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ICT AND EMPLOYMENT PROMOTION AMONG POOR WOMEN: HOW CAN WE MAKE IT HAPPEN? SOME REFLECTIONS ON KERALA'S EXPERIENCE

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ABSTRACT

This paper deals with the integration of gender in policies relating to information and communication technology to empower socially excluded poor women as producers of this technology. In this context, this paper examines an interventionist ICT policy undertaken by Kudumbasree (an innovative women based participatory programme) to empower poor women .The central part of the investigation is a survey of Kudumbasree supported micro enterprises scattered across the state to understand the nature and characteristics of the enterprises, activity pattern and performance parameters. The analysis of the paper is divided into two parts. First part deals with the structure and performance of women led enterprises and the second deals with issues relating to women, work and welfare.

From the evidence gathered, we can conclude that the ICT initiatives under the umbrella of Kudumbasree have vast potential for empowering the poor women. The study clearly establishes that given the basic literacy of the state, engendering ICT for poor women is feasible, provided the right organisational support is given. Poor women through this programme have entered the lowest of IT enabled jobs. If this good beginning has to be sustained and poor women have to take advantage of the opportunities offered by the IT revolution, they should be helped to move to higher levels of activities with more intense training and organisational support. There is a need for continuous upgradation of skills and capacity building particularly in the context of the fast changing technology associated with the IT sector.

The point that needs to be stressed is that while the agency has concentrated on the supply side, the demand side aspects such as output demand, market research, customer service etc; have been largely ignored. For best results the supply and demand factors need to be tackled in an integrated manner. The current practice of digitization of government records through Kudumbasree has its limitations. Work is

bound to peter out when the backlog of digitization work is completed. The solution to this lies in the expanded role of the agency. The units have to diversify the customer base with government acting as a facilitator. Maybe the government can set up a flexible independent apex body, or alternatively an alliance of units to strengthen their bargaining power. To conclude, although we cannot expect with the given levels of education, for the women to move to very high levels of work like software development it is possible to ensure continuous income and employment through work contracts of a different nature-work of a continuous nature and not programme specific like electronic publishing, customer call centres, records management etc. which will fall well within their educational capabilities. ICT is certainly a promising sector for the empowerment of poor women and for them to become partners in development.

Key words: E24, J16, J23, L63

JEL Classification: Women, Employment, Kudumbasree, Poverty alleviation, self help groups

Introduction

In recent years an added emphasis has been given to the assessment of the significance and relevance of gender issues in technology policies relating to Information and Communications Technologies (ICT) in developing countries. Such assessments highlighted the importance of integrating gender equality considerations in information and communication technology policies (Walby, 2000). The major question in this context is how this technology can establish gender equality on the one hand, and at the same time empower socially excluded poor women as consumers and producers of this technology? Coming to the latter issue, can we think of specific dimensions of ICT that may be made amenable to poverty removal? This appears a challenging task. We have to recognise the fact that along with digital divide between men and women about which serious concern has been expressed, a divide is also emerging between the rich and poor women; more educated and less educated women. For, there exists an ICT access and use gap among women of various social categories, households with different levels of income and assets, education and occupations, racial, ethnic groups, gender and age (Seth Aswini, 2007).

However, there is a view that the sweated component of ICT labour process involving low value added jobs (data entry, accounting, book keeping services) may be production friendly for relatively better among the poor but moving up demands higher levels of skills which may be rare among the poorer women (ILO, 2001b).

Box-1 illustrates various types of back office services requiring different levels of skills and a pattern that hire women rather than men in operations that require low levels of skills. Therefore, there is an urgent need to mediate between this new technology and poor women to facilitate access to and impart knowledge on the one hand, and on the other, convert that knowledge into usable skills. In this context, that there is a need to plan access strategies for different sections of the population cannot be overemphasized .We cannot expect the government to assume a direct role. Government can at best assume the role of a facilitator. There is a need to create space for the involvement of different social groups, civil society activists, including non-governmental organizations and community-based organizations. Simultaneously, proper policy measures like education, ICT training, family friendly policies in the work place to give women more employment opportunities and better access has also to be provided.

Box 1: Gender Structure in Back Office Services

I) Routine: Requiring only basic skills-Women Predominate • Data capture and processing • Customer call centres-for routine queries, order taking, and referrals. • Hotel or rental car reservations • Virtual service centres (e.g., home delivery pizza companies)
II) Discretionary: Requiring technical training and problem solving-Women Predominate • Data verification and repair (e.g., optically scanned documents). • Claims processing • Mailing list management • Remote secretarial services • Customer call centers-account queries, after sales support.

III) Specialized: Requiring specific expertise and managerial authority-Men predominate

- Accounting, book-keeping, payroll processing
- Electronic publishing
- Customer call centres-problem/website design and management
- Dispute resolution
- Technical transcription (e.g., medical, legal)
- Medical records management
- Technical on-line support
- Indexing and abstracting services
- Research and technical writing

Source: Adapted by Swasti Mitter from I.T. Information Technology, Vol. 11, No. 2, December 2001, EFY Enterprises Pvt. Ltd. New Delhi, pp. 29.

Importance of the Present Study

In the above context, an interventionist ICT initiative on a moderate scale undertaken by Kudumbasree to empower poor women deserves deeper study. This study is an attempt in that direction. Kudumbasree is an innovative woman based participatory programme launched by the Government of Kerala for the eradication of poverty through concerted community action. Based on a set of nine criteria[1] Kudumbasree identifies the poor women. If a family is found positive to four or more factors it is treated as a high-risk poor family.

1 1 lack of possession of a proper house
2 inaccessibility of safe drinking water
3 inaccessibility to sanitary latrines
4 having not more than one earning member
5 incapability to have two meals a day
6 Presence of children below the age of five
7 presence of illiterate adult member
8 presence of an alcoholic, drug addict
9 belonging to socially disadvantaged group

Kerala, which is more advanced in terms of social indicators like health, education etc. has a low female work participation rate (22.9% in 2000) resulting in a high level of chronic unemployment among women. A recent study on gender parity in Kerala reveals that women in the secondary and higher secondary education segment are recording the highest incidence of educated female unemployment (Mridul and Praveena, 2005). The crucial determinants of demand and absorption of female labour, range of occupations open to women in the regional context and the role of technology in broadening the range etc need to be studied in greater detail to articulate policy interventions to ameliorate the high incidence of educated female unemployment and their low labour participation rate in Kerala. In this context, the new experiment undertaken by Kudumbasree- a major initiative to broaden the range of choice of activity for women deserves special attention.

