"Examining the association between the determinants leading to migration of female farmers from rural areas"

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1. Introduction

Resources are the key considerations for rural livelihoods. Rural households negotiate their livelihoods by obtaining access to land, labour, capital, knowledge and market, which leads to enhanced family well-being and sustainable use of resources (Valdivia and Gilles, 2001).

Access means the ability of a rural woman to get socio-economic resources and accrue benefits from them. Access is the right or opportunity to use, manage or control a particular resource (Nichols et al., 1999). Resources may be economic (e.g. Land and credit), political (e.g. Participation in local government and community decision-making) and social (e.g. education and training). In general, male and female farmers are affected differently by agricultural policies and programmes because of their diverse yet often complementary roles and responsibilities in agricultural production, disparities in their access to and control over productive resources and the existence of social norms and legal legislations that often favours men over women (FAO2010). Gender-disaggregated agricultural data can be used to illustrate economic, social and political differences that may exist between male and female farmers, to assess the possible impacts of these differences on their production and productivity, and to better understand and recognize men and women's (changing) roles and responsibilities related to the agricultural sector, rural development and food security.

Many studies have already found that access to productive resources for women enhances knowledge on farm management and income generation, develops bargaining and decision-making power, improves children's schooling and health, increases self-confidence and social networks and provides security in old age (IFPRI, 2000; Grace, 2005; Pitt et al., 2006).

The process, when disadvantaged women have the ability to control their own environment by gaining greater access to material and intellectual resources, (Musokotwane et al. 2001) called this process as "empowerment". Access to education includes the opportunity to gain formal education i.e. academic qualification.

Education - social empowerment of women

Social change simply means a change in people, in their relationships with each other and with the things in their environment. Uncontrolled social change can get us into serious trouble. So, it is very important to take steps that will bring a positive change in it. As external force is required to bring a body from the state of rest to motion, but, it should be controlled one to move it in the guided direction. Education is a strong and useful external weapon to make an effective social change to break the inertia in this regard. Education is widely accepted as a leading instrument for promoting economic growth. For India, where growth is essential if the country is to climb out of poverty, education is particularly important. Education without doubt, is the most fundamental prerequisite for empowering women in all spheres of society. Studies show that when women are supported and empowered with all of society benefits, their families are healthier, more children go to school, agricultural productivity improves and incomes increase. In short, communities become more resilient (Dwivedy, Nidhi et. al. 2012). However, without education of comparable quality and content to that given to sons and men, women are unable to understand the problem in the right perspective, excel in any field and advance within them. So, equal access to education for women and daughters should be dealt on priority basis. Special measures should be taken to eliminate discrimination, universalize education, eradicate illiteracy, create a gender-sensitive educational system, increase enrolment and retention rates of daughters and improve the quality of education to facilitate life-long learning as well as development of occupation/vocation/technical skills by women. Reducing the gender gap in secondary and higher education should be a focus area.

In India, the female literacy rate is lower than the male literacy rate, though it is gradually rising (Singh, S. 2007). According to majority of the scholars, the major factor behind the improved social and economic status of women in Kerala is literacy (Kalyani and Kumar2001, Wikipedia). In urban India, daughters are nearly at par with the sons in terms of education. However, in rural India daughters continue to be less educated than the sons. A study by the USAID has found that countless women in the developing world are removed from the information age because of their lower levels of education and negative attitudes towards other forms of achievement. "Without access to information technology, an understanding of its significance and the ability to use it for social and economic gain, women in the developing world will get further marginalized from the mainstream of their communities, their countries and the world" (USAID, 2001).

Illiteracy paves the way for discrimination against wages

Poverty alleviation in rural areas is significantly related to women's increased access to productive resources (Adereti, 2005). Thus, efforts to build social capital among rural women are necessary for sustainable production and household food security through provision of facilitating resources (Meludu et al., 1999; Flora, 2001). At the same time, raising social awareness of people about the symptoms, causes and consequences of oppressive economic, cultural, familial, religious and legal practices is necessary for changing traditional gender roles and mind-sets (Acharya, 2003).

In most developing countries, there is a patriarchal system of social setting. In this tradition, men hold the sovereign power to control households and society as a whole while women are ascribed to a lower hierarchy compared to men (Balk, 1997). The historical deprivation of women socially, legally, politically and technologically aggravates their positions and they are subordinated as a production unit for bearing and rearing children (Ahmad, 2001).

