105
11	Kozhikode	13794	1158	80
12	Wayanad	6806	395	26
13	Kannur	10174	1107	87
14	Kasargode	5530	561	41
	Total	162619	14245	1050

Source: Kudumbashree Publications, 2010

5.4 Various Facets of Kudumbashree

Kudumbashree is envisaged as a Mission, a process, a project and a delivery mechanism for the poor. Identification of Kudumbashree can only be made through the various facets. The following facets are visualized for the Kudumbashree Programme.

- Identification of poor families using a non-monetary poverty index.
- Organizing the poor to a three tier Community Based Organization (CBO).
- Empowerment of women through Community Based Organizations.
- Formation of Informal Bank for poor women operating round the clock throughout the year, starting with thrift & credit operations.
- Formation of micro-enterprises.
- Convergent Community Action.
- As a further step to decentralization process.
- Establishment of rural marketing network throughout the state.

Some of the milestones crossed are listed below

- Formation of 162619 NHGs of the women from risk families, covering urban, rural and tribal areas of the states.
- Formation of 14245 ADSs at ward level.
- Formation of 1,050 CDSs at LSG level.
- Formation of 16,727 vibrant micro enterprises in urban areas.
- Formation of 34,679 micro enterprises in rural areas.
- Delivery cost of anti-poverty programmes has come down.

- Poor women of the state have become active participants in the planning and implementation process of various anti-poverty programmes.
- The morale and confidence of women are now very high.
- Capacity of the poor women of the state in several areas has gone up considerably.
- Status of women in families and community has also improved.
- Kudumbashree has already gained national and international acclaim as an ideal and workable development model. The economic activities of the women groups of the Mission have even rejuvenated the economy of the state to a great extend.

5.5 Micro Credit

5.5.1 Thrift & Credit

Kudumbashree promotes Thrift mobilization by setting up Thrift & Credit Societies at NHG level to facilitate the poor to save and to provide them cost effective and easy credit. Thrift and Credit Societies facilitate easy and timely credit to the un-reached. A member can avail loan up to a maximum of four times his savings. The amount of loan and the priority of disbursement are decided by the NHG. The repayment is collected weekly during the routine NHG meetings. The income towards interest from thrift is generally used for re-loaning. The most important aspect of the thrift and Credit Societies is the prompt repayment of loans.

1. Informal Banks at the Doorsteps of the Poor

   Thrift and Credit Societies organised by the Kudumbashree have a fast growth as informal banks of the poor women made available at their doorsteps. Most of the thrift societies are now capable of providing assistance even for income generating activities.

2. Thrift & Credit Societies - Specialties
   - Poor can save
   - Flexible financial services
   - Enables to undertake Micro Enterprises

- Informal bank
- Easy to avail
- Facilitate timely credit
- Low transaction cost
- Poor can pay interest at market rate
- Weekly repayment
- Transparency in operation
- Loan disbursement - Need based
- Loans at the convenience of the poor
- No collateral security
- Time saving
- Credit at the doorstep
- Prompt repayment due to peer pressure
- Leap in self confidence

Now, 10687 Thrift and Credit Societies are operating in the 58 urban areas covering major 58 towns. In rural area 149896 thrift & credit societies are in operation in the 991 Gramapanchayats in state.

Table 5.2

Thrift & Credit Operation (Amount in crores) in Kudumbashree

Areas	NHG	ADS	CDS	Thrift	Credit
Urban	10687	896	59	35.42	39.50
Rural	149896	13349	991	565.60	1339.60
Tribal	2036			5.41	10.76
Total	162619	14245	1050	606.43	1389.86

Source: Kudumbashree Publications, 2010

5.5.2 Bank Linkage Programme

Efficiency and effectiveness of NHGs are to be verified on the basis of some objectively verifiable and easily identifiable parameters.

NABARD has developed a 15- point index for rating NHGs on the basis of which they will be allowed to link with various banks under the Linkage Banking Scheme. Once the groups are linked they will be eligible to receive finance in the ratio ranging from 1:1 to 1:9. The assistance so received can be utilized by the groups for internal lending and taking up of Micro Enterprises. Under the leadership of Kudumbashree District Mission Team, efforts are being taken to verify the performance of NHGs throughout the state. About 68270 NHGs are linked with NABARD under the linkage-banking scheme and about Rs.294.70 crore is mobilized as loan from banks (The district wise position of Linkage Banking Programme is attached). This shows that our NHGs are equally competent to channel resources to the local bodies from banks.

The various criteria for the linkage-banking programme are enumerated below:

- Composition
- Age of the group
- Weekly group meetings
- Attendance
- Minutes
- Participation in group discussion
- Savings (frequency)
- Saving and loan recovery
- Style of functioning & group decisions
- Sanction and disbursement in of loans
- Interest on loans
- Utilization of savings on loaning
- Recovery of loans
- Books of accounts
- Bye laws/group rules

5.6 Micro Enterprises

Kudumbashree views Micro Enterprises Development as an opportunity for providing gainful employment to the people below poverty line and thereby improving their income and standard of living. During early 70's, growth of Micro Enterprises resulted largely from the lack of alternative employment opportunity, but now micro enterprise is considered as a growth engine that triggers developmental process. Micro enterprises need to be supported by better access to institutional finance through rural banking. This is not an automatic process. A futuristic strategy is to be worked out for increasing the flow of funds and also for ensuring market for their products. In the context of Urban Poverty, we define micro enterprises based on the following criteria:

a) Investment ranging from Rs 5,000 to Rs 2.5 lakhs

b) Enterprise should have a potential to generate at least Rs 1,500 per member per month either by way of wage or profit or both together.

c) Enterprise fully owned, managed and operated by members themselves, preferably, women as entrepreneurs from families below poverty line.

d) Minimum turnover of Rs One lakh to Rs Five lakhs. (i.e. two - ten times of the capital investment).

Through the operation of micro enterprise, we expect that the asset management capability of the poor people will increase along with their profit margin and income.

5.6.1 Micro Enterprise as a powerful tool for poverty reduction

Micro enterprise is not a panacea for poverty reductions, which needs both complementary supply-side and demand side factors. Supply side factors – such as good infrastructure, entrepreneurial skills etc – are needed to make micro enterprises more productive. But the potential for increased productivity will remain mostly unrealized in the absence of demand side factors. In other words without a supportive macro-economic, trade and industry framework, micro enterprises will remain micro, with no backward or forward linkages or employment creation

possibilities. Hence as a tool for poverty reduction, micro enterprises must undertake:

- Identification of innovative and creative activities, suited to the specific environment in which the poor people are living, which try to solve the problems faced by the community and also attempt to use the technological knowhow already available. The DWCUA, (Development of Women and Children in Urban Areas), Information Technology activity is identified in this background. This sunrise sector is being effectively used for solving the problem of creation of up to date database. Information acts as the back bone of governance so IT units could draw more and more opportunities from the society and enable them to earn better income to the poor members belonging to BPL families.
- In the absence of entrepreneurial traits, continued support by means of 'hand holding' and 'escort services' are required for ensuring sustainability of micro enterprises. Kudumbashree tries to learn much from the experiences of others and share the same we others.
- Training in the functional areas of management like production, inventory, finance, marketing, personal and project are to be imparted to the selected entrepreneurs. With this objective, government have conducted a series of training programmes and also developed a specific module for training potential Micro Entrepreneurs.
- Kudumbashree plans to utilize the existing potential of resource persons available in and around the State for prompting entrepreneurship. The concept of Rural Consultancy was tried out at Malappuram for testing this idea.
- Experimenting, the possibility of networking of Micro Enterprises, which in future may help to provide the original concept of syndication.
- Identifying entrepreneurial activities that will help to solve a common problem.

- Utilization of its resources as an opportunity for reviving the local food traditions prevalent in the State.
- Micro enterprise development as a means for empowering women, especially economic empowerment.

5.6.2 The Emerging Process

Kudumbashree views micro enterprises development as an emerging process which will start with low capital, low risk and low profit at the initial stage which will gain momentum and later switch on from low to medium capital and then from low to medium risk. In an advanced stage it may even reach medium capital medium risk and medium profit with appropriate technology, emerging technology or even with low technology.

Table 5.3 Kudumbashree views on micro enterprises development

Capital Employed	Risk Involved	Profit Generation	Technology Used
Low	Low	Low	Low
Low-Medium	Low	Low +	Low
Low-Medium	Low-Medium	Low-Medium	Low
Medium	Medium	Medium	Low, Appropriate Emerging

Source: Government of Kerala, 2010

For example, catering units work with low capital, low risk, low profit and low technology where as an IT unit works with low to medium capital, low risk, and low to medium profit while using emerging technology. When we analyze the various DWCUA Units we can see a slow process of development of the Micro Enterprise through these stages. But when we start with individual enterprise the sudden jump from one stage to the next higher stage is not easily possible. Group activity provides synergy for growth. Hence they can grow from one level to next higher level even by cutting across the ladder. Sloughing back of capital is also possible which helps to improve the capital requirement without any additional burden of interest. As the exposure increases the chance of gaining confidence also improves. At this stage more capital is employed as it may help the person to use it in a better manner. Collective wisdom seldom fails; collective sharing of responsibilities

yields rich dividends! They solicit opinion of experts, academicians, entrepreneurs and activities who are engaged in similar activities across the globe, so that, this concept could be modified updated or even suitably changed.

Table 5.4 Micro Enterprises in Urban Area (District wise List)

SI. No	Name of District	DWCUA	USEP[13]
1	Thiruvananthapuram	173	1671
2	Kollam	51	1825
3	Pathanamthitta	28	577
4	Alappuzha	142	1818
5	Kottayam	57	535
6	Idukki	7	96
7	Ernakulum	344	1633
8	Thrissur	131	1016
9	Palakkad	61	1380
10	Malappuram	65	827
11	Kozhikode	164	1864
12	Wayanad	12	102
13	Kannur	72	1442
14	Kasargode	38	596
	Total	1345	15382

Source: Kudumbashree Publications, 2010

5.6.3 Micro Enterprises in Rural Area

[13] Urban Self Employment Programme

Though Kudumbashree programme was extended to the rural areas of the state only during 2000-2001, around 40,000 micro enterprises have already come up in Grama panchayats of Kerala under the aegis of the mission. Almost all the Kerashree units (units producing coconut oil) are functioning in the rural area. Some of the vibrant Vidyashree units of the mission are also functioning in the rural areas. Lease land farming, Vegetable cultivation and Vanilla cultivation are some of the income generation activities going on in full swing in rural Kerala.

There are 20137 Group micro enterprises and 14684 units of individual micro-enterprises in rural area.

Table 5.5

Kudumbashree Micro Enterprises

SI. No	District	No. of Enterprises	
		Group	Individual
1	Trivandrum	5347	2353
2	Kollam	1574	4592
3	Pathanamthitta	277	1212
4	Alappuzha	1671	261
5	Kottayam	1271	965
6	Idukki	3527	1190
7	Ernakulum	685	121
8	Thrissur	155	4
9	Palakkad	660	1551
10	Malappuram	345	441
11	Kozhikode	2940	971
12	Wayanad	153	501
13	Kannur	1474	431
14	Kasargode	58	91
Total		20137	14684

Source: Kudumbashree Publications, 2010

5.6.4 Thrust areas for Micro Enterprises

Economic uplift of the poor could be achieved only through sustainable micro enterprises. With this view, the Kudumbashree's searched out for inevitable enterprises, which can provide sustainable

income. On the basis of this they have found thrust areas and identified anchor activities. 7 anchor activities which were selected for the previous years were:

- Ethnic Delicacies
- Tender Coconuts & Products
- Agriculture Nurseries
- Soap Making Units
- Remedial Education Centers
- Paper Bag Making
- Courier Services
- Direct Marketing

5.6.5 Sunrise Sector for Micro Enterprises

For the current year, the following sunrise sectors were identified:

- Food Processing
- Dairy Products
- Solar Cookers
- Bio-Technology
- Vidayashree (IT @ School)
- Integrated Coconut Processing (Kerashree)
- Tissue Culture
- Yathrashree (Chain Hotels)

5.6.6 EDII tie up for Performance Improvement Programme in Micro Enterprises

Under the DWCUA component of the SJSRY, (Swarna Jayanthi Shahari Rojgar Yojana), about 1201 group micro enterprises were established in various Urban Local Bodies by women. There are about 102 activities ranging from Ethnic Delicacies to IT Units. To make them all sustainable, a handholding escort is needed at least in the initial stage. A search towards this direction led them to have a tie up with

Entrepreneurship Development Institute of India (EDII) at Ahmadabad. To improve the performance of the newly started micro enterprises, a six-day residential Performance Improvement Programme (PIP) is imparted to the women entrepreneurs of selected enterprises. 10 PIPs were conducted, 5 at Ernakulum (Youth Hostel & IMG, Kakkanad) and 5 at Thiruvananthapuram (ICM, Poojappura). Each day PIP entrepreneurs from 14 units were selected (4 members for the first day and the remaining 6 in the final day). 1170 entrepreneurs from 141 units were trained.

5.6.7 Repayment Information System (RIS)

Kudumbashree has developed a Repayment Information System (RIS) for monitoring the credit system involving linkage with banks. The banking community in general and the State Level Bankers Committee has appreciated this system in particular.

5.6.7.1 Functioning of RIS

A Volunteer is selected from each Community Development Society, and imparted training to monitor the flow of credit to the members. In most of the cases this volunteer is a member of the DWCUA IT Unit formed under various municipalities (incidentally 59 such DWCUA units were started and is functioning on a most remunerative and efficient manner). The RIS Volunteers will take down details of applications forwarded to various banks and store the data in computers. They will also liaison with the various banks operating in the jurisdiction of an Urban Local Body. This will help to rectify the minor defects, if noted, at the level of Bankers. Immediately on sanctioning the loans the fact will also be recorded along with a repayment schedule. When the applications are rejected or returned that also can be followed-up. As and when repayment falls due, the matter will be communicated to the NHG where the beneficiary is a member. Information will also be passed on to the Area Development Society, the Community Development Society and the

Project Officer of the municipality concerned under intimation to the District Office and the Head Office of Kudumbashree. Since this is done with the help of computer, storage and retrieval of data is made easy with in a second. If a member defaults the repayment, the NHG will interfere and even repay the amount for and on behalf of the defaulter by treating the defaulted amount as a loan sanctioned in the name of the defaulter from the thrift and credit society. Since timely information is passed on, cumulative default in repayment can be checked.