Women empowerment initiatives, micro finance operations, micro enterprise promotion and community action constitutes the core activities of Kudumbasree carried out through organizations of women below the poverty line. These enterprises are all owned, managed and operated by women from below poverty line families. The micro enterprise promotion is given prime thrust in the Community Development Society's model of urban poverty alleviation. However, these enterprises do not reinforce much of a base line education and are more suited to women with lower levels of education. In contrast the enterprises sponsored by women in ICT sector unlike in the traditional sectors, is an innovative endeavour

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The income particulars of the family do not appear in the index directly. But the selected indicators will precisely give the income status of the target group. Every indicator of the index is a visible and measurable one. The survey for detecting the poor family will be carried out with the active participation of the communities. Hence this survey is bound to bring forth accurate and acceptable facts regarding the existence and gravity of poverty in each community.

Source: www.kudumbasree.org

which reinforces base line education and builds on it through training and which is aimed at women with higher levels of education. More importantly this opens up an avenue for poor women to participate in the gains from technology development. Therefore, the outcome of such enterprises needs to be looked into more seriously for its policy implications.

We may mention in this context several programmes initiated in the past, to generate employment among women. The programmes formulated include those extending training and education, promoting women preferred industries, setting up industrial cooperatives etc. In this context a particular experiment, in the electronics industry needs special mention. The programme was undertaken by the Kerala State Electronics Development Corporation (KELTRON). The KELTRON scheme has been to promote ancillaries for assembling of radios in which the women cooperatives received the components from KELTRON and assembled them for a fee. A detailed study of the scheme revealed that the economic viability of the units were weak as most of the units incurred heavy losses. The units enjoyed only restricted autonomy with regard to prices, delivery of supplies and collection of assembled radios and was controlled by the parent firm. This had contributed to erratic production and poor work organisation. (Sen and Gulati, 1987).

Another major initiative at the governmental level was implementing Women's Industries Programme (WIP) with a view to provide employment opportunities to the poor women. The programme has resulted in the proliferation of tiny units in low technology areas such as spices, curry masala and readymade garment making. However, the infrastructure and related support for the programme in the area of raw materials, marketing and credit had been inadequate resulting in very high levels of sickness and closure (Pillai and Shanta, 1998).We mentioned the above initiatives to emphasise the fact that ICT micro enterprises mark a paradigm shift from the earlier initiatives and fall

under women oriented poverty eradication and empowerment programmes with increasing women participation through self help groups. In the context of the new innovative organisational structure, success depends on the ability to transform technical learning into opportunities.

The focus of this study is to make an ex-post analysis of the programme designed as a strategic intervention measure to tackle both poverty and female unemployment. In other words, our effort will be to evaluate the outcome of such endeavours and their sustainability- that is technology based endeavours which aim at making women partners in development. Though the earlier studies have developed some multidisciplinary approaches they have not been substantiated with detailed empirical content (Shobha Arun et al, 2004). This study fills this gap. The contribution of this study is that we have made an in-depth analysis of the performance of the enterprises, issues relating to employment and empowerment of women workers and the role of the agency based on the survey results of a much larger sample of units and which have been in existence for a longer period of time. Moreover in the absence of any in-depth evaluation of the Kudumbasree units this study is an important input for evaluating the status of poverty alleviation and women empowerment programmes administered through Kudumbasree.

The Study Details

This study specifically looking at the employment and empowerment issues of poor women in the context of application of new technology like ICT has been undertaken using a multi-pronged research procedure[2]. The various dimensions of enquiry such as demand

2 The major perspectives for undertaking multidisciplinary approaches for understanding the impact of women led development programmes have already been well discussed by Richard Dunconbe and Shoba Arun. (2005).

and supply linkages of new technology, capability building, structure of support, vertical linkages, nature of market, living and working conditions etc necessitate information from multiple sources. This can be done only on a sample basis. The central part of the investigation is a survey of micro enterprises scattered across the state to understand the nature and characteristics of the enterprises, activity pattern, and performance parameters. The aspects of linkages, market dynamics, capability building etc. are sought to be obtained from the enterprises and from inputs gathered from individuals who have played a key role in Kudumbasree units. This will be supplemented by discussions with the agency concerned. In addition to this, a survey of women members and employees of these units was carried out to get insights on the life and living conditions of women, economic and social empowerment issues etc. This again is supplemented by group discussions and participatory observations.

The Sample

Kudumbasree ICT enterprises are scattered across the entire state. From the list of units obtained from the Kudumbasree office, it is seen that there are in all 236 units spread over the 14 districts as on 2006. Based on their activities these units can be divided into three categories. 1) Data processing (80 units), 2) IT @ School units (151 units), and 3) Hardware units (5 units). Three types of surveys were undertaken, one covering enterprises, another covering the Kudumbasree members, and the third the agencies involved. All the fourteen districts have been covered in the survey. As for activities covered the survey was confined to Data processing units and Hardware units. The data collected relate to the year 2006. The entire analysis also therefore pertains to this year.

Units for study were selected using Circular Stratified Random Sampling method. A sample of 34 % of the total data processing units (27 out of 80) and all hardware units run by women (three out of five) were selected for study. Approximately 30 % of the total members in

each unit is selected for the study on a random basis from the list of members given from each unit. That is, 73 (38%) members out of 192 total active members from the selected 27 units were studied. For agency case study we selected two districts (Ernakulam and Thiruvananthapuram) where there was a predominance of IT units (around 25% of total sample units selected).

Organisation of the Study

The analysis in the paper can be broadly divided into two parts. The first part deals with the structure and performance of women led ICT enterprises and the second deals with issues relating to women, work and welfare.

