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% to 15% 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\textsuperscript{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**

\begin{center}
\begin{tikzpicture}
  \node[align=center] (a) at (0,0) {
      Womens's ICT based opportunities \rightarrow
  };
  \node[draw,align=center] (b) at (3,0) {
      Assets \rightarrow
      \begin{tabular}{cc}
        Financial & Physical \\
        Human & Social \\
    \end{tabular}
  };
  \node[draw,align=center] (c) at (6,0) {
      EMPOWERMENT
  };
\end{tikzpicture}
\end{center}

\textsuperscript{1} International Data Corporation and IT Index, 2001. Outsourcing 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 (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). 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

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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
- 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 an 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 the 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 household 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 (DAWN⁴).

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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 framework 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 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, 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 The Institutional approach

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

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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 femininity 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 assess 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 ($\chi^2$) 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,

- 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:

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

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

\[
Y_i = a_0 + a_1 x_1 + a_2 x_2 + a_3 x_3 + a_4 x_4 + u,
\]

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 $= \frac{12}{Nk(k+1)} \sum_{j=1}^{k} (R_j^2 - \bar{R}^2) - 3N(k+1)$,

where,

$N$= number of rows, $k$= number of columns

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

$\sum_{j=1}^{k} \text{directs one} \sum \text{the squares of the sums of all ranks} - k \cdot \bar{R}$

1.12.3 Chi-square Test ($\chi^2$ 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, $\chi^2$ test has been applied.

$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$

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 into 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