The advantage of this system is proper monitoring. Bank wise, branch wise, scheme wise follow up, timely repayment checking defaults plucking loop holes, altering the authorities and ensuring 100% repayment. RIS is in the preliminary stage and cannot be claimed as a foolproof system. All the DWCUA IT Units are planned to be brought under this network. When this plan materializes, monitoring will be easier and more effective.

5.7 Expansion of Kudumbashree to further Rural Areas

At its inception stage, the activities of Kudumbashree was confined to the Urban areas and Urban and Rural areas of Malappuram District where the anti-poverty programmes have been attempted through community based structures as envisaged in Kudumbashree. The successful implementation of the project and its positive outcome in the limited circles of the state has created a level of confidence for expanding its physical coverage and also for setting new milestones for Kudumbashree by extending its activities to the rural areas. It was decided to cover the entire rural area of the State in a phased manner and at first during June 2000, 262 Grama Panchayats was identified following fixed criteria. Subsequently during November 2001, 338 Grama Panchayats and in March 2002 the remaining 291 Grama Panchayats were covered under Kudumbashree. Massive training programme were organised for the Panchayat functionaries, officials and activists in the rural area. The

scaling up programme was organised in a very systematic manner enabling the new Gramapanchayats to learn lessons from the previous batch.

5.7.1 Training Programme for Rural Area

As a prelude to introduce the new programme in Rural areas, training programmes for capacitating the Gramapanchayat functionaries, District resource persons and officials, GramaPanchayat level leaders of self-help groups, local leaders and officials was held at State, District and GramaPanchayat levels.

5.7.2 State level Training

The Grama Panchayat Presidents, Vice Presidents, Chairperson of Women Task Force and Key Resource Persons of the Grama Panchayats were given training at State level. Block Coordinators, District Convener (PPC) and DMCs/ADMCs of Kudumbashree also attended the training.

The three-day training programme was organized in three batches from 10 - 18 July, 2000. These training programmes helped to train 816 functionaries of the GramaPanchayats.

5.7.3 District level Training

In the selected GramaPanchayats for Kudumbashree activities, the leaders of the existing SHGs, Voluntary organizations, Youth clubs, GramaPanchayat Members (those left out in the District level training) and local Resource persons were trained. 26,100 persons attended the one-day training. Following this training, conventions of the women in the GramaPanchayat were held to declare the formation of NHGs. On 17th August 2000, the GramaPanchayat conventions declared the formation of 15,055 NHGs. The same methodology was followed in expanding the programme during the II and III phases also.

5.7.4 Training programme

On formation of the NHGs, almost all the NHGs started thrift and credit operation. They were supplied with Minutes Book, Pass Books and Account Books for documenting the proceedings of their meeting and to maintain accounts. Leaders of the NHGs are being trained in maintaining accounts and keeping the registers. The topics of the two-day training programmes for the leaders of NHGs included leadership/ communication skills, poverty and its manifestations, micro enterprise and hands on training on maintaining accounts was also given.

In order to cover the entire Grama Panchayats in Kudumbashree, during the financial year 2001-2002 itself, State Government had issued G.O (Rt) No. 5125/2002/LSGD, dated 4.03.2002 extending the Kudumbashree programmes to the remaining 291 Grama Panchayats Thus, all the Grama Panchayats are now brought under Kudumbashree. All the Preparatory work has been completed for the initial training of elected representatives and key officials in these Grama Panchayats. Thus, when the 10th Five year Plan started, the programme had universal coverage in the State.

Table 5.6

District Wise Training Programmes of selected Gramapanchayats

SI. No	District	No. of Panchayats				Total
		Prior to Phase-I	Phase- I	Phase-II	Phase-III	
1	Trivandrum	-	20	28	30	78
2	Kollam	-	13	29	27	69
3	Pathanamthitta	-	7	23	24	54
4	Alappuzha	-	15	30	28	73
5	Kottayam	-	13	28	33	74
6	Idukki	-	15	24	12	51
7	Ernakulum	-	22	36	30	88

8	Thrissur	-	60	16	16	92
9	Palakkad	-	15	24	51	90
10	Malappuram	100	-	-	-	100
11	Kozhikode	-	27	30	20	77
12	Wayanad	-	7	18	-	25
13	Kannur	-	41	20	20	81
14	Kasargode	-	7	32	-	39
Total		100	262	338	291	991

Source; Kudumbashree Publications,2010

5.8 Reaching Out the Hitherto Unreached - Activities in Tribal Area

Even after 50 years of independence most of our developmental programmes failed to reach the poor and most vulnerable people residing in tribal pockets. In Kerala, Kudumbashree's have organized Neighborhood Groups (NHGs) among five primitive tribal group, namely Koragas of Kasargod district, Paniyas and Kattunailkans of Waynad and Malapppuram districts, Kadar of Thrissur and Kurumbar of Attappadi - Palakkad Districts. Through the concerted efforts and four rounds of training programmes, around 2049 NHGs were formed exclusively for Primitive Tribes. They have also started collecting thrift and by March 2005, it touched the level of Rs. 3.56 crores.

5.9 Human Resource Development through Training

Kudumbashree strongly believes that capacity of each and every individual can be improved if they are properly trained. Rather than entrusting the training programmes to any training institutes, Kudumbashree developed an in-house faculty team and conducted a series of training along the length and breadth of Kerala by using the facilities of already existing training institutes. Training curriculum was developed with the help of experts and Kudumbashree faculty. Three training modules were prepared of which the third exclusively covers the functional areas of micro enterprises management. Topics covered so far are:

- Phase-I
    1. Self Esteem

2. Community Development - New approach
3. Urban/Rural Community Development - Historical Background
4. Urban/Rural anti poverty programmes in our country - Basic principles & Objectives
5. Details of SJSRY/SGSY(Swarnajayanti Gram Swarozgar Yojana)/SGRY(Sampoorna Grameen Rozgar Yojana etc - Aims, Objective and various components
6. Women Empowerment - New Development approach
7. Identification of poor - New Indicators
8. Structure of CBOs
9. CDS functionaries - Roles and responsibilities
10. Thrift & Credit Operation
11. Thrift & Credit Accounting
12. Agenda of Meeting and Preparation of minutes
13. Importance of Participatory Approach
14. Training for Social Work
15. Training Methodology
16. Social Work
17. Planning from the grass root

- Phase-II
  1. Leadership & Team Work
  2. Gender issues in Development process
  3. Child Rights
  4. Plan Monitoring and Evaluation
  5. Communication
  6. State Action Plan
  7. Conflict Management
  8. Decision Making
- Phase-III
  1. Entrepreneurship Development
  2. Developing Enterprises
  3. Identification of projects for Successful Entrepreneur

4. Personal Management
5. Production Management
6. Inventory Management
7. Finance Management
8. Marketing strategies for Micro enterprises
9. Communications and Public relation
10. Plan Assistance of Local Self Government

5.10 Human Resource Development through Training

Kudumbashree is always keen to seize the opportunities coming up in horizon of micro enterprise sector. Kerashree, Vidyashree and Yathrashree are the major sectors in which Kudumbashree embarked during recent times.

When the prices of coconut came down alarmingly, farmers of the state became the victims of poverty. Kudumbashree came forward with a solution for the problem. Coconut oil extraction and marketing units were setup under the mission in central and northern districts of the state. The common nomenclature of these units was that they engaged in copra production, oil extraction and coconut oil marketing is Kerashree. As coconut oil is the principal cooking medium of Keralities, the units find no difficulty in marketing the products.

Similarly, when the state government decided to introduce IT education in the high schools of the under IT @ School programme, Kudumbashree seized the opportunity and began to setup Vidyashree Computer units in all the 14 districts of Kerala.

Table 5.7 District-wise Vidyashree Computer Units

SI.No	Name of District	No. of Units Started
1	Trivandrum	3
2	Kollam	6
3	Pathanamthitta	9
4	Alappuzha	14
5	Kottayam	1
6	Idukki	1
7	Ernakulum	11

8	Thrissur	16
9	Palakkad	6
10	Kozhikode	9
11	Malappuram	32
12	Wayanad	21
13	Kannur	14
14	Kasargode	8
	Total	151

Source: Kudumbashree Publications, 2010

Yathrashree is another innovative project on the anvil. The project envisages the setting up of a chain of wayside hotels along the sides of the major roads of the state.

5.11 S^3 (Self-Sufficient, Self-Reliant, Sustainable) Panchayats: The concept

It has been well said that the local economic development will foster prosperity and reduce poverty. In practice, the Mission addresses the multiple deprivations faced by the poor family which consist of food, health, education, basic amenities such as shelter, drinking water, safe latrines, employment etc. While addressing these issues as a package, it is the experience of the Mission that poverty reduction will foster economic development and local economic development will lead to sustainability and prosperity. The total development – that is both social and economic development - has a strong bearing on poverty alleviation initiatives.

Taking cognizance of the situation, Kudumbashree has evolved a project to build model in select Grama Panchayats on total development concept. The project focuses on self- sufficiency, self-reliance and sustainability (s^3) of Grama Panchayats. The project envisages addressing the problems related to the following sectors.

1. Child development
2. Geriatric care
3. Mentally and physically challenged
4. Education

5. Adolescent care
6. Women Empowerment
7. Enterprise development
8. Employment opportunities for educated youth
9. Agriculture/Animal husbandry/Dairy development
10. Revamping and repositioning of traditional sector
11. Basic minimum needs viz.,
    - Land for house
    - Shelter up gradation
    - Drinking water
    - Safe sanitation facilities
    - Electrification
12. Destitute identification and rehabilitation

The above said components of the project directly deal with the total development of the Gramapanchayat and inter alia address the issues concerned with poverty. With the decentralization movement, the local self-governments are expected to prepare detailed projects on these sectors. The guidelines of Government stipulate that in these sectors the local bodies should constitute separate working groups to evolve detailed plans. The intervention of Kudumbashree as a facilitator to draw up plans to address the issues in the above said sectors would increase people participation and the capabilities of the leaders of the local bodies as well.

Kudumbashree's have piloted this programme in three Gramapanchayats in each region such as Venganur in Southern Region (Thiruvananthapuram District), Kodakara in Central Region (Thrissur District) and Munniyoor in Northern region (Malappuram District). As second phase, the programme extended to 14 Gramapanchayats, one Gramapanchayat per district. Expansion of programme was further done to another 70 Gramapanchayats (5 per district).

5.12 Convergence

Kudumbashree CBOs act as convex lenses capable of converging the schemes, ideas, concepts and resources of various governmental and non governmental agencies and line departments working in poverty reduction and social welfare sectors. During the course of the study Kudumbashree could augment and strengthen its activities by fruitfully collaborating with a host of line departments and agencies having similar interests like NBCFDC (National Backward Classes Finance and Development Corporation) , Spices Board, Khadi and Village Industries Commission, Khadi and Village Industries Board, ST department, Social Welfare department and Industries department.

5.13 Women Empowerment, the Ultimate Goal

In spite of the commendable achievements Kerala could make in the social sector, the women of the state have only secondary status in the society? However, since the inception of Kudumbashree, the scenario has been changing dramatically. Women empowerment is a major concern and prime priority activity for the mission. Every activity of the Project is geared to take the beneficiary class towards this ultimate goal. Weekly meetings, discussions, thrift and credit operations, participation in planning and implementation process of developmental activities and social and cultural activities conducted under the aegis of Kudumbashree CBOs, enhance the confidence and capacity of poor women. Moreover, thrift and credit operations and micro enterprises have enhanced the economic status of the poor women in families and society. It is an unarguable fact that Kudumbashree Mission and its activities, including the planned capacity building exercise of the beneficiaries, have really improved the status of poor women in the urban and rural areas of the State.

The underprivileged people of Kerala, especially women have already accepted Kudumbashree as their own movement. Within a short span of less than ten years, the Mission could surpass many a major milestone. Developmental Specialists and Social Activists from several Indian states and foreign countries visit the Project to enlighten themselves in areas like

participatory poverty reduction, women empowerment and convergent community action.

5.14 Kudumbashree ICTs Units - Study Analysis and Findings

Only through sustainable micro enterprises can the underprivileged be economically uplifted. With this view, the inevitable enterprises, which can provide sustainable income, were scanned for. On the basis of this, among various Kudumbashree micro-enterprises like Ethnic Delicacies, Agriculture Nurseries, Soap Making Units, Direct Marketing, Food Processing, Dairy Products, Bio-Technology, Integrated Coconut Processing, the study area selected was Kudumbashree ICTs Units.

There are 228 Kudumbashree ICTs units which are now operational in Kerala (Kudumbashree, 2011). All these units are co-operative enterprises, which are owned, managed and operated by women from poor families and, among these units, there are three types of ICTs based enterprise.

- IT training units which provide IT training to Schools.
- Data entry and digitization units which mainly create local digital content for public (and to a lesser extent private) sector organisations, but which may also do some other IT work and
- Hardware assembling and maintenance units, basic software and Web development work.

5.14.1 Case Study of a Kudumbashree ICTs Unit

Techno World III, near civil station-Kozhikode, is a Kudumbashree ICTs Unit initiated on 18/03/2004 by ten women who belongs to below-poverty-line rural families. Total capital of the Project was Rs 315000 as depicted in Table 5.8.