India's North East having nearly seventy percent hilly terrain, her food security is most important concern. Traditional agriculture of the hills needs massive involvement of the women in this noble venture. The state of Sikkim is the smallest state in area and population as well. Involvement of women in agriculture and allied areas is prospective. Sikkim is strategically located at high altitude and therefore its agricultural practices supposed to be unique and of course difficult. It has to be a mix of traditional and experimental. Therefore this type of research needs an action research, which deals with regular intervention such as observation, monitoring using statistical data mainly shall go through the statistical data on the involvement in various other associated areas. The study has another special feature that of being located in the North East Region, surround by long stretch of international border which is considered most important strategically located having both positive and negative aspects.

In Sikkim, agriculture is the main economic activity of all the districts in the state. In 2001, about 30% population of West, 37% of South and 64% each of East and North districts was dependent upon agriculture. 76% women workers are directly or indirectly engaged in agriculture and allied activities. So, women are the main participants in agriculture and allied production and they attend all secondary and cumbersome tasks that require more patient, time and devotion. As far as upper class women are concerned, they mostly engage to those activities that can be performed within the household compound e.g. cleaning and sorting of grains, large scale food processing, cooking etc. for their household. In case of lower class women, they participate extensively in the fieldwork as a member of family or wage labourers contributing substantially in the farm management decision. The work burden among the women of various economic strata seems to be unequal; the women in the middle income strata have longer working hours. The poor women lack opportunities for employment due to limited size of the family farm and seasonal character of the demand for agricultural labour whereas, women in the high economic strata may hire outside labour for more strenuous food processing chores

and other household work. Women in the middle economic Strata often take all the responsibilities of family animals as well as the food processing chores.

1.1 About Sikkim

Topography of Sikkim

Sikkim is a small Himalayan state lying between 27 to 28 degrees North latitude and 88 to 89 degrees East longitude. The state being a part of inner ranges of the mountains of Himalaya has no open valley and no plains but carried elevations ranging from 300 to 8583 meters above means sea level consisting of lower hill, middle and higher hills, alpine zones and snow bound land, the highest elevation 8583 meters, Mt. Kanchendzonga is on the top of the mountains and it rises in the elevation northward.

Geography of Sikkim

Sikkim, the mystical land under the foothills of the Himalayas, is the second smallest state in India with total area equal to just 115 km by 65 km. It is barely 7,096 sq. km. in size, situated in the Eastern Himalayas spread below the world's third highest mountain Kanchendzonga (8585m). The thumb shaped state borders the kingdom of Nepal in the West, Chumbi Valley of Tibet-Autonomous Region of China to North and East, the kingdom of Bhutan in South-East and Darjeeling district of W.B. of the Indian state to its South. The State is divided into four districts—South, North, East and West (Registrar General of India, 1989).

District wise demographic features and workers profile of the state

According to (Census 2011), Sikkim has a total population of 607 688 persons (which is 0.05 percent of total population of India) of which 321661are males and 286 027 are females. From the year 1991-01 to 2001-11, decadal population variation recorded was 33.07 to 12.36 percentages, while India's figure for the same is 17.64. In 2011 rural population consists of 480,981 people while urban population consists of 59,870 people. Sex ratio (females per 1000 males) also known as Gender Ratio, in the same decade has shown a little improvement i.e. from 875 to 889 but still lags behind India's, which is 940. Though population density per sq. km. has increased in the same decade from 76 to 86 but is much less than national population density per sq. km. which is equal to 382. Literacy rate in 2001 was 68.81 which rose to 82.20 in 2011 which is above national average of 74.04 percent. This decade has seen an increase in male literacy rate from 76.04 to 87.30 as against all India's rate which is 82.14 and female literacy rate also shows increased figures i.e. from 60.41 to 76.43 as against all India's rate of 65.46.

The economic classification of population of Sikkim shows the decrease of 14,021 in the cultivator category and increase of 9,047, 1,893, and 47,899 in the agriculture labourers, household industry and other workers categories of the total workers from 2001 to 2011. In the same period increase in marginal workers is more than the increase in main workers.