I

Structure and Performance of Women ICT Enterprises

This part consists of three sections. The first section deals with the structural aspects of capital and labour. More specifically, it discusses the pattern of capital investment, the financial structure, and structure of employment and work. Section two deals with performance analysis and discusses the volume of business, the various costs and surplus generated. Section three critically assesses actual and potential output, employment and income.

1. Profile of the Enterprises-A Broad Overview

Of the 30 units surveyed 46 % were started in the year-1999 and 2000. This means that these units have been functioning for 6 to 7 years, a period long enough to assess their viability. Analysis of the regional spread of the units shows that there is a concentration of units in urban areas as compared to rural areas that is 27 as against 3. This is however quite expected, since the programme was implemented only in urban areas.

Capital Investment

On capital investment it was observed that on an average each unit possessed about 12 personal computers, and two printers. Out of 30 units, 16 units i.e. more than 50% had Internet connection and 83% of the units had telephone connection. In addition to all this 2 units also had photocopying facilities (See Table 1).

Table 1: Distribution of Infrastructure Facilities

Infrastructure In terms of →	PCs (No. of units)	Printer/ Scanner (No. of units)	Internet connection (No. of units)	Phone connection (No. of units)
1-5	4	26	16	25
5-10	17	1	0	0
10-15	5	0	0	0
15-20	1	0	0	0
>20	3	0	0	0
Total	30	27 (90%)	16 (53%)	25 (83%)
Average per unit	11.86	1.96	0.53	0.83

Financial Structure

On an average each unit was given a subsidy of Rs. 1.25 lakhs. In addition these units took loans with the help of Kudumbasree. The average loan came to around 2.9 lakhs (more than twice the subsidy amount). As far as own contribution was concerned only a few units reported it. Based on the available data on an average, this would come to about Rs. 10,000 per unit. Thus an initial investment of around 4.25 lakhs was undertaken in each unit.

Table 2: Financial Structure of the Enterprise

Items	Investment (in Rs)
Subsidy per unit	1.25 lakh
Average loan per unit	2.90 lakh
Average own contribution	10000
Total per unit	4.25 lakh

Structure of Employment and Work

On an average each Kudumbasree unit was started bringing together 10 women. In some units for various reasons some members dropped out while in others this did not happen. On an average, dropouts were around 3. Today the average strength of the unit members is 7. The unit strength is not confined to the members of the Kudumbasree unit. Other women were employed as and when required. Depending on the workload it ranged from 40 in one unit to a minimum of 4 in another. Total number of outside women employed by the 30 units together was 200. On an average the number of women employed from outside came to around 7. Out of this, on an average each unit employed 4 women on a full time basis and another 3 on a part time basis. All the women were computer trained.

Table 3: Distribution of Average Membership Position in ICT Units

Membership Details	No. per unit
Members when unit was started	10
Drop out per unit	3
Outside employees per unit, of which,	7
i) Part-time employees	3
ii) Full time employees	4

The survey provided some insights on the type of work and the sources of work as well.[3] The data revealed that 17 out of 30 units do only data entry and 9 data entry and IT training. While the majority of the units depended on Kudumbasree as their mainstay for work orders it was seen that 30 % of the units did find work on their own as well.

3 It is important to mention that although we have tables for each of the issues discussed in this paper, we have deliberately incorporated only the important ones in the text to avoid cluterrrance and chosen to just report some of the survey results.

2. Performance Analysis

Performance analysis of units constitutes the focal point of the enterprise approach. An important point to highlight here is that most units failed to maintain systematic accounts regarding the total volume of their business. Our survey revealed that only 50% of the units kept records. This proved to be a major handicap for this study. So what is attempted here is to piece together whatever information was available and draw conclusions based on them. In keeping with the relevance to the objectives of this study and the availability of data, the issues examined are the volume of business (sales), the various costs, wage levels and the surplus generated. As stated earlier, data has been a problem and the analysis is confined to software units.

Value of Business and Cost Analysis

For the year 2005-06, value of sales per software unit came to the tune of Rs. 839949.[4]

The average wage bill was around Rs 23,167 per month per unit.

Table 4: Average Monthly Expenditure of Units

Distribution	Rent	Electricity	Phone	Transport	Others
500-750	6	3	9	13	6
750-1000	4	4	3	2	1
1000-1500	12	4	4	4	1
1500-2000	1	6	3	1	2
2000-3500	1	5	5	1	1
3500-5000	0	2	3	0	0
>5000	0	3	0	0	0
Total	24	27	27	21	11
Average expenditure per unit	**1146**	**2339**	**1144**	**1880**	**1118**

4 For the hardware units it was Rs. 44.7 lakhs.

In addition to the wage bill, which is a major item of expenditure of Rs. 23,167 per month per unit, is the expenditure on electricity, water, rent, phone, travel, etc; which on an average, comes to about Rs. 7,627 per month per unit.This gives a total expenditure of Rs. 30,794 out of a total sales income of Rs. 69,996 per unit per month. (See Table 4) This leaves around Rs. 39,202 as operating surplus. Here again, one must remember that all these variables are highly skewed across units and this hides the vulnerable position of some units.

It is important to note that most of the units have taken loans but information on repaying is available only for 19 units. According to this data the average repayment per unit per year comes to about Rs. 41,132. This implies that around Rs. 3,428 per month has to be set apart for repayment of loans. This can be seen from the Distribution of units according to loan repayment (see Table 5). If this interest of Rs. 41,132 is deducted from the operating surplus of Rs. 39,202, we get a net surplus of Rs. 35,775.

Table 5: Distribution of Units according to Loan Repayment

Repayment Amount (Rs.)	Frequency	Percent
1500-2000	4	21.1
2000-3000	2	10.5
3000-4500	2	10.5
4500-6000	8	42.1
6000-8000	3	15.8
Total	19	100

Some points that emerge from our analysis of this part needs to be highlighted. If we assume that on an average there are 14 wokers per unit (as seen from our data) and with an investment of Rs. 4.25 lakhs per unit, capital per employee would come to the tune of Rs 30,357(Rs. 4.25 lakhs/14 employees). Similarly, if we divide the total wage bill by the average number of workers (Rs. 23167/14) the average earnings per

worker would work out to Rs.1655/month. The skewness across units with regard to almost all variables is reiterated.