Table 5.8 Source of capital of a Kudumbashree ICTs Project

Particulars	Amount (Rs)

Beneficiaries' share	15000
Bank Loan	175000
Subsidy from Local Government	125000
Total	**315000**

5.14.1.1 Techno World III, near civil station-Kozhikode

They started with 8 computers and a printer. At present they have a set-up which earns then a turn-over of Rs 40, 00,000 (Forty lakhs rupees only) and 65 additional employees including one male on contract basis.

The Unit mainly undertakes Data entry work for Government departments like Transport office, Hajj office, Land records of various Revenue offices, Corporation's birth and death records, voters' lists etc. There are 10 Kiosks at various centers under this Unit (Techno World III IT Publication, 2010).

Figure 5.4

A Kudumbashree ICTs Unit

5.14.2 Analysis of collected data from Kudumbashree ICTs units

The study was conducted by applying judgement sampling method for collecting data from sample using a structured questionnaire covering ICTs units' viz., ICTs Parks and Kudumbashree ICTs Units, of three regions in Kerala. All the respondents were women who were working in these ICTs Units. From the three study areas, a total of 310 women respondents were interviewed by the researcher in the various ICTs parks and a total of 110 women respondents from the Kudumbashree ICTs

units. For analysis Multiple Regression model, Percentile method, Case studies, Method of Averages, The Friedman Two-way Analysis of Variance by Ranks, Testing of Hypotheses and Chi-square (χ^2) Test were and applied and data thus analyzed were represented using Graphs and Diagrams.

5.14.3 Profile of the sample respondents

For studying the empowerment of women from rural areas of Kerala, respondents were selected from Kudumbashree ICTs units. To get an equal representation from the whole state of Kerala, a Kudumbashree ICTs unit each was selected from south Kerala (Trivandrum), mid-Kerala (Kochi) and north Kerala (Kozhikode). A total of 110 respondents, who belonged to various age groups, income and education level, were chosen from these selected units. A profile of the respondents on these basis's as well as their family status, caste, and different problems faced by them are presented below.

5.14.3.1 Age wise classification of the sample

A total of 110 women respondents were interviewed by the researcher from the Kudumbashree ICTs units of three regions of Kerala. The respondents were comprised of different age groups. The sample respondents classified on the basis of their age are as shown in the Table 5.9.

Table 5.9

Age wise distribution of the sample from Kudumbashree ICTs Units

Age Group	No. of Respondents	Percentage (%)
18-23	58	52.73
23-28	33	30

28-33	11	10
33-38	05	4.54
38-43	03	2.73
Total	110	100

Source: Survey

Out of 110 respondents, the majority respondents, belonged to the age group of '18-23' of years, which is 52.73% of the total. 30 respondents (30%) belonged to the age group '23-28'. 11 respondents (10%) were from the age group '28-33' years and eight respondents (7.27%) from '33-43' years. It may be inferred from Table 5.9 that the educated youth directly preferred to work and depended upon ICTs jobs. The high remuneration, white collar nature and status of the job etc maybe the factors which attracted the youth to this field. Moreover youth are more open to learning new skills and are faster in grasping knowledge about the use of ICTs. Middle-aged women are less technology friendly and hence reluctant to undertake the jobs. The average age of women employees in the Kudumbashree ICTs units was 24.22 years.

5.14.3.2 Education wise classification of the sample

The ability to cope up with new technologies is an important quality in the ICT jobs. Education helps to make basement for the aforesaid ability. Kerala is one of the highly literate and educationally advanced states in the country. Hence it is appropriate to classify the sample respondents according to their level of education.

Table 5.10

Education wise distribution of the sample Kudumbashree ICTs Units

Educational Qualifications	Professional Qualifications			
	Diplom	I.T.	Type	Tota

	a	I	writing	l
SSLC	-	-	13 (LB* 2)	13
Plus Two/ VHSC	17	12	7	36
Degree	39	10	6 (LB* 1)	55
PG	6	-	-	6
Total	62	22	26	110

Source: Survey

*LB represents trained by local body

Table 5.10 shows that highly educated professional employees were less in the Kudumbashree ICTs units. Out of 110 respondents only 6 respondents (5.45%) had completed their post-graduation degree. Those respondents who had completed their degree along with professional qualification were high in numbers i.e. 55 (50%). The respondents' who had completed SSLC with type writing or who were professionally trained was only 13 out of 110.

Table 5.10 indicates that various disciplines with computer diploma holders are higher in the number. This was mainly because those who had already acquired class room computer training were more confident in taking up Kudumbashree ICTs than those who lacked computer knowledge. Only three members had utilized the training programme of local bodies.

5.14.3.3 Employment wise classification of the sample

Employment in the Kudumbashree ICTs units can be classified into three categories viz.,

- DTP
- Hardware Assembling and
- IT Training

Table 5.11

Employment wise distribution of the sample

Types of	DTP	Hardware	IT	Total

employment		Assembling	Training	
No. of employees	85 (77.27%)	9 (8.18%)	16 (14.55%)	110 (100)

Source: Survey

Table 5.11 shows that 85 respondents (77.27%) were engaged in the DTP work of various government departments. DTP work requires mainly typing skills and basic knowledge of office software. This maybe the reason more number of women employees undertook DTP work rather than opting for teaching or hardware assembling both of which requires a different set of skills and also practice. 16 employees (14.55%) were involved in the IT training programmes of various schools.

5.14.3.4 Classification of the sample with respect to Remuneration Pattern

No specific salary scale system is practiced in the Kudumbashree ICTs units. The remuneration is based on their work. Sometimes it may be higher and sometimes lower based on the availability of work. Therefore, the researcher had to consider their average monthly remuneration for the classification. Consequently, the remuneration package of employees can be classified into following six categories. They categories are '3000-6000', '6000-9000', '9000-12000', '12000-15000', '15000-18000' and '18000-21000'.

Table 5.12

Distribution of the sample with respect to Remuneration Pattern

Remuneration/month (Rs)	No.of employees
3000-6000	37
6000-9000	38

9000-12000	15
12000-15000	12
15000-18000	6
18000-21000	2
Total	110

Source: Survey

Table 5.12 shows that 75 respondents (68.18%) of the sample lie in the salary group of Rs‘3000-9000’per month. The average monthly remuneration among the given Kudumbashree ICTs employees is Rs8263 which is higher compared to the remuneration in the other Kudumbashree non-ICTs sector in Kerala.

5.14.3.5 Classification based on problems faced by the Kudumbashree ICTs units

Despite the success and strengths, various Kudumbashree ICTs units are constrained with several major and interdependent weaknesses such as Absence of regularity in the orders of work received, delay of payment, absence of macro level co-ordination, limitation of up gradation and modernization etc. These can be explained as follows

a) Absence of regularity in the orders of work

The works done by Kudumbashree ICTs units depend upon the work orders from various government department, on-government departments and NGOs. Due to the communication gap and state wise or district wise lack of co-ordination, some units face limitation of work as they are unaware of available work. This irregularity brings about instability in flow of income thereby causing the women employees to lose their confidence.

b) Delay of payment

The major challenge faced by the units under study was delay in payments from various departments for the work done. This has put the members to considerable difficulty. Whether the unit gets money from agency it undertakes work or not, payment of wages to outside workers employed by the unit has to be prompt. Under these circumstances the units have to they had to find their own resources. In this respect, it is important to note that even a work undertaken from government in no way guarantees payment in time. Added to this is the fact that since there is no formal contract entered into when undertaking the works, these units are more vulnerable in the case of non-payment. This has also resulted in unstable income flows. There should be arrangements taken for spot payment to the units and mechanisms to meet the losses met by units in case of delay in payments.

c) Co-ordination

To organize the functions of Kudumbashree ICTs units, state wise and regional wise systematic administration should be formed. It is necessary to find out the general solutions for the problems like absence of work, infrastructural problems and for updating the training programmes. The Consortium of Kudumbashree ICTs units provide co-ordination of all functions of ICTs units in Kerala which has to be made more effective.

d) Up- gradation of Training

To meet challenge of daily knowledge explosion in the IT sector, continuous training programmes, updated technology and improvement in knowledge of women employees on such state-of-the-technology should be undertaken by the local authorities through training centers. There is also the case of meeting the competition from other such women oriented co-operative sector units and private parties. To meet such competition the women from the

Kudumbashree ICTs sectors must be regularly trained to meet the changing external marketing.

5.14.3.6 Classification based on Earlier Family Income and Marriage status of the sample

The concept of Kudumbashree came up with an aim to empower the weaker sections of the Kerala society. It is clear from the Table 5.12 that Kudumbashree ICTs jobs have improved the women's earning through employment. The earlier studies related to Kudumbashree units also indicate that, it was a good model for poverty alleviation, employment generation and thus empowerment of rural women.

Table 5.13

Earlier Family Income Status and Marriage status of Kudumbashree ICTs Units employees

Income Status	Marriage Status		
	Unmarried	Married	Total
BPL	25 (22.73%)	78 (70.91%)	103 (93.64%)
APL	04 (3.63%)	03 (2.73%)	7 (6.36%)
Total	29 (26.36%)	81 (73.64%)	110 (100)

Source: Survey

Table 5.13 shows that 103 respondents (93.64%) were members from Below Poverty Line (BPL) Families when they joined for the Kudumbashree ICTs jobs. Another remarkable point was majority (73.64%) of workers came in to this field after their marriage.

5.14.3.7 Caste-wise classification of the sample

People belonging to various castes and religions are living in Kerala. Even though social justice of Kerala is far as better compared to other parts

of India people belonging to various backward communities are not getting enough representation according to their population.

Table 5.14

Caste-wise distribution of the sample Kudumbashree ICTs Units

Reservation Status	General	OBC	OEC	SC	ST	Total
No.of employees	41 (37.27%)	65 (59.09%)	2 (1.82%)	2 (1.82%)	0	110 (100)

Source: Survey

The Table 5.14 shows that majority (59.09%) of respondents belong to OBC categories and general category (37.27%). Only two respondents each belong to schedule caste (SC) and OEC category. A sad fact was that no respondents were belonging to schedule tribe (ST) category. The Local bodies should undertake more activities to initiate the people belonging to ST category for taking part in Kudumbashree ICTs units and regulate & control their functions.

5.14.3.8 Job opportunities to women in Kudumbashree ICTs units

The responses of the selected sample in relation to the question of 'women's opportunities in the ICTs sector' is given below in the Table 5.15

Table 5.15

Job opportunities to women in Kudumbashree ICTs units

Responses	Strongly agree	Somewhat agree	Do not know	Disagree	Total
No. of Respondents	79 (71.82%)	22 (20%)	9 (8.18%)	0	110 (100)

Source: Survey

Majority of the respondents claimed that Kudumbashree ICTs units provide large employment opportunities for the improvement of females' life. Out of 110 respondents, 101 respondents (91.82%) positively responded to this question. The notable fact was that no respondents negatively responded to the query. Similarly, only nine respondents (8.18%) provided with the response 'Do not know'.

5.14.3.9 Observing behaviour of Kudumbashree ICTs units workforce towards current affairs

Observing current affairs is a daily practice in the life of people of Kerala. Earlier studies have indicated that Television plays a major role in improving general awareness of the people.

Table 5.16

Observation of Current affairs-Kudumbashree ICTs employees

Response	Yes, watching	No	Rarely	Total
No.of Respondents	92	0	18	110

Source: Survey

The Table 5.16 shows that 92 respondents (83.64%) were eagerly observing current affairs and knows what happens in the world today. The notable fact was that those female respondents were watching TV and radio for entertainment as well as for informative purposes.

5.14.4 Factors influencing Financial Empowerment

The study aims to analyze the factors influencing financial empowerment (y_i) of the female ICTs employees in the context of

functioning of the family. A multiple regression model can be developed to understand the direction and magnitude of each influencing factor of financial empowerment.

The model that we fit for study is

$$\mathbf{Y_i=b_0+b_1x_1+b_2x_2+b_3x_3+b_4x_4+u,}\ \text{where}$$

- the criterion variable (dependent variable) is financial empowerment of the employees, Y_i, measured in Likert Scale and
- the predictor variables (independent variables) are
  1. Monthly salary income in rupees(x_1),
  2. Age of the Kudumbashree ICTs worker (x_2),
  3. Consumption Expenditure of family in Rupees(x_3),
  4. Decision-making power (x_4), and
- the dummy variable (u), which is measured in the scale one if satisfactory; otherwise zero.

The reason for considering x_1 to x_4 as more important is because these variables are prime factors in deciding the financial empowerment of women. The index is framed by reviewing many of the earlier literatures.

Table 5.17

Financial empowerment estimates on functioning of the family of the sample Kudumbashree ICTs units

Model	Unstandardized coefficients		Standardized coefficients	t	Sig(p)
	B	S.E	Beta		
x_1	0.336	0.122	0.318	4.591	0.001
x_2	0.668	0.101	0.623	2.249	0.003
x_3	0.703	0.12	0.669	3.505	0.001

		3			
x_4	0.951	0.117	0.921	5.616	0.001

Source: Survey & Analysis

$R = 0.923$, $R^2 = 0.672$ and $R^2_{(adj)} = 0.629$.
F value 21.24 (0.00) at 5% level of significance.

From the analysis, it was found that the critical factors influencing the financial empowerment of the female ICTs employees in the context of functioning of the family are x_1, x_2, x_3 and x_4. Rational thinking also suggests a positive association among these variables.

The result shows the value of R-square in the analysis as 62.90 per cent, so it may be inferred that the model accounts for 62.9% of variance in the financial empowerment of the Kudumbashree ICTs women employees in the context of functioning of the family. The t and Sig (p) values give a rough indication of the impact of each predictor variable – all the't' values (4.591, 2.249, 3.505 and 5.616) are big and all the 'Sig (p)' values are smaller than 0.05. Hence it suggests that all the predictor variables have large impact on the criterion variable financial empowerment.