		Table-I-Distribution of Workers in Sikkim Census 2011	
		Total Workers	
2001		1,16,529;53,279;23,542;69,693= 2,63,043	
2011		139,678;70,348;23,359;74,753= 3,08,138	
		Male	Female
2001		77,057;33,333;15,123;40,203= 1,65,716	39,472;19,946;8,419;29,490= 97,327
2011		92,351;40,772;15,935;45,300= 1,94,358	47,327;29,576;7,424;29,453= 1,06,780
		Main Worker	Marginal Worker
2001	Total	92,577;45,407;17,553;57,367= 2,12,904	23,952;7,872;5,989;12,326= 50,139

		Male				Female			
2011	Total	111,058;51,225;17,216;50,898= 2,30,397				28,620;19,123;6,143;23,855= 77,741			
		Male		Female		Male		Female	
2001		67,115;30,411;13,002;36,013= 1,46,541		25,465;14,996;4,551;21,354= 66,363		9,942;2,922;2,121;4,190= 19,175		14,010;4,950;3,868;8,136= 30,964	
2011		79,311;33,254;12,677;35,271= 1,60,513		31,747;17,971;4,539;15,627= 69,884		13,040;7,518;3,258;10,029= 33,845		15,580;11,605;2,885;13,826= 43,896	
		Cultivator		Agricultural Labourers		Household Industries		Other	
		Male	Female	Male	Female	Male	Female	Male	Female
2001	Total	1,31,258		17,000		4,249		1,10,566	
	East	19,725	18,211	4,076	4,067	1,321	755	81,935	16,439
	West	20,634	15,130	2,389	1,723	894	224	9,416	2,869
	North	4,831	4,349	1,045	1,006	178	132	9,069	2,932
	South	24,917	23,461	1,252	1,442	456	259	13,578	4,328
2011	Total	1,17,401		25,986		5,143		1,59,608	
	East	16,477	15,012	5382	6,101	1,471	933	69,021	25,281
	West	22.153	18,644	4,077	3,976	761	642	13,781	6,314
	North	3,889	3,424	1,308	954	152	180	10,586	2,866
	South	20808	16,994	2,116	2,072	563	441	21813	9,946

The table – (II), shows the district wise percent change in economic distribution of workers in Sikkim census 2011 to 2001. Purple coloured percent change figures in Table- (II) shows for male and red coloured shows for female in East, West, North & South districts. It shows the percent decrease in the cultivator category in all districts except West and percentage decrease in female is more than the percentage decrease in the male counterpart. While percentage increase in female workers than men in the agriculture labourers, household industry and other workers categories has been noticed in the 2011 census.

		Cultivator				Agricultural Labourers				Household Industries				Other			
		Male	% Change in 2011	Female	% change in 2011	Male	% change in 2011	Female	% change in 2011	Male	% change in 2011	Female	% change in 2011	Male	% change in 2011	Female	% change in 2011
2001	East	19,725		18,211		4,076		4,067		1,321		755		81,935		16,439	
	West	20,634		15,130		2,389		1,723		894		224		9,416		2,869	
	North	4,831		4,349		1,045		1,006		178		132		9,069		2,932	
	South	24,917		23,461		1,252		1,442		456		259		13,578		4,328	
2011	East	16,477	-16	15,012	-18	5382	32.04	6,101	50	1,471	11.3	933	23.5	69,021	-15.7	25,281	54
	West	22,153	7	18,644	23	4,077	70.6	3,976	131	761	-14.8	642	186.6	13,781	46.3	6,314	120
	North	3,889	-19	3,424	-21	1,308	25.1	954	-5	152	-14.6	180	36.3	10,586	16.7	2,866	-2
	South	20808	-16	16,994	-28	2,116	69	2,072	44	563	23.4	441	70.2	21813	60.6	9,946	130

Table- (II) – Percent Change in Distribution of Workers in Sikkim Census 2011 to 2001

Source-http://censusindia.gov.in/pca/searchdetails.aspx?id=275340; 275767; 275700; 275903;

East District

According to (Census 2011) in table-I, there are 31,489 cultivators, which were 37,936 in 2001 (About 26,000 of them are small/medium farmers) out of which 16,477 are males and 15,012 are females in East district. Total no. of agricultural labourers 11,483 which were 8,143 in 2001, out of which 5382 are males and 6,101are females.

West District

Table-I shows that there are 40,797 cultivators, which were 35,764 in 2001 (About 16,000 of them are small/medium farmers) out of which 22.153 are males and 18,644 are females in West district. Total no. of agricultural labourers in the district are 8,053 out of which 4,077 are males and 3,976 are females.