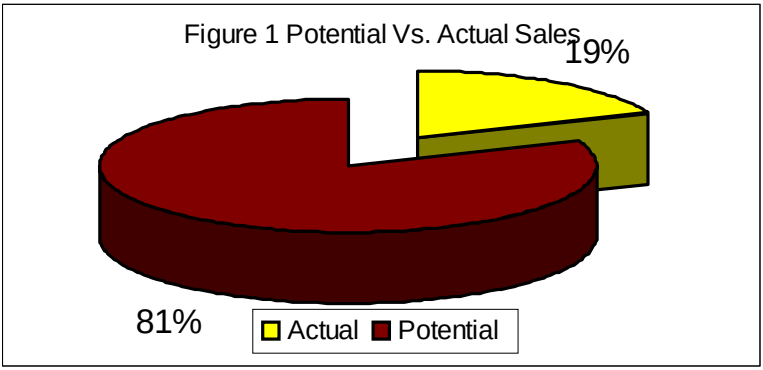
Profitability

It was not possible to work out different profitability ratios due to lack of information. As a rough approximation if we take surplus/ sales to indicate profit per unit of sales we would get a figure (35775/ 839949) of about 3%. No doubt this is also an average and there are bound to be variations. We therefore try to reinforce the financial position of units by using indirect evidences. Loan repayments behaviour is taken as one indicator to measure the financial condition of units. It is satisfying to note that the units are repaying the loans and most of them have been clearing their loans during the period of the survey. Once this burden is over, the chances of surplus increasing are there. It has also been observed that some units did maintain bank balances and were able to add to their infrastructure. Finally, taking into consideration the skewness in the distribution of different variables amongst the units, in the next section we try to estimate the potential output, employment and income of Kudumbasree units.

3. Potential versus Actual Output, Employment and Income: A Critical Assessment

To have some understanding of the possible potential in terms of output that can be achieved by the Kudumbasree units, we have undertaken a simple exercise. Using the available information on the value of sales per computer of the different units we arrive at the maximum potential in sales that can be achieved. Here the highest value per PC obtained is taken as the maximum potential sales that each unit can achieve if the infrastructure is utilized to the full capacity. According to this procedure we have found that the maximum value of sales per computer could go up to Rs. 3,51,100. The minimum actual obtained

per computer was found to be Rs. 17,133 revealing an unrealized potential to the tune of Rs. 3,33,967 per PC. In other words the difference is 20 times between the highest and lowest, reflecting the wide disparities in the performance of the units. This is further reinforced when one looks at the average sales per PC, and the number of units having below and above average sales per PC. It is disappointing to note that 75% have below average performance. Now if all units were functioning at full potential the value of sales would run to Rs. 5,37,18,300 (351100 x 153 i.e. maximum potential per PC into number of computers). The actual obtained has been only Rs. 1,00,79,386 which implies that only 19% of the potential sale has been realized (see Figure 1).



If we blow up this figure for the population of Kudumbasree IT units (80), it will come to Rs. 35,81,22,000 i.e. around 36 crores. We next stretch this calculation to estimate the employment potential of women in IT the sector. If the total employment in the 30 units of our study (410) is taken to account for 19 % of the potential, (as in the case of value of sales) then the realizable employment for the sample units are 2157 women and for all Kudumbasree units it would be 5752 women.

We estimate total wage potential for women in the same manner as we did for sales per unit taking the maximum wage per worker as the potential earnings for a worker. We estimate the realizable wages and compare with the wages actually paid. This gives the lost potential. We

then analyze how far distant the average realized wage is from the minimum income necessary to move above the poverty line. Data shows that the maximum wage earned per worker per month amounted to Rs.7,143. While the minimum was, Rs. 667 showing that the upper limit was 10.71 times higher than the minimum. This gives the unrealized earnings per worker. The average wage per worker comes around Rs. 1,655. In 60 percent of the units wage per worker is below average. This clearly brings out the opportunities lost to women due to unutilized potential.

In conclusion, it is seen that the minimum wage realised is Rs. 667 i.e. greater than Rs. 600 which is the minimum income required for keeping oneself above the poverty line in the urban areas in Kerala in terms of calorie required[5]. The average wage, which we have seen is Rs. 1655, is higher than the minimum required to keep oneself above the poverty line. Hence, as a poverty alleviation measure, the new IT venture for poor women is highly promising and holds a lot of potential.

What explains the success of a unit whose income and employment has steadily gone up? In our study we have found that women members of such units have demonstrated high quality leadership and unity. Their social and economic cohesion was an enabling factor. It is also found that these units have emphasised quality improvement through better use of technology, upgrading skills, good business network with local companies, influential individuals and consultants. Another factor which helped these enterprises was locational advantage. Such units also happened to be located in places where there was scope for getting work orders from sources other than Kudumbasree.The units also developed business strategies for expanding customer base. The elements contributing to the success of a unit and causes of failure of a unit are illustrated with the help of two case studies - that of a successful unit and an unsuccessful unit (See Box 2 and 3).

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5 See Planning Commission: Poverty Estimates, 2004-05.

Box 2: Story of a Success Unit

Among the Kudumbasree units Techno World, Kumarapuram, Kerala is a success story. Formed in 1999 the initiative had a budget of Rs. 290025 raised through a bank loan, members' contributions and a small subsidy. Today the unit possesses ICT resources to the tune of 27 workstations networked to three servers, Internet connections, printers and other peripherals and Software such as Windows 98 & XP, Linux, Office XP, Script Easy (Malayalam software), Shree Square, Page Maker, Photoshop and Corel Draw. Data entry - digitization of public sector records (ration cards, land registration); training - basic computer instruction for school children during school vacation formed the mainstay of the unit. It is important to note that the unit repaid all its initial loans after three years of operation. As for employment there are ten qualified group members both general and IT personnel with a mix of diploma, undergraduate degree, and graduate diploma qualifications. The unit now employs a large number of other women doing data entry work on a piece-rate basis.