5.14.5 Socio-Economic Enhancement indicators

In order to examine the economic and social enhancement of female employees in Kudumbashree ICTs units the following indicators have to be analyzed:

1. Financial status of the family
2. Infrastructural Development of the family
3. Standard of Living of the family and
4. Savings Level of the employees

The factors mentioned above are directly influencing the socio-economic dimensions of female Kudumbashree employees. The two indicators which were included in the study of ICTs parks viz.,

Involvement in the cultural and social activities in the workplace and interactions with friends and relatives, have been excluded due to the fact that the employees from Kudumbashree ICTs units belong to village and rural areas, so they are always in contact with relatives, friends and neighbors. Also they are engaged in the activities done in their locality and hence do not conduct cultural interactions within or with other such Kudumbashree units.

The data collected reveals that the ‘financial status of the family’ is highly influenced by the income from employment of the female member. 37.27% respondents felt very happy about their proportion of money contribution to family income. Only 8.18% of employees felt unhappy with respect to this parameter. This is because their expectation is that there will be more monetary benefit occurring in the future.

In the case of ‘Infrastructure Development’ indicator, a bright picture can be inferred. Most of the respondents had a very happy opinion with regard to this component. Only 13.64% respondents answered that there was ‘no change’ with regard to infrastructural development due to past financial liabilities of the family in the bank and other financial institutions. However, an overall analysis shows that the paid job in the Kudumbashree ICTs units helped them to improve all the given indicators.

Also, almost all employees confessed that there is sufficient improvement and enjoyment in their day-today life after having been engaged in the paid job. Only 1.82% employees had a negative attitude towards the indicator of ‘change in standard of living’. They opined that their standard of living remained as it was before joining the jobs. At the same time, 98.18% of employees admitted that the paid job in the Kudumbashree ICTs units helped to improve their various dimensions of life such as: consumption, education of children, health status etc. In

short, most of the respondents commented that good living atmosphere occurred after being engaged in the paid jobs.

However, the 'saving indictor' shows growth at a very low rate. 44.54% respondents confessed that the saving rate increased but very slowly. On the other hand, 22.73% of employees answered that there is no improvement in this component. The daily growth in the cost of living is a main hindrance to the slow growth rate of saving. However, the Kudumbashree units organize local chitties for themselves and friends in order to inculcate thrift.

Table 5.18 Analysis of Data from Kudumbashree ICTs units

Sl. No.	Indicators	Conditions				Total
		Highly Improved	Improved	Less Improved	No Change	
1	Financial Status of the family	41 (37.27)	27 (24.55)	33 (30)	09 (08.18)	110 (100)
2	Infrastructure Development of the family	09 (08.18)	39 (35.45)	47 (42.73)	15 (13.64)	110 (100)
3	Standard of living of the family	16 (14.54)	68 (61.82)	24 (21.82)	02 (1.82)	110 (100)
4	Savings level of the family	04 (03.64)	32 (29.09)	49 (44.54)	25 (22.73)	110 (100)

Source:Survey&Analysis

The column wise analysis shows that the respondents' opinions largely came under the scale of 'improved': a total of 166 for various indicators. In the same way, 153 opinions came under the column 'Less improved'. Likewise, only 51 observations come under the category of 'No change' and 70 observations on 'Highly Improved' category. So, the column wise analysis self-explains that a tremendous change has occurred in the socio-economic status of the paid employees in the Kudumbashree ICTs units.

5.14.6 Friedman Two-way Analysis of Variance by Ranks

Friedman Two-way Analysis of Variance by Ranks is used to measure the socio-economic enhancement of women through the employment opportunities in Information and communication technologies sector in Kerala with the following indicators:

- Financial Status of the family,
- Infrastructure Development of the family,
- Standard of living of the family,
- Savings level of the family

The Friedman statistic = $\frac{12}{Nk(k+1)}\sum_{j=1}^{k}(R\,j¿¿2¿)-3N(k+1)¿¿$**,**

Where,

N= number of rows,

k= number of columns

R_j =Sum of ranks in j^{th} column, and

$\sum_{j=1}^{k}$ *directs one* ¿ $\sum$ *the squares of the sums of* $\frac{ranks}{all}\,k$. ¿

H_0 = the variables supporting for socio economic enhancement of women workforce have the same distribution of scores.

H_1 = the variables supporting for socio economic enhancement of women workforce have different distribution of scores.

Table 5.19

Friedman Two-way Analysis of Variance by Ranks - Kudumbashree ICTs units

Sl. No.	Indicators	Conditions			
		Highly Improved	Improved	Less Improved	No Change
1	Financial Status of the	4	2	3	1

	family				
2	Infrastructure Development of the family	2	3	4	1
3	Standard of living of the family	2	4	3	1
4	Savings level of the family	1	3	4	2
R_j		9	12	14	5

Source; Survey&Analysis

The calculated Friedman statistic is 6.90. The F value from the Table IV of Fisher and Yeates[*14], is F (k=4, N=4, a = 0.05) = 7.80. The calculated critical value is less than table value. Hence, **the test has failed to reject H_0.** Consequently, the **Friedman statistic is significant** at a $\leq$0.05 level; therefore, it may be inferred that the aforesaid variables are significantly supporting for enhancing socio economic status of female workforce at ICTs organisations and they have same distribution score.

5.15 Empowerment through Employment

The empowerment of women through employment in the Kudumbashree ICTs units can be explained using 10 parameters. These parameters are:

- Self Confidence (C_1)
- Provides Increased Economic Prospects (E_1)
- Decision-making Power (P_1)
- Change of status in the family and community (S_1)
- Support from the family for working in the ICTs units (F_1)
- Her contribution to family income (I_1)
- Freedom in household expenditure (H_1)
- Increased Flexibility and Skill development (D_1)

[14] Table IV of Fisher and Yeats: Statistical tables for biological, agricultural and modern research, published by Oliver and Boyd Ltd., Edinburgh.

- Support from the family for sharing household responsibilities (R_1) and
- Participation in Political Activity (A_1).

With the help of notations (symbols), the functional relationship between Women Empowerment through Employment in the Kudumbashree ICTs sector, W_1, can be explained with its parameters in the following way:

$$W_1 = f [C_1, E_1, P_1, S_1, F_1, I_1, H_1, D_1, R_1, A_1],$$

Where,

W_1 = Empowerment through employment in the Kudumbashree ICTs units.

Table 5.20

Analysis of data from Kudumbashree ICTs Units

Sl.No	Empowerment Parameters	Opinion				Total (%)
		No change	Less Improved	Improved	Highly Improved	
1.	Self Confidence	6 (5.45)	21 (19.09)	44 (40.00)	39 (35.46)	110 (100)

2.	Provides increased Economic prospects	3 (2.73)	25 (22.73)	34 (30.91)	48 (43.63)	110 (100)
3.	Decision-making power	21 (19.09)	35 (31.82)	29 (26.36)	25 (22.73)	110 (100)
4.	Change of status in the family and community	4 (3.64)	12 (10.91)	40 (36.36)	54 (49.09)	110 (100)
5.	Support from the family for working in an ICTs unit	13 (11.82)	35 (31.82)	39 (35.46)	23 (20.90)	110 (100)
6.	Contribution to family income	7 (6.36)	20 (18.18)	41 (37.27)	42 (38.19)	110 (100)
7.	Freedom in household Expenditure	9 (8.18)	33 (30.00)	39 (35.46)	29 (26.36)	110 (100)
8.	Participation in Political Activity	12 (10.91)	44 (40.00)	29 (26.36)	25 (22.73)	110 (100)
9.	Increased flexibility and skill development	18 (16.36)	38 (34.55)	37 (33.64)	17 (15.45)	110 (100)
10.	Sharing the household Responsibilities	15 (13.64)	43 (39.09)	32 (29.09)	20 (18.18)	110 (100)

Source: Survey

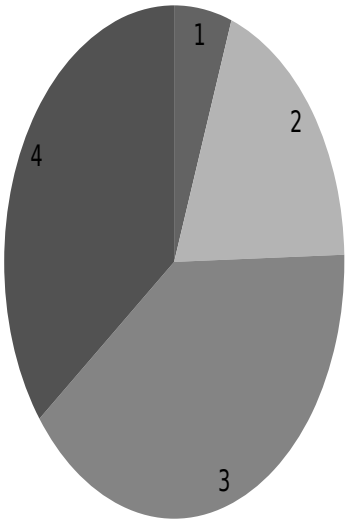
5.15.1 Self Confidence (C_1)

For empowerment to be achieved the psychological development is very necessary and by psychological development, thrust is given to developing Self confidence without which empowerment becomes meaningless. In the study, the confidence level of female employees is examined. Out of 110 respondents, 44 (40%) employees admitted that their Self confidence level improved with the ICTs jobs. Only 5.45% (6

out of 110) of employees stated that there is no change in their Self confidence even with ICTs jobs. Refer the Figure 5.5.

Figure 5.5

Opinions on Self Confidence



1. No Change
2. Less Improved
3. Improved
4. Highly Improved

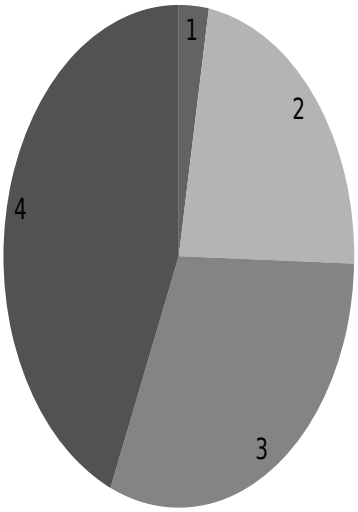
At the same time, 35.46% of respondents divulged that their confidence level had highly improved and were contented with the achievement. Majority of the respondents' (104 out of 110) view was that the jobs in the ICTs sector have helped them to improve their level of thinking and confidence in life. (Refer Table 5.20).

5.15.2 Provides Increased Economic Prospects (E_1)

Another important dimension of empowerment is Economic Empowerment. Employment in Kudumbashree ICTs units has brought about considerable economic benefits in terms of monthly remuneration for employees. Generally, this remuneration package is higher than that of the jobs in non- ICTs units in the private sector for women. (Refer the Figure 5.6).

Figure 5.6

Opinions on Economic Prospects



1. No Change
2. Less Improved
3. Improved
4. Highly Improved

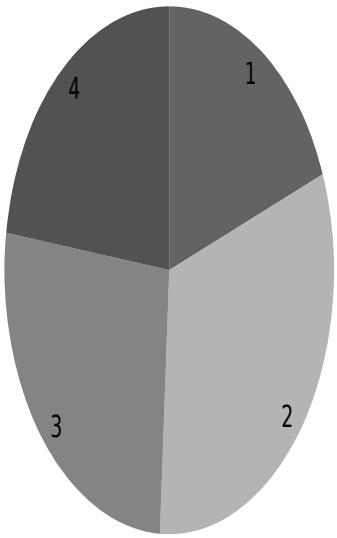
From the collected data, it is clear that majority of the respondents stated that their economic background sufficiently improved after getting a job in the Kudumbashree ICTs units. Out of 110 respondents, 48 (43.63%) employees accepted that their economic prospects highly improved with their employment at Kudumbashree ICT sector. Likewise, 34 (30.91%) employees said that not only did their economic status improve; their standard of living was also reinforced with the ICTs employment. Only 3 (2.73%) employees were not satisfied with the salary in the ICTs sector. (Refer Table 5.20)

5.15.3 Decision-making Power (P_1)

It is clear that the power to make decisions at home, in the community and state are necessary for empowerment. The respondents were of the view that there should be some immediate actions taken for providing women with the power of decision making at home and in the society. 21 (19.09%) respondents out of 110 answered that they were unhappy with respect to this parameter. That is there was 'no change' in their power to make decisions even after having joined Kudumbashree ICTs unit jobs. However, 35 (31.82%) respondents firmly believed that there was a slight positive change in decision-making power.

Correspondingly, 29 (26.36%) respondents said improvement in this aspect and 25 (22.73%) employees said that their power to make decisions at home highly improved (Refer the Figure 5.7).

Figure 5.7 Opinions on Decision Making Power



1. No Change
2. Less Improved
3. Improved
4. Highly Improved

5.15.4 Change of status in the family and community (S_1)

Majority of the respondents felt happy with respect to the status component. Out of 110 respondents, majority of female employees i.e. 54 (49.09%) acknowledged that they experienced good reputation in the family and society after joining the ICTs jobs. In the same way, 40 (36.36%) respondents answered that there was improvement and 12 (10.91%) female employees felt there was slow improvement in their status in the family and society (Refer the Figure 5.8).

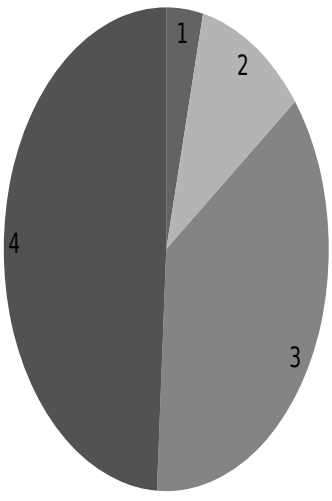


Figure 5.8
Opinions on Change of status in the family and community

1. No Change

2. Less Improved

3. Improved

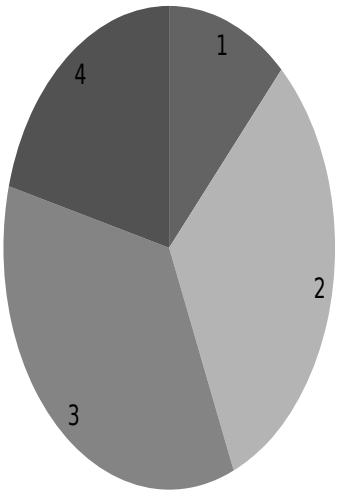
4. Highly Improved

5.15.5 Support from the family for working in ICTs units (F_1)

Majority of the employees disclosed that the support they received from family members had improved. Out of 110 employees, 31.82% (35) workers said that the support they received from inside and outside of the family was slowly improving. On the contrary, 13 (11.82%) female workers suffer from the lack of cooperation from their family. 39 (35.46%) respondents opined that there was improved support from family and 23 (20.90%) female workers were very happy with the highly improved support that they from their family and community for their work participation in the Kudumbashree ICTs units (Refer the Figure 5.9).