North District

Table-I shows that there are 7,313 cultivators, which were 9,180 in 2001 (About 6,000 of them are small/medium farmers) out of which 3,889 are males and 3,424 are females in North district. Total no. of agricultural labourers in the district are 2,262 out of which 1,308 are males and 954 are females.

South District

Table-I shows that there are 37,802 cultivators, which were 48,378 in 2001 (About 20,000 of them are small/medium farmers) out of which 20,808 are males and 16,994 are females in South district. Total no. of agricultural labourers in the district are 4,188 out of which 2,116 are males and 2,072 are females.

Share of different sectors in Sikkim

(Lama, 2001, pp. 17-18) The structural change, generally reflected in the shift from the primary to the secondary sector, is virtually absent in Sikkim. Industries, in fact, are still a low priority item in Sikkim's plan process. In Sikkim, the structural shift has been slower than in the country as a whole. In 1995–96, India's shares were 30.58 per cent (primary), 25.47 per cent (secondary) and 43.94 per cent (tertiary), while the respective shares for Sikkim were 52 per cent, 13 per cent and 34 per cent.

It has been noticed that though earlier the structural shift was slower in Sikkim but (Singh, E. Bijoykumar, 2009) has analysed the nature of growth, both at the aggregate level and sectorial level, among the eight states in the North Eastern Region (NER) using NSDP data. It has studied that the share of primary sector has declined substantially and that of tertiary has increased. The paper describes that by 2006-7 except for Manipur tertiary sector has become the predominant sector in all the states. In Manipur due to a spurt in construction activities secondary sector surpassed the tertiary sector. Besides Manipur Arunachal Pradesh is another state with a high share of secondary sector. Except for Arunachal Pradesh and Manipur (in which due to a spurt in construction activities, the contribution of secondary sector surpassed the tertiary sector and dominates in the annual growth rate), the main source of growth in per capita income is tertiary sector. In none of the states in the North-Eastern region is the primary sector the main source of growth though it contributes a significant proportion in Arunachal Pradesh, Assam and Sikkim. It shows the growing role of the non-commodity producing sector in the growth of the economy. The falling share of primary sector in income generation along with the high share in employment indicates falling productivity in this sector. The benefits of growth accrue largely to the small portion of workers in the tertiary sector. This will accentuate the extent of inequality. Only Sikkim registered higher growth rate after the break in tertiary sector which has become more dominant than the primary sector in most of the states. This result further substantiates the irrelevancy of economic policy.

Migration to urban areas involves both "Push" and "Pull" factors

The decision to migrate involves both "push" and "pull" factors (Lewis, 1954; and Harris and Todaro, 1970).The Lewis model explains migration as a transfer of labor from labor-surplus sectors (rural areas/ The Subsistence Sector) to labor deficit-sectors (urban areas/The capitalist) until a balance is reached. The Harris Todaro model on the other hand, postulates that migrants assess various labor

market opportunities available in the rural and urban sectors and choose the one that maximizes their expected gains. This model explains some of the deficiencies inherent in the Lewis model such as the rise in rural-urban migration in the context of rising urban unemployment. Overall, some empirical studies found that economic push factors (such as, the lack of rural credit, unemployment, and rural poverty) are most important; while others suggest that economic pull factors (such as, perception of high wages from urban employment) are dominant.

Some historians believe that it was woman who first domesticated crop plants and thereby initiated the art and science of farming. While men went out hunting in search of food, women started gathering seeds from the native flora and began cultivating those of interest from the point of view of food, feed, fodder, fiber and fuel (Prasad and Singh 1992).Women have protected the health of the soil through organic recycling and promoted crop security through the maintenance of varietal diversity and genetic resistance. Therefore, without the total intellectual and physical participation of women, it will not be possible to popularize alternative systems of land management to shifting cultivation, arrest gene and soil erosion, and promote the care of the soil and the health of economic plants and farm animals.

Torado (1981) is of the opinion that, development should be comprehended as multidimensional that would involve institutional, social and attitudinal change. In view of these perceptions of development, to be able to make a significant impact, the women must understand the dynamics of the existing structures and appreciate the need for change and the direction and special technical skills that are necessary tools of action.