Main Benefits of women participating in this experiment are emphasized to arise from employment and income generation ensuring financial security. Emergence of leadership qualities among women and improved personal skills, both at home and at work due to continuous training and interaction are other aspects of empowerment. Ability to provide employment to a wider group of poor women was also considered an achievement.

What are the factors that contributed to this achievement? First and foremost, the organisational side is the support of Kudumbasree agency as it gives the unit more credibility in undertaking assignments. Equally important was the unity and coordination of the members due to their social and economic cohesion.

However, some challenges still remain. Lack of exposure to compete with the private sector, which offers specialized services such as web designing, colour printing, etc, rather than low-skill data entry appears a major one. This may get further accentuated with the decrease in government contracts with increased computerization. Delayed payment from the government departments is also often cited as a factor necessitating high holding power for this unit.

Box 3: Story of a Limping Unit

In contrast to the Kumarapuram unit, the Chalakkudi unit is a unit facing difficulty for survival. The unit which started with 22 members and two ICT units, but worked together sharing the same infrastructure facilities has now only 11 members and both units are functioning as a single unit. This unit which was one of the most successful units in the state earlier, in terms of volume of work and income is now in a crisis and is facing difficulty even for meeting the day-to-day expenses.

Both units together had mobilised Rs.5 lakhs in the beginning as loan for starting and out of that Rs. 2.5 lakhs was received as subsidy from Kudumbasree. Both the units together which had 10 computers in the beginning now have 26 PCs and 3 printers including a duplex printer for bulk printing. The main work is data entry from Kudumbasree. The unit is also giving IT training (MS-office, DTP and such small courses) to outside people. It is important to note that the unit had built up assets on a large scale. However, their work contracts did not increase commensurately. Several factors seem to have contributed to the failure of this unit. One important factor is that they did not have enough liquidity to tide over the delay in payment for their staff. Without proper planning they have used their surplus to accumulate assets such as computers. In the time of crisis they were forced to borrow from money lenders. Not only did they not try for outside work to resolve the problem, there were also internal conflicts among members. It is evident from the above, that managerial skill was very poor and they also lacked motivation and good leadership. The prime cause of failure is the internal conflict among the members and the subsequent drop out of the members.

II

Women, Work and Welfare

This part consists of four sections. Section 1 discusses the socio-economic background of the women, capacity building etc. Section 2 addresses issues in employment, and empowerment. Section 3 looks at the challenges, opportunities and sustainability of women led enterprises and in Section four we conclude with some final observations.

1. Socio-economic Conditions

For understanding the factors that were conducive for this new organisational experiment, the Kudumbasree (a participatory programme) we begin with an analysis of the women's socio-economic background. Both married and unmarried women were members of IT Kudumbasree units. The majority of the members were above 24 years of age and 53.4% of the participants fell in the age group 24 to 29. Around 88% were post SSLC and an almost equal distribution of around (42- 43%) was found as Pre degree / ITI or Degree holder, only 1.4% were Post Graduates. This basic literacy was an important enabling factor for women to become beneficiaries of the IT revolution quite in contrast to many other states where female literacy is low (see Table 6). It is equally interesting to note that 63 % of the women were married women.

Table 6: Distribution of Members according to their Education

Members' Education	Members	
	Number	Percent
SSLC	9	12.3
Pre- Degree / ITI	32	43.8
Degree	31	42.5
Post Graduate	1	1.4
Total	73	100

Analysis of the family structures of these women shows that most of them came from nuclear families. It is quite possible that these women after all their childbearing responsibilities had entered the job market. Kerala thus had an ideal environment in terms of social indicators.

It is important to note that members from the three main religions such as Hindu, Christian and Muslims participated in the programme. Although there were variations across religions, Hindus constituted the majority with 80.8%, and Muslims the minority with 5.5. Community wise analysis showed that 53 % belonged to OBC while 19 % were Scheduled Caste. In other words, this is evidence to show that the new experiment was successful in bringing the socially backward within the realm of ICT and the opportunities it opened up for them to acquire leadership qualities.

The survey revealed that nearly 91 % of the families held land and the average land holding size for the family was 14.26 cents. However, 82 % of members did not own land in their name. It was also seen that while 2.7% lived in rented houses, 86.3% lived in houses owned by other members of the family. Only 11% had houses in their own name. The fact that most members did not own a house or property in their own name limited their power to raise resources and could have been a disabling factor for various purposes. It could also be a factor, which pushes one to the job market reflecting the absence of alternate income or income base for starting own enterprises. 85% expressed that they experienced financial difficulty before joining the unit. Location specific factors of the units were also conducive factors. These can be considered as major push factors for women to participate in Kudumbasree. By introducing the poor women to the ICT sector the new experiment seems to have addressed both the social and economic digital divide.

The Driving Force: Capacity Building

The most important and positive factor favouring women's entry into IT industry was the support from Kudumbasree in the form of financial, technical and managerial help. The major help came in the form of training both in hardware and software.

Now the important question is, having entered the IT industry how did the women acquire and develop their skills? To get insights into this, our survey delved into the major elements that have contributed to capacity building. It is possible to identify three ways of capacity building (1) From institutions in the form of training, (2) Internally from the unit through work experience, and (3) From externalities acquired by working in the unit. We discuss each of these in detail.

Training

It is important to note that 50% of the women have been specifically trained with the intention of formation of Kudumbasree. As for the remaining 50 % they were already trained in data entry and other such simple tasks as part of the Community Development Societies(CDS) programme or on their own. The four main agencies of training were from Kudumbasree, CDS and local bodies and other private institutions. 65.75 % got training from Kudumbasree, 9.5 % from CDS and 4.1% from local bodies, i.e. 80 % from such agencies. Only 8.2% got training from private institutions. Other 12.3 % seemed to have received on the job training. Thus in all 89 % had received training. Thus our survey revealed that training has been a major factor enabling women's entry into this field.