Figure 5.9

Opinions on Support from the family for working in ICTs units



1. No Change

2. Less Improved

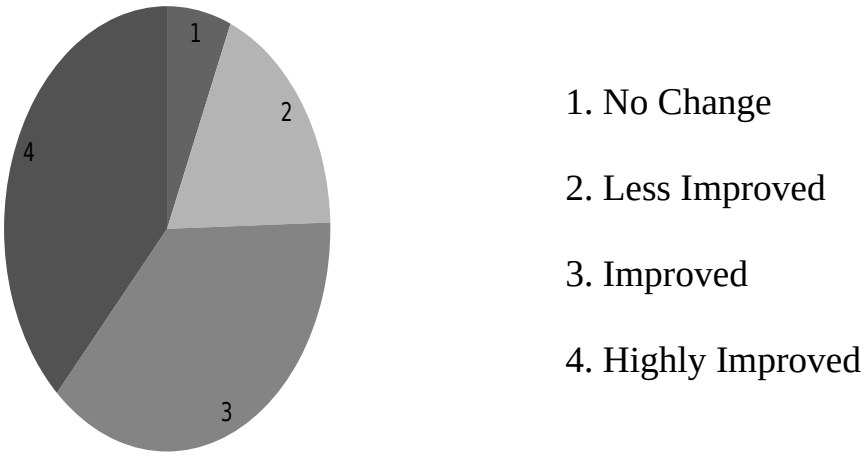
3. Improved

4. Highly Improved

5.15.6 Contribution to the family income (I_1)

To meet the high cost of living of family and also for participation in the national development, the utilization of educated females' talent with male is inevitable in a state like Kerala. Out of 110 respondents, 103 employees were satisfied with their financial contribution to family income. An interesting point to note here is that the female employees from BPL families could achieve financial safety after their participation in the Kudumbashree ICTs units (Refer the Figure 5.10).

Figure 5.10 Opinions on Contribution to family income



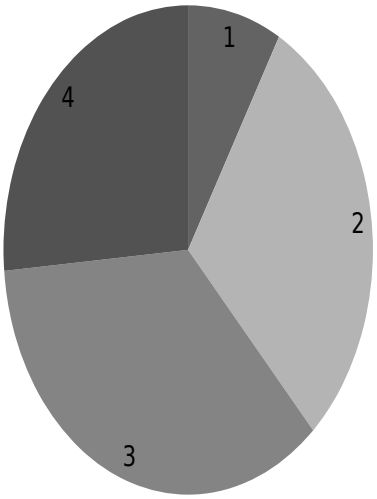
5.15.7 Freedom in Household Expenditure (H_1)

In Kerala, day-to-day expenditures and other expenses related to family are absolutely managed by the male; such as husband, father or uncle etc.. In the survey, the researcher had to observe in detail whether there is any improvement with regard to freedom in handling the household expenditure for female employees in the Kudumbashree ICTs

Units. The Table 5.20 shows that 35.46% employees (39 out of 110) acknowledged that their freedom to handle day-today household expenditure had improved. Likewise, 29 employees (26.36%) felt very happy for their highly improved freedom in household expenditure matters. Only 9 employees (8.18%) were unhappy with respect to this parameter (Refer the Figure 5.11).

Figure 5.11

Opinions on Freedom in Household Expenditure



1. No Change
2. Less Improved
3. Improved
4. Highly Improved

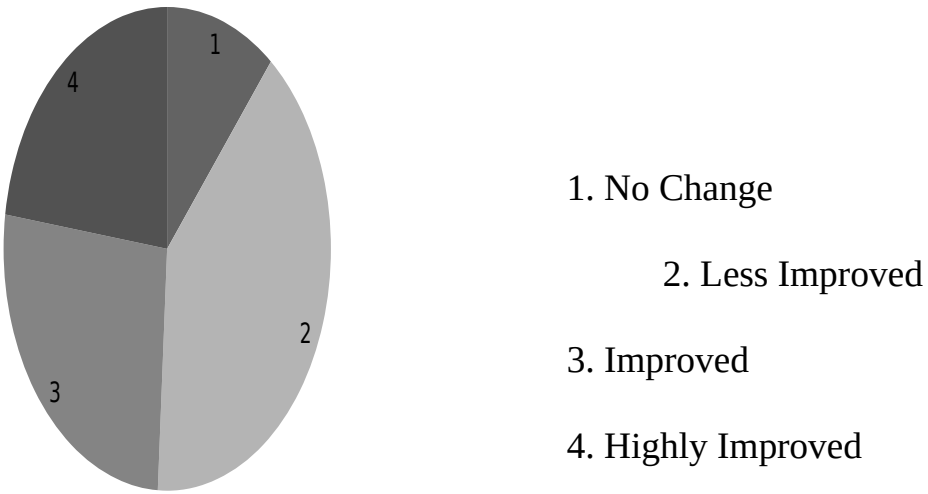
5.15.8 Participation in Political Activities (A_1)

In Kerala, 50% seats in Local Bodies are reserved for females. In additions to this the seats of President, Vice President and standing committees are also reserved up to 50% for females. An interesting point

to note here is that in prior local bodies' election, majority of female candidates came from Kudumbashree and related self-help groups.

The interaction of Kudumbashree members with Local bodies and government officials leads the way to political platform and provides them with better decision-making power. The collected data reveals that Kudumbashree ICTs units' members participate in the political activities frequently. 22.73% of sample (25 out of 110) respondents have highly improved their political dimension after joining ICTs jobs. Similarly, 29 respondents said their participation in political activities improved and 44 respondents felt they are slowly improving with regard to developing political dimensions. Only 12 (10.91%) respondents felt there their employment status did not bring about any change in participation in political activities (Refer the Figure 5.12).

Figure 5.12 Opinions on Participation in Political Activities



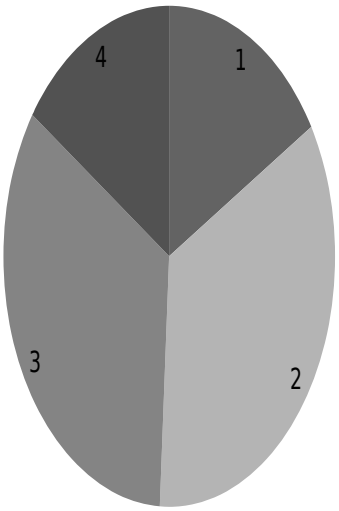
5.15.9 Increased flexibility and skill development (D_1)

Increased flexibility and skill development is another parameter for empowerment**.** In the given sample, 37 respondents (33.64%) admitted that there was improvement in flexibility and skill development through Kudumbashree ICTs jobs. In the same sense, 15.45% respondents (17

workers out of 110) said that their flexibility and skill development highly improved due to involvement in this work and 38 female employees (34.55%) opined that there was slow improvement. However, 18 employees (16.36%) were unhappy with respect to this parameter (Refer the Figure 5.13).

Figure 5.13

Opinions on Increased flexibility and skill development



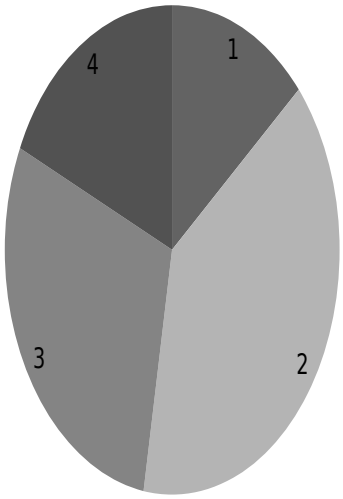
1. No Change
2. Less Improved
3. Improved
4. Highly Improved

5.15.10 Sharing the household responsibilities (R_1)

The women in Kerala are burdened still with traditional expectations of particular roles in family and in society. In the given sample, 15 female employees out of 110 [13.64%] felt that their domestic responsibilities are being affected by the working hours. Respondents reported that, when children or husband or relatives were sick at home or hospital, it is women who are typically expected to take leave off from work (Refer the Figure 5.14).

Figure 5.14

Opinions on sharing the household responsibilities



1. No Change

2. Less Improved

3. Improved

4. Highly Improved

29.09% respondents (32 out of 110) said that the sharing mentality of husband and relatives in the household responsibilities improved and 20 respondents (18.18%) felt that there was high improvement with respect to this parameter. Likewise, 43 respondents expected that there would be further improvement in the sharing mentality of family members (Refer Table 5.20).

However, the distribution of sample in the category 'no change' for the given parameters calls for some remedial measures to be implemented for the improvement of employees' standard of living. The Table 5.20 shows that there is high number in the 'no change' opinion group with regard to the three factors for empowerment viz., (1) Decision-making power, (2) Increased flexibility and skill development and (3) Household responsibilities. 19.09% (21 out of 110) respondents were not contented

with the decision making parameter. This is because the decisions continued to be absolutely controlled by guardians. 18 respondents out of 110 (16.36%) suggested that suitable measures have to be initiated for improvement of flexibility and skill development parameter. 15 respondents out of 110 [13.64%] suffered from tiredness as they are burdened with complete family responsibility along with the work in the Kudumbashree ICTs units.

5.16 Analysis of the Data based on χ^2- test

In order to investigate the association of various empowerment parameters with its levels of improvement based on the collected data the following formula was used, χ^2 test has been applied (Refer Table 5.21).

$$\chi^2 = \sum (O_i - E_i)^2 / E_i$$

Where,

O_i= Observed frequency,

E_i = Expected frequency and

i=1, 2, 3….10.

H_0=There is no significant association between empowerment parameters and levels of improvement with regard to the sample.

H_1=There is significant association between empowerment parameters and levels of improvement with regard to the sample.

Table 5.21 Cross tabulation of Empowerment parameters and Levels of Improvement with regard to the sample

			Level of Improvement				Total
			No change	Less Improved	Improved	Highly Improved	
Empowerment Parameters	Self confidence	Actual	6	21	44	39	110
		Expected	10.8	30.6	36.4	32.2	110.0
	Economic prospects	Actual	3	25	34	48	110
		Expected	10.8	30.6	36.4	32.2	110.0
	Decision making power	Actual	21	35	29	25	110
		Expected	10.8	30.6	36.4	32.2	110.0
	Status in the family and community	Actual	4	12	40	54	110
		Expected	10.8	30.6	36.4	32.2	110.0
	Support from the family for ICTs job	Actual	13	35	39	23	110
		Expected	10.8	30.6	36.4	32.2	110.0
	Contribution to family income	Actual	7	20	41	42	110
		Expected	10.8	30.6	36.4	32.2	110.0
	Freedom in household expenditure	Actual	9	33	39	29	110
		Expected	10.8	30.6	36.4	32.2	110.0
	Participation in Political Activity	Actual	12	44	29	25	110
		Expected	10.8	30.6	36.4	32.2	110.0
	Flexibility and skill development.	Actual	18	38	37	17	110
		Expected	10.8	30.6	36.4	32.2	110.0
	Sharing the Household Responsibilities	Actual	15	43	32	20	110
		Expected	10.8	30.6	36.4	32.2	110.0
		Total	**108**	**306**	**364**	**322**	**1100**

Source: Survey&Analysis

0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.80

Pearson Chi-Square value is 114.982, df 27.

Table Value of Chi-square at $\alpha = 0.05$, degrees of freedom (r-1)*(c-1) = 27 is 40.113. Since the calculated value 114.982 is greater than the table value, we fail to accept the H_0 and accept H_1. Hence, it may be inferred that even though Kudumbashree ICTs jobs are contributing towards the women empowerment, the improvement in different parameters of women empowerment being statistically significant. In nut shell, the levels of improvement are significantly associated with empowerment parameters of Kudumbashree ICTs women workforce.

Since ICT revolution took place in early 1990s in India, along with the literate and urban people, the middle and high class group and the people in the rural areas were also highly benefited. During the initial years, ICT's application was only limited to the selected few, but with the intervention of International agencies along with the birth of liberalized economy by the then Finance Minsiter, Dr. Manmohan Singh, ICT spread its avenues to the rural areas. To alleviate poverty which was prevailing among the rural masses, central government with some planned economy started various rural development schemes to benefit the rural poor people. Among them, one scheme created by the central government was Sampoorna Grameen Rojgar Yojana (SGSY) which was meant for the women though men created SHGs. Following the model from Bangladesh, this scheme worked well in the initial years in the states like Andhra Pradesh, Tamil Nadu and Kerala while it totally failed in the northern India. However, this model also got stereotyped in south India without further knowledge. The SHG-bank linkage programme was not sufficient for the SHG members to run the entrepreneurship for a long time. To overcome the various shortcoming associated in the running of SHGs, further knowledge was required to smoothen the process. During that time, ICT intervened in the SHG sector and helped them to gain more knowledge on the area there by developing Kudumbashree as one of the SHGs actively participating in the Kerala economy.

Thus, a gender focused ICTs initiative involving significant state intervention has brought about positive changes to livelihood outcomes and empowerment of women. The thesis concludes that ICT as a form of new technology are socially deterministic, with varied implications for women in terms of employment and empowerment dependent on the context within which the ICTs are utilized. It shows how ICT-based initiatives empower women.

Chapter 6

SUGGESTIONS AND CONCLUSION

6.1 Introduction

Thus, a gender focused ICTs initiative involving significant state intervention has brought about positive changes to livelihood outcomes and empowerment of women. The thesis concludes that ICT as a form of new technology are socially deterministic, with varied implications for women in terms of employment and empowerment dependent on the context within which the ICTs are utilized. It shows how ICT-based initiatives empower women.