Study gap

Our study review finds a gap that female participation in farming sector has not been studied in Sikkim, though plenty of research is found in other parts of the India as well as in other countries the world over. This gap is mainly attributable to the following reasons:-

   I.   Social science research in the state of Sikkim is inadequate.

   II.   Availability of unreliable data of the North Eastern region before the launching of economic journal "NEDFi Databank Quarterly" on July 2002.

Considering this situation, this paper analyses the synergistic relationship of farm size, accessibility to extension service, education and type of land holdings with the satisfaction level of income females get from their farm in the rural areas of Sikkim in North Eastern India.

The investigative study question

The paper revolves round the question:-
What is the synergistic impact of farm size, accessibility to extension service, education and type of land holdings on the satisfaction level of income females get from their farm?

2. Empirical method and estimation

Universe or population

The universe or population for the study consists of total number of married females in rural areas who are employed in farming in the state of Sikkim.

Sampling method for selected area of study

Multi-stage stratified random sampling technique of probability method is used to distribute the population into circles, revenue blocks and villages, then a combination of Judgment and

Convenience sampling techniques of non-probability methods is decided upon to select a final list of the female farmers from different farm households for this study.

Sample size

Table III below shows that though North district contains maximum area of the State i.e. almost 60%, but it holds only 7-8% of the population. On the contrary East district contains only 13% area of the State, but it holds maximum i.e. 45% of the population. So, for this study, maximum no. of females for data collection is from East & minimum from the North district. Here, the size of the sampling female farmers from each district is neither proportional to the minimum size of the sampling female farmers of the district nor in the same ratio as is the percentage ratio of each district to the total population of the state. But the sample size of each district is just an indicative of the reason of taking maximum/minimum sampling units from that area.

District/ State	Total area (sq.km)	%of total area	Population Concentration	% of total Population	Total no. of circle	Total no. of circles	No.of female sample
East	954	13.5	2,45,040	45.3	21	06	80
West	1166	16.5	1,23,256	22.8	21	06	60
North	4226	59.5	41,030	7.6	07	04	30
South	750	10.5	1,31,525	24.3	23	08	60
Sikkim	7096	100	5,40,851	100	72	24	230

Table-I11-Selection of Sample Size

Source- figures extracted from census 2001.

A data collected from a total of 24 circles from all the four districts in Sikkim has been analysed. The district wise i.e. (East, West, North & South) distribution of circles selected is 6, 6, 4 & 8 respectively. A total of 80 females of farming community from East, 30 from North and 60 each from West & South districts have been interviewed. Data for 115 samples (50% of 230), was collected by the researcher herself, while for rest of 115 samples (40, 30, 15 & 30 from East, West, North & South respectively), was collected with the active help and participation of all the village heads. Data thus collected from 230 married females in rural areas in the state of Sikkim, employed in farming sector has become the basis of the Primary Data analysis in this Study.

Data collection and analysis

In order to collect qualitative data, three group (each group containing 10 participants) discussion sessions were arranged separately in three villages (Syari, Sichey and Rawtey rumtek). During these group sessions, several open-ended questions were asked from the respondents in order to collect deeper information about their accessibility to resources and their participation in different farms and the related activities along with many hidden facts and factors. Based on this information, the research instrument i.e. questionnaire containing dichotomous, multiple choice and open end questions was designed and a pre-test was conducted with 18 respondents for its necessary modification. It was then translated into Nepali also for the convenience of the farm population. Primary data was collected by researcher by visiting the farming females of rural area in Sikkim, using questionnaires. The primary data was collected between the months of March to September 2011 from all districts of Sikkim. Books, journals, reports and internet documents were used as secondary sources of data supporting or supplementing the empirical findings of the study.

Data analysis

Data has been analysed using the Statistical Package for the Social Science (SPSS) and some descriptive statistics, such as percentage, mean, standard deviation (SD) are used to interpret the data. There is only one sample in the study. Ordinal and nominal level data can be analysed using parametric statistics; therefore One-Sample t-test for inferential interpretation of the data has been run to understand the nature of relation between the variables. For the inferences of the hypotheses, Information from literature survey is taken to support some assumptions. Below is given hypotheses.

Hypothesis Statement –Sample and the population parameter of rural farming females are same for the questions related to Q.6A, Q.6B, Q.6C, Q.6D, Q.6E, Q.6N, Q.5C and Q.5.5.

Ho – There is no significant difference between the sample and the population parameter.