On the nature of the training it was seen that 38 % had participated in Performance Improvement Programme (PIP) given by Kudumbasree. Another 34 % had received training in MS-Office, DTP, Data entry and other computer training from local bodies (through CDS). 11 % had received Hardware training (CDS) and 3% Hardware and PIP and another 3 % (PIP) and computer training which implies that around 44 % had PIP training. On the question of preferred source of training it is interesting to note that 86 % said they would like the training to be given by Kudumbasree. This reflects the faith of the women in Kudumbasree and other governmental agencies. On language skills, it is important to note that 73 % reported lack of communication skills in English.

As regards internal (within the unit) capacity building, over and above the work experience gained, it was observed that there was widespread participation from the members in the day-to-day activities of the unit. Only in a few units was there a leader who took up responsibilities. In the normal course it was shared. The survey also showed that 88 % reported that over and above their normal duties they did participate in the functioning of the unit .This was an opportunity for honing their managerial skills, which inter-alia includes developing skills in personnel and financial management, marketing etc.

Capacity building from externalities arose from increase in social contacts, in particular government officials, and knowledge gathering through the use of Internet. Has this capacity building been adequate? In this context we analyse the views of the members on their capacity to move upwards. This in turn takes us to issues relating to employment and empowerment of women.

2. Issues in Employment and Empowerment of Women in the ICT Sector Work

On the usual work done by members in the unit the survey indicated that 73 % were engaged in data entry works, while 11 % did data entry and DTP works. 11 % were in Hardware assembling and 5% were engaged in miscellaneous IT related work such as Photoshop, Tally etc (see Table 7).

Table 7: Distribution of Members According to the Nature of Work

Nature of Work	Frequency	Percent
Data Entry	53	72.6
Data Entry + DTP	8	11
Hardware Assembling	8	11
Others	4	5.5
Total	73	100

While 63 % were confident that they would be able to do higher levels of work given proper training, 37 % felt that they were not capable of moving to higher levels.

Supply of Labour

Eighty percent of the units expressed that they had no difficulty in getting required labour. Implying that labour was forthcoming to the IT sector, reflecting either its attractiveness or/ and the absence of other avenues of employment. The lack of other better opportunities is also evident from the very small number of women who left to take on other jobs. Labour turnover was not much of a problem. Thus leaving the IT sector jobs was more due to personal reasons rather than professional. Thus it does seem to be an important employment provider.

However, there was a problem of members getting reduced over time. On deeper enquiry it was found that this was not because people were unwilling to take up membership in the Kudumbasree and replace those who left. The vacancies of those who left the unit was not filled up due to internal resistance. The reasons were that the incumbent members who had struggled hard to generate assets and business were not willing to share it with new members. No strategy seems to have been worked out to resolve this problem. This is a missing element that needs to be taken care of, more so, since it was observed that units with larger members were doing better in comparison to units with fewer members. If this problem is tackled, employment and the multiple benefits which it unleashes would also accrue.

Difficulties Posed by ICT Jobs

Among the various factors cited, as not conducive to working in IT units, the most important are, tight time schedule, night shift, delay in payments, not getting regular income, difficulty in concentrating on family, etc. Payment in IT units involves delay when it is for work done

for the Government. In such instances bills will be passed only when all other IT Kudumbasree units complete the tasks assigned to them.

This puts good workers in difficulty because of the slackness in keeping to schedules of other units. Hence, holding power seems essential for both units and members. Units have to pay labour even if payment from government has not been received. In the case of workers it meant they have to come to the unit even when there was no work so as not to be bypassed when work comes. This arises out of the sporadic nature of acquiring work contracts. On why some did not prefer this job; it was stated that, though only a minority, through their own initiative they could make money (rather than wait for orders) since they were more aware of the market in other fields than in IT. Payments and income were found better in the non-IT units. These were more in the nature of their general observations.

Linkage Dimensions

We next move to the issue of linkages, for linkages have an impact on future opportunities for growth for both the enterprise and women.

There are different types of linkages, employment linkages, linkages through work contract, linkages with society, political parties, locality, etc. We discuss each one of these.

Employment Linkages

In the 30 units (both Hardware and Software) together 168 women and 36 men were employed. This is over and above the 193 members. Of the 204 non-members, 48 % were full time while 52 % were part time. Men were employed as an exception in some units for doing night work. In Hardware units men were employed for doing field work / servicing (full time) which was spread across districts and which could not be done by women (machines sold in other districts were taken care of by men).There seems to have been no problems in the supply of adequate and appropriate labour.

Reasons for recruiting non-members were mainly due to pressures of work and very rarely because of non-availability of appropriate skills. In Hardware units employing more technically qualified persons was more common. In addition to this 10% of the units reported outsourcing of work, when there was pressure of work (and this was to other Kudumbasree units and not outsiders).

Linkages through Work Contracts

Customers of these micro enterprises were the government offices, Panchayat and other local self-government institutions, Banks, students and other private parties. Government office work was almost hundred percent handled through Kudumbasree. Kudumbasree members also go to offices and carry out data entry works on a daily wage rate or on a contract basis. The main customers of hardware units came from the Akshaya Project, a government supported programme for spreading e-literacy. It was mandatory for Akshaya to buy computers from Kudumbasree units.

Bulk of the income for most units was also from Kudumbasree and for Hardware units it was from Akshaya Project. In fact, a majority of the units depended entirely on Kudumbasree for work. Consequently, their linkages were also confined to them. Break in Kudumbasree work does not seem to have reached very high proportions. Very few units found customers on their own. Though the dependence on Kudumbasree in general was very high, it was not total in all cases.

Linkage with Political Parties

In a politically active society like Kerala and where female literacy is high, one may expect a high level of political linkage in establishing business contacts and also for acquiring more job works.

It is surprising to note that only 17% of the members stated that their awareness of politics increased following their joining the unit.

Others did not express an increase in awareness and it does not mean ignorance either. The increase in awareness was brought about by discussions with other members from different political backgrounds. Although there are some members in some units actively participating in politics, most of them clearly stated that they were not actively in politics. It is important to note that most units did not want to bring the influence of politics inside the enterprise on any matter particularly in the context of different people subscribing to different political views and they wished to retain their unit as a particular form of industrial organization without any political colour.