Chapter 6

SUGGESTIONS AND CONCLUSION

6.1 Introduction

The thesis identifies ways to use ICT actively and effectively to promote gender equality and the empowerment of women. It is clear that the importance of Information and Communication Technologies is not the technology as such, but it's enabling function in access to knowledge, information and communications. It is increasingly becoming the important element in today's economic and social interaction. In the span of one generation, Information and Communication Technology (ICT) has brought about a lot of changes globally. Any nation that capitalized on ICT has recognized significant returns on their initial ICT investments. Therefore, Information and Communications Technologies for Development (ICT4D) is an initiative aimed at bridging the digital divide (the disparity between technological "have" and "have not" geographic locations or demographic groups) and aiding development by ensuring equitable access to up-to-date communications technologies.

Although the role of information technology for women's empowerment acquires greatest significance yet it requires highly sophisticated and learned society as a basic ground. Close observation of the scenario in Kerala indicates that urban females are ahead of rural female in respect to women empowerment. Thus there is a need in the state to raise the literacy level and awareness among women folk of rural regions towards participation in technical education. Knowledge empowerment of rural women is one focus point where the Government policies and strategies can look for good results in bringing socio-economic upliftment to our rural economy.

The participation of woman in the labour market and in socio-economic activities is generally considered to be the threshold for empowerment and indicators of economic development of a nation. During the last few decades the participation of women in the labour market has increased remarkably in both developed and developing countries, though their distributions among the nations have been uneven and their labour force behavior differs significantly from that of men. In a developing country like India female employment is not only low but remained near stagnant over

the past few decades. Earlier the traditional family structure and social outlook in India had kept women away from obtaining adequate employment. The situation has changed and now, women are pursuing higher education and jobs in all fields.

The use of Information Communication Technologies (ICTs) helps to bridge the gap between people's opportunities for self-employment in the informal economy and the high growth sectors of the world economy. In an informal sector, workers can gain easy access to the Internet through tele-centers and obtain information about markets or administrative procedures, and to publicise their services to a wider clientele. SEWA (Self Employed Women's Association) was started using telecommunications as a tool for capacity building among the rural population. SEWA uses a combination of landline and satellite communication to conduct educational programmes on community development by distance learning. The community development themes covered in the education programs delivered include: organizing, leadership building, forestry, water conservation, health education, child development, the Panchayati Raj System and financial services.

It can be concluded that the women of Kerala is empowered through the help of information and communication technology. It has changed their position from the past. Kerala as a technologically advanced state in India is also doing a lot of projects for the women in village in general and empowerment of women in particular. It has also taken several steps and implemented various plans and policies along with government of India to eradicate poverty and bring the women into the IT related industry. NGOs and other private agencies working in the field have also extended their help to promote IT among the women. The development of IT has enabled the women to participate in the daily affairs of the state, which range from the household work to local governance.

Moreover, the studies on gender parity reveal that Kerala is the only state in India where the female labour force participation rate has declined continuously with highly educated population. The presented study is mainly concentrated on the analysis of the impact on educated female

labour market in Kerala through employment opportunities in the ICTs sector which is summarized in this chapter. This last chapter presents the conclusion of the study and suggestions also**.** The first section of this chapter includes the summary of the analysis of the secondary data, second section summaries the analysis from the primary data and third section put forward the suggestions and policy measures based on the study.

6.2 Summary of the Analysis of the Secondary Data

The study is based on primary and secondary data. Secondary data was collected from various Census reports, NSSO 66th round up, National Family Health Survey-3, Economic Reviews, Kerala Development Reports, Newspapers, Publications and Journals for analyzing the functions of ICTs sector and trends of female work participation rate in Kerala. Summary of the analysis of secondary data is given below:

- Kerala has first rank in the 'Gender Development Index' (GDI) in terms of Education and Health as compared to rest of India (Planning Commission of India, 2011).When one decomposes the GDI in terms of Education, Health and Employment the picture is quite different. The female work participation rate is ranked only 15 in Kerala compared to the rest of states in India. Impressive levels of female education and employment opportunities through globalization did not help for rapid increment of paid employment for women in Kerala.
- The study shows that Kerala ranked first in GEI (Gender Empowerment Index). At the same time, with respect to the factors which are closely relating to GEI; decision making power, mobility and control over money, gender biased violence our position is behind that of Gujarat, which had lower level of literacy rate.
- At the all India level, the Female Work Participation Rate (FWPR) increased from 19.7% in 1981 to 25.7% in 2001.But in Kerala FWPR decreased from 16.6% in 1981 to 15.3% in 2001 and also downward trend still persists. However, in Kerala women enjoy higher wage

rates for casual employment in both rural and urban areas than in other parts of the country.

- Occupational inflexibility of women, growth of violence against women: sexual violence, growth of dowry system and violence relating to dowry issues, domestic violence, rapid increase in the blind belief, etc. lead to the low FWPR in Kerala.
- Kerala ranked first in female literacy. Gender disparity is extremely low in the 10th standard and women exceeded men in Higher Secondary, Graduate and Post Graduate degrees in the Arts and science courses. However the strength of female students in the engineering colleges and technical educational institutions is less than 30% of that of the male students enrolled. In short term courses (one year or less than one year) like stenography, dress making, cutting and tailoring, secretarial practice and data preparation conducted by various technical institutions female students have good percentage (45% to 100%) in terms of enrollment.
- Clearly women have limited entry in to 'masculine' specializations but dominate in professions identified as 'feminine'. This orientation of women's enrollment in Arts and Science colleges for Degree and PG courses reveal largely a reflection of their hope for white collared jobs. Also, the gulf migration study undertaken in 2010 found that only 10% of the 3752000 migrants from the state were women.
- Educated unemployment among the age group of 18-35 is clearly a serious problem in Kerala. In Kerala, female unemployment rate exceeds that of men. Educated but unemployed women are as high as 34% in urban areas compared to about 7% for men.
- Women's job preferences have also played a role in constraining their opportunities for work. Nearly three-fourths of the unemployed women, according to the study of women's education, employment and job preferences, reported that they remained unemployed because they had not been able to find jobs of their own preferences. Of the

factors constituting preference, social status and proximity to home are the most important.

6.3 Summary of the Analysis of Primary Data

For primary data collection and analysis, the Kerala economy was divided into two viz., Urban and Rural Kerala. Urban Kerala was represented through ICTs Parks and Rural Kerala through Kudumbashree ICTs units. Further the state of Kerala was divided into three viz., south Kerala, middle Kerala and north Kerala for data collection. The findings are as follows:

6.3.1 ICTs Parks in Kerala -Study Findings

- About 70% of the female employees working in the ICTs parks fall under the age group of 18-28. The data shows that the educated youth directly preferred jobs in the ICTs sector. The attractive salary and job flexibility were what attracted the youth to this field. The median age of women employees is 25.4years.
- Majority of the employees were graduates and post graduates in various disciplines. Even among this, two-third of the employees were only degree holders with number of professional graduates being higher. Hence one can conclude that those employed at ICT parks held at least a minimum qualification of graduation further inferring that women with aforesaid qualifications have better chance of employability at ICTs parks.
- The monthly salary of the employees varies from Rs 5000 to Rs 100000. A notable point here is that at higher salary range, the numbers of female employees are very few. Mainly there were two reasons for the fewer number of female employees in higher salary scale in ICTs Parks in Kerala which can be surmised as follows

(i) After three or four years of service in industry, the female employees tend to take long leave for pregnancy/delivery and child care. So, due to the gap in the service both the evaluation criteria as well promotion possibility of such employees are affected.

(ii) The reluctance of female employees to shift from one firm to another even when offered with higher pay scales.

- It was found that the salary scale of employees depended upon their experience, qualification, performance and flexibility to work in the ICTs field. The female employees were found to be well qualified but their performance and their flexibility to work was hindered by factors like lack of family support, pregnancy, inability to cope stress due to both family and workplace responsibilities etc. This also contributed for the meagre number of female employees in higher salary scales.
- It was asserted that, in Kerala, the female employees did not face any type of sexual harassment or discrimination on sex basis in ICTs field. All respondents who worked in the various ICTs units unanimously agreed that they are safe in their workplace. This may be due to the installation of the CCTV cameras, introduction of 24X7 toll-free support number on which employees can report about an emergency, use centralized technology to monitor the speed and movement of cab drivers etc. Further to ensure safety, women employees travelling during night have guards accompanying them and are not picked up first and dropped last, a system which is strictly being followed. At the same time, other types of problems related to work occurred in the ICTs field. Many of the respondents suffered from the burden of work. Another problem faced them is stress due to heavy demand for performance. On the other hand, some of respondents enjoy their life with ICTs jobs.

- Approximately 46% respondents belonged to the BPL families and they felt that the ICTs acted as a turning point in their life. It is clear

that ICTs job is a good factor for turn of educated youth from poor income status into sound living status. In fact, the respondents from ICTs jobs, especially, females from BPL families feel their life would become enjoyable and safe.

- It was found that the representation from the SC/ST/OEC castes is less than 1% in the ICTs parks and that of OBC is around 34%. Even though people belonging to different castes are getting representation in ICTs work force it is not according to their share in total population. The reason may be due to lack of awareness about the job opportunities the lack of professional standard of females from these castes in par with their colleagues from urban/general category.
- Around 70% of the respondents claimed that ICTs sector provides large employment opportunities and externalities for bringing improvement in their life and were also very satisfied with the work culture in the ICTs parks. This may be because of the energetic and vibrant interiors of the ICT parks, friendly working atmosphere, entertaining events and parties that are organized at regular intervals etc.
- While analyzing the factors influencing financial empowerment of the female ICTs employees in the context of functioning of the family it was found that the critical factors are Monthly salary income in rupees, Consumption Expenditure of family in Rupees and Decision-making power. The predictor variable ‘age of the ICTs worker’ has only very less impact on the criterion variable financial empowerment.
- In an attempt to examine the economic and social enhancement of female employees in ICTs enterprises it was found that:
  - Roughly 70% respondents assert that their income imposes positive influence on family income but it should be noted that the family gives more importance to providing education to their children, health care, dress and other facilities to family members.

- Nearly 60% of the respondents felt that there is only slow or no improvement in the infrastructural development of the family.
- Majority of the employees (80%) disclosed that the remuneration from ICTs jobs positively influenced their standard of living after joining the ICT's parks. This is because after joining the ICT parks, due to the financial contribution of the female member into family there has been much improvement in the economic condition and standard of living of the family in general.
- With regard to disposable income the consumption level of the respondents' family has greatly improved. However, more than 55% of the respondents opined the savings level of the employees did not improve well. Main schemes of savings being accepted by the employees are chitties and saving deposits in banks.
- About 77 % respondents kept good relationship with their friends, on various ranges. Even with the job schedule they are able to communicate frequently with their relations through modern communication technologies.
- It is clear that the life of paid employees, in the ICT parks, with their families show a general improving trend, but some indicators like infrastructural development should still progress positively for best well-being of employees.
- Analysis of the socio-economic enhancement of women through the employment opportunities in Information and communication technologies sector in Kerala established that the variables, Financial Status of the family, Savings level of the family, Infrastructure Development of the family, Standard of living of the family, Interaction with family &society and Involvement in the Cultural activities, are significantly supporting for enhancing socio economic status of female workforce at ICTs organizations and they have same distribution score.

- It was found that ICTs jobs are contributing towards the women empowerment with the improvement in different parameters of

women empowerment being statistically significant. In nut shell, the levels of improvement are significantly associated with empowerment parameters of ICTs women workforce the parameters being ‘Self Confidence’, ‘Economic prospects’, ‘Decision making Power’, ‘Status in the family and community’, ‘Support from the family for ICTs job’, ‘Contribution to family income’, ‘Freedom in household expenditure’, ‘Flexibility and Skill development’, and ‘Sharing the Household Responsibilities’.

- All the theories relating to empowerment argue that Decision Making power is the threshold for empowerment. The opinion of the respondents shows that more steps have to be initiated for the establishment of power for women in the decision making process in their home and society as roughly 45% of the responded opined that there was no or only slight improvement with respect to this parameter.
- Majority of the employees stress that the support from family members is inevitable for their own development. One of the reasons may be that the distance between native place and work place is a constraint before the female employees and so for working in the ICTs units the overall support and help from family members and society is needed.
- For the well-being of the family and for the growth in and structural changes of the society the work participation of youth is essential irrespective of their gender. To meet high cost of living of family and participation in national development, the utilization of educated females’ talent with that of the male counterpart is inevitable in a state like Kerala. The jobs in ICTs sector provide gender blind white collar jobs while utilizing their brain and providing financial support to women. Majority of workers were satisfied with their financial contribution to family income.
- In Kerala, the traditional culture dictates a male dominated society. Day-to-day expenditures and other expenses related to family are

absolutely managed by the male; such as husband, father or uncle etc. In the survey, the researcher observed that around 63% there was positive improvement in the freedom to handle household expenditure for female employees after being employed in the ICTs Parks.

- Women are still burdened with the traditional expectations of particular roles in family and in society. Many female employees felt that domestic responsibilities are affected by the longer working hours. Similarly, many women discontinued software work on becoming pregnant or having children. While a little less than 50% of the respondents felt that there was improvement with respect to this parameter after they were employed at ICTs parks the other half felt that there was no change or less improvement in their situation.
- The results show that the majority of survey respondents thought that they were empowered by ICTs but that for most of the women this empowerment remained at the intrapersonal level and did not extend to the interpersonal and societal levels.
- The survey shows that there are two interesting facts relating to political aspects: (1) the companies always oppose to politics or unions' interference in the functioning of ICTs Parks and (2) the youth in the ICTs sector also have a negative attitude towards political influence in their work place. Nevertheless the respondents were happy with the payment, social security, team work, holidays, snacks, tours and other perks offered by IT companies at absence of trade unions.

