

TRANSFORMATIVE EFFECT OF TECHNOLOGY ON RURAL WOMEN IN AGRICULTURE IN THE DRY ZONE OF SRI LANKA

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INTRODUCTION

Agriculture is the backbone of the Sri Lankan economy, especially in the rural economy. Since time immemorial, agriculture has been firmly rooted in Sri Lankan civilization. "Women in South Asia keep the rural way of life alive, and they do suffer a lot for it" (Human Development in South Asia, 2002. p.107). This situation is explicit in most South Asian countries in which women agricultural workers as a percentage of total employed women are higher than male agricultural workers as a percentage of total employed men (Human Development in South Asia, 2002). It is the case in Sri Lanka too - 37.9% in the case of females and 29.1% in the case of males (Census and Statistics, 2007). In the developing world, although rural women's work determines food production, the promoters of technology and technology transfer overlook the complex needs and livelihood conditions of rural women. Access to technology is thus, not neutral, and is particularly not gender-neutral. It favors those who can buy, possess and use the technology. Most rural women lack the ability to generate a demand for technology because of their disadvantaged access to education and information and their weak purchasing power (Balakrishnan, 2005). This paper examines the transformative effect of technology in lives of rural women in dry zone agriculture. Effect of household and farm technology is considered. The research focuses on rural women's involvement in purchase decision making with regard to and usage of household and farm technology by rural women in agriculture.

RURAL WOMEN AND TECHNOLOGY IN SRI LANKA: AN OVERVIEW

In Sri Lanka, the rural share of population in the years of 1980, 1995, 2010 is 81.2%, 83.6% and 84.9% respectively (FAO, 2011) whereas female share of population in 1980, 1995, 2010 has been 49%, 49.8% and 50.8% respectively (FAO, 2011) which shows a gradual increase. In terms of labor force participation, rural sector has a higher labor force participation which is 49.4% whereas in urban sector it is 43.6% (Central Bank, 2010). Compared to the urban sector in which women labor force participation is 26.2%, rural sector has a higher women labor force participation which is 33.7% (Central Bank, 2010). According to occupational categorization, agriculture has the highest employment percentage which is 32.5% (Central Bank, 2010). Further, female participation in skilled agricultural and fishery work is 24.8% whereas male participation is 20.9%. Highest percentage contribution of females to the total employments is 38.2% and it is also from skilled agricultural and fishery workers category (Census and Statistics, 2008). More importantly, the rise in women's work participation is found to be highest in the agriculture sector which is 34% in 1996 and 41% in 2006 (Census and Statistics, 2007). According to the Census of Agriculture 2002, in Sri Lanka, a majority of the total agricultural households (54.5%) derive highest share of income from agricultural activities. Further, 80% of the Country's population lives in the rural sector and secures their livelihood from agricultural activities (Census and Statistics, 2001).

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Technology development and technology transfer processes are considered to be primary driving forces for growth and welfare in developing countries. In the case of technology development, in which the core purpose is to advance production and reduce the drudgery of work, in comparison to men, women are at a disadvantaged position (Gunawardene, 1995). Internalized traditional biases contribute to the gap between gender differentiated technology needs, actions for gender responsive technology development and technology transfer. In developing countries, technology development and dissemination programmes have not been responsive to household drudgery associated with different production activities routinely undertaken by women (Balakrishnan, 2005). But, rural women in their dual roles as producers in farm and home production and as caregivers, need technologies to ease their work stress and improve productivity and family welfare (Balakrishnan, 2005). Technological innovations to aid agricultural production imply greater efficiency at the cost of rural employment as manual laborious tasks are transformed by it into new efficient time saving jobs such as tractor drivers, threshers and combine operators. Consequently, due to the mechanization of some agricultural activities, women are pushed out of work as well. Further, if women are empowered with technological information and skills, all the members of the family will benefit. Rainford (1990) articulates the essence of rural women establishing their independent survival power in the socio-economic environment, before they reduce their patriarchal dependence on men. For that, according to her in the context of Sri Lanka, information technology can help rural women to develop their own opportunities; increase access to knowledge, economic and market data; create cottage industry opportunities; and ultimately to empower themselves.

OBJECTIVE

The key purpose of this paper is to discuss how technology has transformed lives of rural women in dry zone agriculture with special reference to selected six villages in the Anuradhapura district in the dry zone of Sri Lanka.

METHODOLOGY

Anuradhapura district which is located in the North Central Province in the dry zone was based for the Study. Out of the two districts Anuradhapura and Polonnaruwa in North Central Province, Anuradhapura which has the highest women labor force participation 40.7 % (Census and Statistics, 2007) was selected as the study area. Out of the 22 Divisional Secretariats (DS) eight with most of traditional rural village establishments were identified and the *Central Nuwaragam Palatha* and *Thirappane* DSs were randomly selected for the research. Each of the selected DSs has two Agrarian Service Centres (ASCs). Three *Grama Niladhari* Divisions (GNs) from each of the randomly selected ASCs of the selected DSs were selected for the study. In this process from *Elayapatthuwa*; *Elayapatthuwa*, *Mahamankadawala* and *Illandaghawewa* and from *Thirappane*; *Puliyankulama*, *Mawathwewa*, and *Periyakulama* GNs were selected. Sample was drawn from the selected villages from the selected GNs. Total sample comprised of 150 respondents. Women involved in agriculture (women having significant input to household agriculture activities) were the key respondents of the study. Sample age ranged between 17 years to 69 years. Smallest family size was only one in the family and largest was eight in the family. Extent of paddy cultivations ranged from minimum extent of 0.25ac to maximum extent of 12ac and extent of *chena* cultivations ranged from minimum extent of 0.25 ac to maximum extent of 15 ac. All the respondents were fulltime farmers except for a single case of a part-time farmer who was a government teacher. This study was a descriptive one. Methodology used in the study consisted of anthropological field work (household and individual case studies, in-depth interviews, discussions, key informant discussions and participatory observations) and sociological data collection techniques (a household survey to collect quantitative socio-demographic information and time-use diary of selected households). Secondary data for the study was obtained from available literature and reports. In the study, rural women's

association with selected household and farm technologies was studied. Descriptive statistics were analyzed using SPSS and it was accompanied by strong qualitative data analysis.