Linkage with Locality

How did the locality gain from the presence of the unit and vice versa? The units stated that they could offer computer courses (IT Training) at low rates particularly to poor people especially housewives and students. It was a means of bringing the poor into contact with Information Technology. Systems were also provided at low cost when compared with other vendors of Personal Computers (PCs). So was their services- all at less than the market rate. Panchayat has also gained from the presence of the unit for executing their IT related works.

Students trained were also absorbed by units as well as other establishments -that is it provided job opportunities for the poor. Though not an income earning activity, it is to be appreciated that some units gave free training to poor girls to assure the availability of labour force needed for them and absorbed them after training when they had adequate work. During lean periods of data entry they provide training, but if some large order for data entry comes by at this time, it upsets their schedule and training had to be postponed due to non-availability of excess computers. This is the feature of most units. However there are certain units who manage this with a separate training division and get good income from training, for example the Kumarapuram unit at Trivandrum and another at Palakkad.

Gains from Employment

What are the positive outcomes from work, linkages etc to the members of an ICT unit? As for benefits from work in the unit, 82 % said they benefited by improving their technical skills, 89 % reported communication skills and personality development as gains from the job and 60 % said that they had acquired leadership qualities. Most importantly 74% reported job stability as an important benefit. Their work in the unit involved going to government offices and meeting and dealing with officials at a higher level. All this greatly enhanced their self-confidence, helped to improve communication skills, awareness and their general personality. On the whole such exposure helped in increasing their social and political awareness.

On the financial benefits increase in income, income stability, addition to household amenities and assets and savings were mentioned. Their working in the unit also helped to enhance their prospects for a better marriage alliance. These are the externalities of holding a white-collared job given by working in the IT field.

Family Welfare

What has been the benefit from their employment and income to their families? Two major outcomes have been the improvement in the financial condition of the family, and provision of better education to children and other close relatives. There is an emphasis on computer literacy which tends to suggest that they are optimistic about its potentialities for the future generation.

In short, it gave them employment, more income, familiarity with modern technology, more exposure and knowledge of the working of offices. It increased their social status as a whole. These achievements spilled over to their families in the form of better education, health and other basic amenities.

Empowerment

The more important question is how did these gains from working in ICT units - that is, the social and economic empowerment of these poor women - get translated into their empowerment within the family? We have considered four major dimensions of empowerment of women in the family.

1. Support from the family for working in an IT unit
2. Change in status in the family following employment in the unit, contribution to family income
3. Decision making power
4. Power to spend money.

Ninety seven percent reported that they got family support to take up employment, a prerequisite for economic empowerment.77% declared consequent to their employment their position in the family had improved, while 23 % did not feel any change. 86 % of the women reported that their contribution to the family income had increased. More importantly 71% reported that their role in decision-making in the family had increased. Acceptance of women's opinions in the family is taken as a reflection of their status in the family and a sign of empowerment. The survey revealed that 83% stated that on no occasion was their opinion rejected.

On the spending of income we get very interesting patterns. Grouping the women into married and unmarried, the question of who takes the decision on how to spend their income it is important to note that, 23 out of the 46 married women, nearly 50% said that they themselves decided. Another 37% said that both husband and wife together took decisions. In 13% the husband alone decided. As for unmarried women, 58% took decisions on their own, while for 42%, parents and elders decided on the spending of their income. Taking both categories together 53% decided on their own as to how to spend

their money. This is very revealing and indicates the strength of women's empowerment consequent to employment.

We now move to the challenges and opportunities faced by these units to move up to high-income markets.

3. Challenges and Opportunities and Sustainability of ICT Micro Enterprises

Customers were reported as being demanding regarding delivery schedule and quality. On specifically being asked about meeting deadlines, all the units, except one, answered in the positive. The major problem confronted by the units under study was delay in payments for the work done. Around 60% of the units reported delay in payment from Kudumbasree which involved large sums of money running to lakhs. This was not the experience with other private work. This has put the members to considerable difficulty. Needless to say, outside workers employed by the unit had to be paid in time for which they had to find their own resources. In this respect, it is important to note that government work 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, they are more vulnerable in the case of non-payment. They cannot initiate any legal proceedings against the agency. This has resulted in unstable income flows. As for advances received in case of hardware units they did get advances as soon as the quotation was accepted mainly by panchayats. But for data entry works no advances were paid by Kudumbasree, while some private parties did give some advance.

Though there is no direct competition for Government work felt by Kudumbasree units, there are certain regions / pockets where co-operative societies under the patronage of political parties do pose a threat for acquiring work contracts. ICT units run by women under co-operative form of organization are the main competitors for ICT units under the banner of Kudumbasree. The basis of their claims to

Government work is the same. A choice then needs to be made between the two forms of organization involving poor women. The competition is prevalent mainly for work coming from within that region rather than state level works. Given the nature of the work done by these units i.e. data entry, not much competition is faced from private parties since such type of data entry is not common. What private units do is mostly DTP works. As regards DTP and other related works, Kudumbasree units face competition from the private sector. They survive by charging lower prices. The element of subsidy probably helps them to do this. However, only very few units engage in DTP work. This is because when DTP work comes and if they are busy they are not able to take it. Apparently they are concentrating on data entry, which is regularly available, and have not diversified.

Hardware units face competition of a different sort. They are mostly from other private units. They are able to withstand competition because they have a sure market through the Akshaya scheme who is their major customer (their sales to others are only minimal). There is a Govt. directive to panchayats to buy computers only from Kudumbasree hardware units.

In the case of Hardware units although they sell mainly to local bodies, they do have their cost advantage when compared to private parties. But many other factors like marketing, quality servicing etc has given private agencies an edge over Kudumbasree hardware units. Their advantages over private units both Hardware and Data Entry units specifically arise because the Government policy is in favour of them, this forming part of a larger poverty alleviation programme.