6.3.2 Kudumbashree ICTs Units - Study Findings

- There are three types of ICTs based enterprise: (1) IT training units which provide IT training to Schools, (2) Data entry and digitization units which mainly create local digital content for public (and to a lesser extent private) sector organizations, but which may also do some other IT work and; (3) Hardware assembling & maintenance units, basic software and Web development work. More than 75% of

the employees were engaged in the DTP work of various government departments. DTP work requires mainly typing skills and basic knowledge of office software. This maybe the reason more number of women employees undertook DTP work rather than opting for teaching or hardware assembling both of which requires a different set of skills and also practice.

- Roughly 80% of the employees in Kudumbashree ICTs units belonged to the age group 18-28. It may be inferred that the educated female youth directly preferred to work and depended upon Kudumbashree ICTs jobs in rural areas. The high remuneration, white collar nature and status of the job etc maybe the factors which attracted the youth to this field. Moreover youth are more open to learning new skills and are faster in grasping knowledge about the use of ICTs. Middle-aged women are less technology friendly and hence reluctant to undertake the jobs. The average age of women employees in the Kudumbashree ICTs units was 24.22 years.
- 50% of the employees were degree qualified along with professional qualifications that includes training in type-writing, ITI, computer diploma etc. This may be because education forms basis for ability to cope up with new technologies which is an important quality in the ICT jobs and those who had already acquired class room computer training were more confident in taking up Kudumbashree ICTs jobs than those who lacked computer knowledge. Only three members had utilized the training programme of local bodies.
- The remuneration is based on work and the average monthly remuneration among the given Kudumbashree ICTs employees is Rs8263 which is higher compared to the remuneration in the other Kudumbashree non-ICTs sector in Kerala.
- Despite the success and strengths, various Kudumbashree ICTs units are constrained with several major and interdependent weaknesses such as Absence of regularity in the orders of work received, delay of

payment, absence of macro level co-ordination, lack of up gradation and modernization in training etc.

- The collected data shows that majority of respondents (approximately 93%) came from Below Poverty Line (BPL) Families. It is clear that Kudumbashree ICTs job is a good factor for improving standard of living of poor village women through employment. Another interesting point is majority of workers (73%) came in to this field after their marriage. This further propounds that Kudumbashree ICTs units are a good model for poverty alleviation, employment generation and thus empowerment of rural women as majority of the respondents argued that ICTs sector provides so many employment opportunities and externalities for the improvement of life of female employees.
- It was found that the representation from the SC/ST/OEC castes is less than 4% in the Kudumbashree ICTs parks. The reason may be due to lack of awareness about the job opportunities provided by Kudumbashree ICTs units.
- While analyzing the factors influencing financial empowerment of the female Kudumbashree ICTs employees in the context of functioning of the family it was found that the critical factors are Monthly salary income in rupees, Age of the Kudumbashree ICTs worker, Consumption Expenditure of family in Rupees and Decision-making power.
- In an attempt to examine the economic and social enhancement of female employees in Kudumbashree ICTs it was found that:
  - The data collected reveals that the ‘financial status of the family’ is highly influenced by the income from employment of the female member. Only 8.18% of employees felt unhappy with respect to this parameter. This is because their expectation is that there will be more monetary benefit occurring in the future.
  - In the case of ‘Infrastructure Development’ indicator, a bright picture can be inferred. Only 13.64% respondents were of the opinion that there was ‘no change’ with regard to infrastructural

development due to past financial liabilities of the family in the bank and other financial institutions.

- 98.18% of employees admitted that the paid job in the Kudumbashree ICTs units helped to improve their various dimensions of life such as: consumption, education of children, health status etc. In short, most of the respondents commented that good living atmosphere occurred after being engaged in the paid jobs.
- The 'saving indictor' shows growth at a very low rate. Around 67% respondents confessed that the saving rate increased but very slowly or that there is no improvement in this component. The daily growth in the cost of living is a main hindrance to the slow growth rate of saving.
- It is found from the Friedman test that the variables: Financial Status of the family, Infrastructure Development of the family, Standard of living of the family, Savings level of the family are significantly supporting for enhancing socio economic status of female workforce at ICTs organisations and they have same distribution score.

- Techno World III, near civil station-Kozhikode, is a Kudumbashree ICTs Unit initiated on 18/03/2004 by ten women belongs to below-poverty-line rural families. Life of the aforesaid organisation is a best example for economic empowerment of women Kudumbashree ICTs Unit.
- It was found that ICTs jobs are contributing towards the women empowerment with the improvement in different parameters of women empowerment being statistically significant. In nut shell, the levels of improvement are significantly associated with empowerment parameters of ICTs women workforce the parameters being 'Self Confidence', 'Economic prospects', 'Decision making Power', 'Status in the family and community', 'Support from the family for ICTs job', 'Contribution to family income', 'Freedom in household expenditure',

‘Flexibility and Skill development’, ‘Sharing the Household Responsibilities’ and ‘Participation in Political Activity’.

- Majority of the respondents’ (75%) were of the view that jobs in the ICTs sector have helped them to improve their level of thinking and confidence in life. They also held that they were contented with this achievement.
- Employment in Kudumbashree ICTs units brought considerable economic benefits by way of monthly remuneration for employees. The remuneration package it was found was higher than jobs in non-ICTs units in the private sector for women.
- 85% of respondents acknowledged that they experienced good reputation in the family and society after joining the ICTs jobs and around 56% were happy to acknowledge there was improvement in the support that they received from their family and community for their work participation in the Kudumbashree ICTs units
- To meet high cost of living of family and participation in national development, the utilization of educated females’ talent with male is inevitable in a state like Kerala. Majority of employees (94%) were satisfied with their financial contribution to family income. An interesting point is that the female employees from BPL families got financial safety after their participation in the ICTs sector.
- In Kerala, 50% seats in Local Bodies reserved for females. In additions to this; the seats of President, Vice President and standing committees are also reserved up to 50% for females. An interesting point is, in last local bodies election, majority of female candidates came from Kudumbashree and related self-help groups. The collected data reveals that Kudumbashree ICTs units’ members participate in the political activities frequently. Having said this, it was found that there was a mixed opinion among the respondents with regard to improvement in developing political dimensions and their participation in political activities.

- It is to be noted that there is high number in the 'no change' opinion group (in comparison to other parameters) with regard to the three factors for empowerment viz., (1) Decision-making power (19.09%), (2) Increased flexibility and skill development (16.36%) and (3) Household responsibilities (13.64%). The reason respondents were discontented with the decision making parameter was because the decisions continued to be absolutely controlled by guardians. With regard to the household responsibilities the dissatisfaction arose as the female employees had to suffer from tiredness as they are burdened with complete family responsibility along with the work in the Kudumbashree ICTs units.
- χ^2 test confirm that there is significant association between aforesaid empowerment parameters and levels of improvement with regard to the sample thereby substantiating that women's employment in the Kudumbashree ICTs units are significantly supporting for empowerment.

6.4 Suggestions and Conclusion

- The role of women in procreation should not be a basis for discrimination. Many women discontinued software work on becoming pregnant or having children in the urban areas. There is no clear defined law to support women in the ICTs sector when they become pregnant. The government should implement leaves and other monetary directions to support them. There is a need for more explicit, detailed, fully structured and relevant regulations, guidance specific to the ICTs parks. Health risk assessments both pre-employment and periodic for employees should be conducted. Length and frequency of breaks should be adequate. Full time counselors are needed to strike a balance between physical and mental rhythm to synchronize body clock.
- The employees of ICT parks would work long-even continuous-hours in order to finish projects on time. So, implement attractive overtime

allowances, cultural programmes and tour packages for the employees in order to motivate them further.

- The distance between native place and work place is a constraint before female employees of ICTs parks. In Kerala, the ICTs parks are located in Kochi and Trivandrum. Provisions must be made for better accommodation facilities and also for family relocation.
- Along with their technical training, women in the ICTs parks desperately need training in how to promote them-selves effectively and how to get over undue modesty and to create a positive attitude. At the same time, their male colleagues need training to recognize such behavior as appropriate to the competitive nature of the field, and not just some woman's "aggressiveness."
- In order to create a demand-driven ICT consumer community in rural areas, hindrances to accessibility must be significantly reduced either before or during the provision of the technology. This necessitates training and skills enhancement initiatives amongst other participatory development programs such as focus group discussions, direct interviews and workshops which shall be done by the local authorities through training centers. There is also a requirement for the development of professionals and teachers as viable intermediaries in bridging the digital divide experienced by low-literate or illiterate youth in school education programs in the rural areas which is of crucial importance.
- The study also indicates that as days passes the ICT enterprises are facing difficulties to get adequate inputs/resources, facing sustainability issues and also various challenges like delay of payment ,technological obsolesces and stiff competition from the digital market Etc. It is the high time for the agency (Kudumbasree) and government to act and support this innovative ICT based women empowerment and poverty alleviation progarmme for sustainable Kerala future. The Local bodies have more rules to initiate for Kudumbashree ICTs units and regulate & control their functions.

- The Consortium of Kudumbashree ICTs unit which provides co-ordination of all functions of ICTs units in Kerala should make arrangements for spot payment to the units.
- To meet challenge of daily knowledge explosion in the IT sector, continuous training programmes, update of programmes and knowledge of women employees shall be done by the local authorities through training centers.

- It has been established that the enactment of a State Policy on ICT development does not guarantee the efficient and effective use of ICTs, especially by marginalized rural communities. Special efforts must be made to involve rural communities. This would require policies that encourage competition between various stakeholders in the telecommunications industry, policies that govern the costs of ICTs, and policies that govern connectivity in areas that are not commercially viable. As women form the majority of most rural households, special efforts have also got to be taken to involve women in development initiatives such as skill enhancement programs, participatory mechanisms and follow-up programs.
- To give the females belonging to the SC/ST/OBC/OEC an edge in competitive job market, the Government and Women's Welfare Associations must implement training and awareness programmes for them in district headquarters. The aim of such initiatives must be to improve the professional standard of these females and help them to be on a par with their colleagues from urban/general category. The same must be done for initiating the aforesaid females to participate in Kudumbashree ICTs units.
- Women generally have heavy responsibilities, particularly those involving their families, which result in time constraints. It is therefore imperative that ICTs are incorporated not only according to the information needs of women, but also in light of other activities and projects aimed at empowerment, e.g. women's NGOs, health centres, educational institutions, self-employment and entrepreneurial centres.

In this way, women would be able to experience the tangible use of ICTs.

- Conduct a feasibility study/needs assessment survey in order to determine the availability of physical infrastructure, and the gender dynamics/demographics of the community - percentage of women, age groups, occupations and education levels - before project implementation.
- Promote the participation of female beneficiaries in the planning and implementation of computer/internet initiatives from the initiation phase to the implementation phase.

The personal and academic process for this thesis has been by turn engaging and frustrating, fast moving and turgid, painful and delightful, but always and endlessly fascinating. It was challenging both personally and mentally to weave this thesis from the interdisciplinary strands that the complexity of empowerment invoked. Politics, statistics, culture, economics, sociology, gender, and policy at the least are elements in its construction and so were needed for its investigation and understanding. It was also needed to understand how empowerment was constructed by, implicated in, and influenced by all of these.

Therefore, in Chapter 1, the thesis was introduced with a short biography to contextualize itself within the theoretical positions that was taken. The chapter proposed the primary significance of the thesis in the attempt to find a connection between women's empowerment and ICTs as posited by various authors throughout the world. The further helped in developing a unique questionnaire to collect data to test this connection. It investigates women's experiences of empowerment since their training in and use of ICTs, using qualitative and empirical data to do so. In the methodology section, the thesis was positioned within the rights based approach to human development to demonstrate that most countries that are signatories to UN declarations and conventions on human rights, and women's rights in particular, have failed their commitments. The chapter further describes

how feminisms, social constructivism, development alternatives, and forms of text are used in mass media, power, economics, and politics, and conspire to subsume women's empowerment. This information is to contextualize women within the social, economic, and political constructs where ICTs are said to empower them.

The chapter brings to light the fact that social change resulting in women's empowerment will occur as a result of their using ICTs. Governments have universally adopted this standpoint despite its lack of historical precedent, and in the face of the failure of other forms of communication and other technologies to produce such profound change. Women's empowerment, synonymous with their human rights, is what has been sought historically by suffragettes, and women's liberation movements. Gender equality in access to and equitable exercise of power, including "women's interests" is central to society, and therefore an essential part of social and economic policy, is the basis of gender justice. Paradigmatic change necessarily needs to occur on personal, community, and structural levels to include ideologies, institutions, and practices that perpetuate or militate against gender equality and the full attainment of women's empowerment.

Governments' state that, through their learning and use of ICTs women becomes empowered to participate in making change. They specify the nature of that change in the need for women to challenge patriarchy, the entity identified by feminists as being instrumental in maintaining gender bias. They have instituted women's empowerment through ICTs initiatives for them to challenge patriarchy, and in so doing, deterministically tie that change to technology.

The chapter, through theoretical perspectives and literature reviews, established that women's empowerment is contingent upon fundamental social changes to be realized. The fundamental changes required hinge on a redistribution of power that would see the eradication of gender-based discriminations and the achievement of gender equality. This redistribution of power would see structural, cultural, political, and economic changes

demonstrative of gender equality. Statistical indices ought to include welfare, social values, personal security, equal opportunity of employment, equal pay, access to resources, political participation and representation, for example, which are experienced differently by gender. Exclusion of these and the voluntary and domestic work that is done largely by women, devalues the nature of and need for that work, and ignores its social and economic value to the nation and family. Without their inclusion, the economy is structured as something outside of, rather than intrinsic to the social realm.