RESULTS AND DISCUSSION

The mean age of respondent was 38 years. Out of all the respondents 99% of them were married, 1% unmarried and 9% widowed. Average family size was four in the family. Out of the total families, 83% were nuclear families whereas 17% were extended families. In terms of education level, 4% had no education at all, 15% had education up to primary level (grade 1-5), 80% to secondary level (grade 6- GCE A/L) and 1% above secondary level (diploma or degree). Thirty seven percent of respondents had GCE O/L. Average extent of paddy cultivation was 2ac whereas for *chena* cultivation it was 3ac. Out of the total respondents, 3% were involved in other non-farm activities such as running retail shops and hiring three wheelers, while being fulltime farmers. Thirty one percent of the sample was in the peak age category of economically active which is 30-39 years, but was behind national and sectoral level percentages in 2010. In 2010, at national and sectoral levels, though the economically active population in labor force participation after 40 years of age is low compared to other age categories, interestingly in the study area it was not the case. More numbers of women found work in agricultural fields even after forties, statistically it was 46%. Social transformations attached to technology usage in rural agricultural society have been taking place rapidly and in a clearly visible manner, thus, modifying, altering or totally changing multiple statuses and roles of rural women in agriculture.

Nandane a rural woman, aged 47

'I do not have my own mobile phone. But, I use my husband's one. We have a computer at home but no internet facility. We are not knowledgeable about computers and our son is using it. Very few or nobody is having computers at home. For equipments such as fridges, gas cookers, rice cooker, and blenders it is the case. Most of the convenient household compliances such as television, fridge, heater, electric kettle (heater jug), blender, mobile phone, land phone, electric iron and electric fan I have at home and it has reduced household drudgeries that were giving trouble to me earlier. We own push cycle and a motorbike and most of the other villagers as well. But, I can ride only the push cycle. It is very useful for me to visit our cultivation lands easily.'

Wasantha a rural woman, aged 31

'We own 2ac of paddy and 1.5ac of chena. We cultivate paddy, chilli, big onion and maize. I use manual sprayer and agro well. Though I have access to farm machinery, I cannot use them by my own. I have not heard or used 1920 toll free service, ICT for information obtaining (CD-Roms) and cyber agricultural wikipedia intervention. Would like to know about it more.'

The general portrait of the respondents with regard to usage of household and farm technologies is depicted by narratives of Nandane and Wasantha. In the study area, it was evident that rural women and technology in the current context considered cultural change as a result of diffusion of household technologies, has reduced household drudgeries. It was revealed that 96% of them had been involved in purchasing decisions of household technologies either alone or collectively at the domestic front. With regard to farm technology, it was reported that, respondents alone (3%), whole family together (14%), respondent with somebody in the family (43%), either sons or husband alone (17%) made the decision on farm technology whereas 23% had no involvement. This showed that women had considerable voice in purchase decisions of household and farm technologies. Appropriate resources and technology should have a considerable positive impact on easing women's work in household production (Balakrishnan, 2005). In the study area, impact of time saving household implements; household vehicles; electric goods and entrainment assets and

information communication technologies on material culture of rural women were found to be significant and had given rise to respective non-material cultural changes together with social changes. Household technology used by women was studied under three categories: usage of convenient home items (kitchen equipments, electric goods and entrainment assets); usage of vehicles; and usage of information and communication technologies. Women's involvement in usage of convenient home items (kitchen equipments and electric goods), vehicles, and information and communication technologies were 96%, 23%, 81% respectively. According to respondents, majority were using convenient home items and information and communication technologies. Vehicle usage was low and it was also limited to a few using foot-cycles and motorbikes while very few were using three wheelers. The important issue was that rural value system and norms do accept women's involvement with rural household technology. Farm technologies used by women was studied under four categories: farm machinery, farm equipments, farm assets and related information and communication technologies. Except for agriculture related information and communication technologies, other farm technologies had well penetrated into the rural communities studied. Women's involvement with usage of farm machinery, farm equipments, farm assets and related information and communication technologies found as 8%, 11%, 48%, and no involvement respectively. It was a significant feature that none of the rural women were involved in using information and communication technologies useful for farm operations such as use of ICT for information obtaining (i.e. informative CD-Roms), 1920 toll free service, and cyber agricultural wikipedia intervention. Further, none of the respondents benefited from any formal training on farm machinery handling. This suggests that in the context of rural women in agriculture, rural value systems and culture have not yet adopted necessary changes which demand interventions of farm technologies. Instead rural women's labor needs are still being replaced by their male counterparts who have better connections with farm technology.

CONCLUSIONS/RECOMMENDATIONS

From what was revealed by the respondents and the observations made by the researcher, it was clear that in the study area, social transformation has been taking place as a combined effect of changes in social and cultural environment. Diffusion of household technology was found to have a considerable positive impact on easing women's work in the household production segment. Increased usage of farm assets had led rural women to have strong footing in the farm production segment while a lack of training on farm machinery handling led to a wide gap in farm machinery usage between rural women and their male counterparts. Lack of usage of information and communication technologies useful for farm operations transcends from being less informed to high dependency on others for information. Increased awareness of information and communication technologies and increased formal training opportunities on farm machinery focused on rural women are important in terms of regaining their grip in a technologically advanced agricultural social context.

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