As regards the particular challenges related to the running of ICT units, the main problem was the high dependency on Kudumbasree for job works. Their capacity to find alternate job works was limited and they also lacked technical expertise to take up more value added jobs.

Pressure to stick to time schedules was cited as a major challenge and it sometimes necessitated night duty as well. Delay in payments, details of which were discussed earlier, is a challenge to Kudumbasree units.

Challenges faced as Women

Travel, night work, tight delivery schedule, etc; were cited as difficulties in IT jobs.

Work pressures since they had to combine two roles, as a worker and a home maker were sometimes challenging. During night work they had to rely on the support of their relatives for returning from work. In rare instances there was lack of support from family to work in the unit when income decreased. To elaborate, unless you are in touch with the unit even when there is no work, you will not get work when it comes. Some households opposed women going to the unit when there was no work. Thus the continuity of work and income is therefore a necessary condition to enable women to participate in the unit. Women's capabilities for searching and finding new work was found to be quite low.

Strength, Weakness, Opportunities and Threats (SWOT) Analysis of Units

SWOT analysis of the units based on the qualitative information obtained from the members showed that the strength was in the unity and cooperation among members, hard work and good leadership within the unit (leadership is normally rotated), support from family and support from local bodies. More importantly, on the economic front it is observed that all units have repaid their loans within three years and none of them have any financial liability which is a healthy sign of performance. One third of the units stated that they were aware of the opportunities in the field but could not take advantage of them due to lack of technical, marketing and business skills. Two thirds were not aware of the opportunities and they needed help and advice in this matter from experts. Lack of skill- technical, management, and business awareness were stated

as major barriers to move up in income. More organisational support was also needed. The opportunities and threats faced by women as well as enterprises have been discussed in detail in the earlier part of the paper.

On their weakness the main points made was that they are capable of doing only data entry work and not able to move to higher levels. It was also added that they do not get training for improving skills. Lack of time to improve their skills added to the problem. Some units also found dwindling membership a problem, though this was not so common.

Again most units depended solely on Kudumbasree for works. In some units, location was not good enough and did not offer many opportunities for getting new work. The infrastructure was also considered inadequate in some units. Instability in work and income was a major threat to the sustainability of the unit.

Sustainability Issues

Not withstanding the above a high percentage of individuals stated that they will be able to do higher levels of work. The successful units however felt that they could continue even without the support of Kudumbasree through effective marketing and diversifying work by acquiring better skills. Regarding training support, nearly 63% of the units wanted upgradation of skills both in Hardware and Software. Hardware training was required to manage maintenance of PCs in the units themselves rather than depend on others for servicing. On Software, it was also expressed that training was required to diversify into other job works like tally, Photoshop and other higher levels of work. They wished to be updated about the new and higher level of technologies and trained to find new opportunities as well. Help sought in relation to management was both advice as well as training to improve their managerial skills. On the marketing front what the majority of units wanted was advice and assistance to explore new opportunities. On future prospects most units (73%) expressed hope that the demand for their

services would continue for some more years to come. 80 % firmly stated their future plan was to continue to work in the unit, develop their skills and find out more work. ICT sector does seem to hold a lot of promise for many poor women as a source of employment, income and upward mobility.

4. Conclusions and Policy Implications

While there are hundreds of government projects aimed at poverty alleviation, stock taking of their impact revealed that their outcomes have been mixed. In this context the newly designed projects based on IT specifically aimed at reducing the social, gender and economic divide needs to be examined to understand the lessons that these new initiatives offer. Such an attempt is made in this project on employment generating potential of this technology among poor women.

As an organisational endeavour what has Kudumbasree achieved and did not achieve? From the evidence gathered we can conclude that the ICT initiative under the umbrella of Kudumbasree has vast potential as a tool for empowering the poor women. Both social and economic barriers could be effectively overcome through this innovative programme. This programme has made a dent in the IT divide and marks the beginning of opening up the opportunities of the ICT sector to the poor and socially backward women. The study clearly establishes, given the basic literacy of the state, engendering ICT of poor women is feasible provided the right organisational support is given.

Poor women through this programme have made an entry into the lowest spectrum of IT enabled jobs. This has also ensured 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. 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. However a few caveats are to be added.

If this good beginning has to be sustained and poor women have to take advantage of the opportunities offered by the IT revolution, they should be helped to move to higher levels of activities with more intensive training and organizational support. In other words, basic skills are adequate only for a limited number of IT jobs such as data entry, word processing etc but not sufficient for undertaking more sophisticated services such as web designing, data base applications, e-commerce, which require more specialised training. There is thus a need for continuous upgradation of skills and capacity building particularly in the context of the fast changing technology associated with the IT sector. So much for the supply side.

We now move to the demand side aspects of sustainability. The point that needs to be stressed here is that while attention of the agency has concentrated on the supply side, the demand side aspects such as output demand, market research, customer service etc have been largely ignored. For best results both supply and demand needs to be tackled in an integrated manner. To make a few suggestions in this context, what is required is to ensure a steady stream of work orders for these units so that the existing capacity is fully utilized. As we have already seen, the current practice of digitization of government records through Kudumbasree has their limitation. Work is bound to peter out when the backlog of digitization work is completed. The solution to this lies in an expanded role of the agency.

It is important to ensure that these units do not meet the fate of the State Electronics Development Corporations (SEDC) that depended mostly on government orders that collapsed when opened up to competition with the private sector (K.J.Joseph, 2000). Therefore, strategically it is important to diversify the customer base with the government acting as a facilitator. The role of the government is to

facilitate the setting up of a flexible and independent apex body, or alternatively an alliance of the units to strengthen their bargaining power. The main function of this body is to undertake the linking of customers with the enterprises and which would network with these Kudumbasree units and private parties from whom new business can be contracted. To conclude, although we cannot expect with the given levels of education for the women to move to very high levels of work like software development it is possible to ensure continuous income and employment through work contracts of a different nature- works of a continuous nature and not programme specific like electronic publishing, customer call centers, records management etc. which will fall well within their educational capabilities. ICT is certainly a promising sector for the empowerment of poor women and for them to become partners in development.

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