Women's economic empowerment includes their working with ICTs, which has implications in workplaces, structures, skill definition and acquisition, and education, which are all affected by gender perceptions and practices, and patriarchy. Recent research and currently available data show that generally women are not reaping the proposed rewards of empowerment. Concurrent changes through social and economic policy and appropriation, for example, manifest their detrimental effects on the status of women's work and its remuneration, further degrading them. The imposition of social and economic policy changes has produced a remarkably similar constellation of effects throughout the world. Of primary concern is that men still control structural, institutional, and political power over women's lives: patriarchy and the gendered *status quo* prevail.

The chapter also throws light on women's work and ICTs in relation to skills upgrading and education. In this discussion, it was found that the various definitions of work and skill morph and that as work and skill become associated with the female they are devalued. Such redefinition of work and skill allows that which is male-associated to be vaporized over that which is female-associated, which perpetuates the notion of male supremacy over women. The redefinition and revaluation of work and skill result in, and maintain masculinist workplaces and work hierarchies that are male-dominated. Therefore, the social changes required for women's empowerment involve, in part, the severance of such invalid, restrictive, and unconstructive dichotomies that operate to the detriment of both sexes.

Chapter 2 gives a detailed description about women in Kerala in general and their empowerment status in particular. While taking an effort to describe the features of Kerala economy, a clear picture about the labour markets and employment opportunities for women has been depicted in this chapter. Gender wise literacy rates, educational status and demographic transition are portrayed with the help of specific data and graphs. The chapter concludes that the work participation of females is declining even though female education in the state is making headway. Faulty education system in the state of Kerala, predominance of arts and science colleges with conventional courses, increasing rate of attack against women, very minimum rate of female migration, women being unable to find jobs of their own preference, religious beliefs, limited entry of women in to 'masculine' specializations but domination in professions identified as 'feminine' traditional concepts, inflexibility of women in labour market, gender discrimination etc are some of the factors identified leading to low work participation of women. The male migration have affected the reservation wages of many women in the upper and middle classes of Kerala, many of whom choose to remain unemployed until they find professional jobs to their liking.

Chapter 3 deals with Information and Communication Technologies (ICTs) in Kerala. It shows the impact of policies, economic rationalism, workplace restructuring, and the effects ICTs can have in a workplace. There are some important notions generally associated with ICTs that also have implications for women and their empowerment. E-democracy, e-commerce, e-government, e-governance, and the information superhighway and society all have been cited as empowering spaces for women. There is evidence that shows that women do have a positive effect in politics, accountability, governance, corruption, transparency, and representation, but this essential knowledge is not maximized and instituted as central to human and national development. The realisation of that knowledge is foundational to women's empowerment. What prevents that realisation is

patriarchy; hence challenging patriarchy is the basic and ultimate goal of women's empowerment.

Whilst there are many advantages to ICTs, their integration into our lives also brings contentions about globalisation, trade, freedom of information, human rights, development, colonisation, and censorship, for example, to the fore. International and national laws and conventions are formulated largely for the convenience of inter- and transnational corporations and for political purposes. The processes of these are generally undertaken by men and male-dominated bodies as worldwide, men predominate in decision-making and power-broking bodies. ICTs for women's empowerment proponents acknowledge therefore, that women's decision-making capacity is essential for their empowerment. They claim that ICTs enhance that capability. The endurance of male-domination in decision making and power-broking bodies, patriarchy in action and *in situ*, strongly suggests that non-ICTs related factors are more powerful and prevalent and are apparently not amenable to the claimed benefits of ICTs.

Some of the elements of the change to which women empowered through ICTs are supposed to aspire are political and include equal gender representation in power broking and decision-making bodies, consideration of the differential impact of social and economic policies on men and women, workplace structures and work relations, and discourses that morph meanings and turn them to their own means. ICTs may be involved in the processes required to do so, but not in the making of the decision upon which equality depends. Only people can make the ethical decision required.

In short, Chapters 1- 3 constitute the first part of this thesis. In them, the circumstances under which ICTs operate in the real world are presented and contextualize the women who participated in the data collection for this thesis. Chapters 4-6 constitute the second part of this thesis. In them, the analysis of the collected data is presented and discussed.

Chapter 4 and 5 constitutes processes for the construction, trialing, and dissemination of the questionnaire, and socio-economic analysis of female employees in ICTs parks and ICT Kudumbashree units in Kerala.

The study presents findings from two various ICTs initiatives in Kerala, ICTs Park and Kudumbashree ICTs Units, showing significant impacts on Women's employment, income, social roles and empowerment of poor women. ICT initiative is "gender blind" and pursued within the globalised, competitive context of an increased role for markets and its 'flexibility' has generally reinforced gender inequalities. By contrast, a gender focused ICTs initiative involving significant state intervention has brought about positive changes to livelihood outcomes and empowerment of women.

It can generally be concluded that Information and Communication Technologies can be effective instrument for increasing choices for women particularly, rural women, for multifaceted empowerment. The ICTs can be effective tools to expand the knowledge among the rural women and that can enhance their abilities to negotiate for their resource share and participation. But it would be important to review the potential for ICTs in two broad approaches namely, their application directed to rural women as primary users of this technology and their application directed to improve the quality of life in rural communities that would assist rural women to improve their lives.

Information and Communication Technologies (ICT) are for everyone and women have to be an equal beneficiary to the advantages offered by the technology, and the products and processes, which emerge from their use. The benefits accrued from the synergy of knowledge and ICT need not be restricted to the upper strata of the society but have to freely flow to all segments of the women population. The gamut of areas in which ICT can put a greater control in the hands of women is wide and continuously expanding, from managing water distribution at the village-level to standing for local elections and having access to lifelong learning opportunities. ICT in convergence with other forms of communication have the potential to reach those women who hitherto have been not been reached by any other

media, thereby empowering them to participate in economic and social progress, and make informed decision on issues that affect them.

The study explores the avenues created by ICT enabled networking processes for women in the areas of empowerment and governance, the hindrances faced in engendering of these processes and goes on to suggest ways to ensure that greater benefits accrue to women in a distributed manner. Women are the source of wealth in any given culture or community because of the numerous roles they play. The entire study comprehensively looks on their relevance for the global prosperity with their active role in achieving the target. This study concludes that ICT as a form of new technology are socially deterministic, with varied implications for women in terms of employment and empowerment dependent on the context within which the ICTs are utilized. It shows how ICT-based initiatives empower women.

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APPENDIX

SCHEDULE

ROLE OF INFORMATION & COMMUNICATION TECHNOLOGIES (ICTs) FOR WOMEN EMPOWERMENT : A KERALA EXPERIENCE

I am Dinesh.M.P. , Research Scholar, Department of Economics, University of Calicut. For the above study, please give your valuable opinions on the following;

Q1.Name & Address of the Respondent;

1 a. Marital Status: 1. Married 2. Unmarried 3.Divorcee 4.Separated 5. Widow
1b Monthly family Income(in Rs.) 1. 50000- 15000 2. 15000-25000 3. 25000-45000 4. 45000-65000 5. 65000-85000 6. 85000-100000 7.Above 100000
7.Above 100000. Please specify ……..
1c.Residential Location: 1.Rural 2.Urban
1d Religion & caste : SC /ST /OBC /Others , Specify ……..
Q 2.Details of Family members;

Sl.No:	Name	Relation	Age	Sex	Occupation	Education
1(Self)						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Code:
Relationship
1. My self 2.Wife/Husband 3.Father 4.Mother 5.Son 6.Daughter 7. Daughter in law 8. Grand father 9.Grand mother 10.Grand son 11.Grand daughter 12.Others

Age (in years)
1) 18-23 2) 23-28 3) 28-33 Years 4) 35-38 5)38-43

Sex: 1.Male 2. Female
Occupation
1. Housewife 2. Unemployed 3. Student 4.Salaried employee
5. Trade/Business/Self employed 6.Farmer 7.Labourer 8. Others.

Education
1.School educated 2.College educated 3.Technical/Vocational
4.Others. Please specify details…….

Q 3.Do you agree the development of ICT and its applications in day today life in the office, home and market have made your life more easier than earlier?

1.Strongly agree 2.Some what agree 3.Neither agree nor disagree 4.Disagree 5.Can not say

Q 4. What are the purposes for which you take the help of ICT in your daily life? **[multiple answer)**

1. For communication with friends, relatives and clients.
2. To get information on the market and for shopping
3. Booking the tickets for travelling.
4. To get information on different subject of interest
5. For banking and insurance purposes
6. Any other purposes , please specify:

Q 5. Which is the best source of information that helps you in getting facts about your state, country and the world?

1. Television 2. Internet 3. Print media 4. Radio
5. Any other, please specify…….

Q 6. The use of internet has made everyone's life more easier.

1. Strongly agree 2.Some what agree 3. Neither agree nor disagree 4. Disagree 5. Cannot say

Q 7. Do you have easy access to internet at your place?

1. yes 2. No

Q 8. If yes, where do you access internet services?

1. Home 2. Office 3. Cyber Café 4. Any other please specify…….

Q 9. How often do you use internet?

1. Rarely 2. Once a week 3. Daily 4. As and when necessary 5. Never

Q 10. What are the reasons for not having easy access to internet?

1. No cyber café at my locality 2. Less number of cyber cafes
3. Cyber cafes are costly 4. Any other, please specify……..

Q11. Why do you use internet?

1. E-mails. 2. News 3. Study 4. Shopping 5. Booking tickets for traveling/ movies, etc. 6. Any other , please mention…….

Q 12. Do you have the facility of cable television?

1. Yes 2. No

Q 13. Which kind of programs do you love to watch?

1.Family serials 2. Movies 3. News 4. Sports 5. Education 6. Music 7. Any other, please specify……..

Q 14. How often do you watch news and educational channels in different TV channels?

1. Rarely 2. Once a week 3. Daily 4. Never

Q 15. Do your job needs the application of ICT?

1. Yes 2. No

Q 16. Have you taken any kind of training or exposure in the field of computers?

1. Yes 2. No

Q 17. If Yes , whether your training is formal or non formal:
1. Formal 2. Non - Formal
Q 18. If formal, then please specify the details of your training?

Name of the institute	Name of the Degree/Diploma	Duration of the training	Private or government institute	Cost of the training

Q 19.If non-formal, what is the source of your training?

Name of the institute	Name of the Degree/Diploma	Duration of the training	Private or government institute	Cost of the training

Q 20.After your training did you apply for any jobs?
1. Yes 2.No
Q 21.After your training how long have you remained unemployed?
Please specify the period……..
Q 22.What is the reason for not getting any employment?
1. Not interested 4.Family restriction
2. Could not find a good remunerative job. 5.Overburdened with household activities
3.No opportunity in my town/village 6.Anyother ,please specify ……
Q 23.Currently are you working in any kind of Pvt./Govt./Kudumbashree/Co-operative/NGO organizations or have you started any private firm of your own in the field of ICT?

Please, mention: ……

Q24. If private firm, then please specify ……..

Q 25. Are you working as a full timer or a part timer?
1.Full timer 2,Part timer
Q 26.Please specify the nature of job you are doing,
1.Data entry 2. Working in call center 3. Running a PCO
4.Software development 5. Hardware development 6.Computer Assembling
7. Working in private telecom sector 8. Banking 9. Insurance
10. Printing and publishing 11. Documentation work 12. Electronic media
13. Print media 14. Any other, please specify……
Q 27. In which position, are you serving in your office?
1.Management and decision making authority 2. Mere employee
3. Sole proprietor 4. Self employed 5. Please specify, Position …. ……
Q 28. Are you satisfied with the work culture in your office?
1. Yes 2. No
Q 29. If no ,what kind of problems you are facing at your working place?
1. Sexual harassment 2. Burden of work 3. Demand for performance 4.Any other, please specify……
Q 30. What have you done to solve these problems.

……

Q 31.Approximate number of hours spent at work per day: ……..

Q 32. What is your monthly remuneration in Rupees:

1. Below 5000 2. 50000- 15000 3. 15000-25000 3. 25000-45000 4. 45000-65000 5. 65000-85000 6. 85000-100000 7.Above 100000

Please specify ……...

Q 33. Being an employed woman,are you getting leisure time to look after your family and your health?

1. Yes 2. No

Q 34.Do you feel proud as an employed women? 1. Yes 2. No

Q 35. Do you suffer from any kind of illness due to your job profile?

Please mention: ……

Q 36. Being an employed woman, are you getting the freedom in the decision making of your family?

1. Yes 2. No

Q 37. Please give your opinion on the following statements.

1. Strongly agree 2. Some what agree 3. Neither agree nor disagree 4. Disagree 5. Cannot say.

37a The government is giving sufficient support to provide ICT Education to the women in your area.	
37b. ICT has provided the women opportunity to work from home and earn.	
37c Working from home have resulted in curbing the leisure hours of women.	
37d ICT has helped women folk in India to know about what is happening in the country and outside.	
37e.Rural women folk is deprived of ICT infrastructure.	
37f.Women still want to make use of ICT for their next generation development.	
37g.Entry of women work force in ICT industry is affected by their socio-economic and educational background.	

Q 38. Membership in any Professional Organisation /Union? 1.Yes 2.No

Please Specify ……..

Q 39 Comments on Empowerment Parameters:

Sl.No.	Empowerment Parameters	Opinion				Total (%)
		No change	Less Improved	Improved	Highly Improved	
1	Self Confidence					
2.	Provides increased Economic prospects					
3.	Decision making power					
4.	Change the status in					

	the family and community					
5.	Support from the family for working in an ICTs units					
6.	Contribution to family income					
7.	Freedom in household Expenditure					
8.	Increased flexibility and skill development					
9.	Sharing the household Responsibilities					

Q 40.Comments on Socio-Economic Enhancement indicators:

Sl. No.	Indicators	Conditions				Total
		Highly Improved	Improved	Less Improved	Not Change	
1	Financial Status of the family					
2	Infrastructure Development					
3	Living standard of the family					
4	Saving Level of the Employees					
5	Interaction with the family and friends					
6	Involving in the Cultural Activities					

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