Ha – There is significant difference between the sample and the population parameter.

Table-IV-Degree of Answer For Questions related to Q.6A, Q.6B, Q.6C, Q.6D, Q.6E, Q.6N, Q.5.5 & Q.5C									
	Valid	(1) 01-02 Very Unhappy	(2) 03-04 Unhappy	(3) 05-06 Somewhat Happy	(4) 07-08 Happy	(5) 09-10 Very Happy	Total	Mean	Median	Variance
N		230	230	230	230	230	230			
	Missing	0	0	0	0	0	0			
Q.6A	Valid Percent	4.8	7.0	22.2	16.5	49.6	100.0	3.99	4.00	1.432
	Cumulative Percent	4.8	11.7	33.9	50.4	100.0				
Q.6B	Valid Percent	21.3	15.2	20.4	23.9	19.1	100.0	3.04	3.00	2.016
	Cumulative Percent	21.3	36.5	57.0	80.9	100.0				
Q.6C	Valid Percent	5.7	9.1	22.6	27.0	35.7	100.0	3.78	4.00	1.413
	Cumulative Percent	5.7	14.8	37.4	64.3	100.0				
Q.6D	Valid Percent	27.4	28.7	29.1	13.5	1.3	100.0	2.33	2.00	1.120
	Cumulative Percent	27.4	56.1	85.2	98.7	100.0				
Q.6E	Valid Percent	29.6	19.6	21.3	10.9	18.6	100.0	2.70	3.00	2.152
	Cumulative Percent	29.6	49.1	70.4	81.3	100.0				
Q.6N	Valid Percent	13.5	34.3	42.6	8.7	.9	100.0	2.49	3.00	0.749
	Cumulative Percent	13.5	47.8	90.4	99.1	100.0				
Q.5.5		(1) Illiterate	(2) Primary	(3) Middle	(4) Matric	(5) Secondary		2.34	2.00	1.030
	Valid Percent	21.3	38.3	28.7	8.3	3.5	100.0			
	Cumulative Percent	21.3	59.6	88.3	96.5	100.0				
Q.5C		(1) Never	(2) Rarely	(3) Sometimes	(4) Frequently	(5) Always		2.44	3.00	1.043
	Valid Percent	28.3	10.4	50.0	11.3	-	100.0			
	Cumulative Percent	28.3	38.7	88.7	100.0	-				

Table-V-One-Sample Test For Questions related to Q.6A, Q.6B, Q.6C, Q.6D, Q.6E, Q.6N, Q.5.5 & Q.5C						
Test Value = 3						
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Q.6A	12.562	229	.000	.991	.84	1.15
Q.6B	.464	229	.643	.043	-.14	.23
Q.6C	9.928	229	.000	.778	.62	.93
Q.6D	-9.656	229	.000	-.674	-.81	-.54
Q.6E	-3.147	229	.002	-.304	-.49	-.11
Q.6N	-8.915	229	.000	-.509	-.62	-.40
Q.5.5	-9.811	229	.000	-.657	-.79	-.52
Q.5C	-8.266	229	.000	-.557	-.69	-.42

Representation for the parameter:

Q.6A, Q.6B, Q.6C, Q.6D, Q.6E and Q.6N in the table-IV & VI represent the feeling of rural women for- Doing anything except agriculture (A), Inclination to leave farming (B), Inclination for their contribution in farming (C), Views for moving towards urban area (D), Views regarding accompanying their husbands in case they move towards urban area (E) and Feeling about the income they get from their farm (N). While Access of a rural woman to extension service and education is represented by Q.5C and Q.5.5. The accessibility is measured by using the Likert Scale with a weight of 1 representing 'no access', 2 for 'rare access', 3 for 'sometimes access, 4 for 'frequent access and 5 for 'always access; education level of weight 1 represents Illiterate, 2 Primary, 3 Middle, 4 Matric, 5 Secondary. Degree of answers for feeling of rural women for Q.6A, Q.6B, Q.6C, Q.6D, Q.6E and Q.6N ranges from 1 to 10, where 1 covers (01-02) degrees of answers indicates Very Unhappy feeling for the said question, (03-04) -Unhappy feeling denoted by (2), (05-06)- Somewhat Happy feeling denoted by (3), (07-08)-Happy feeling denoted by (4) and (09-10)-Very Happy feeling denoted by(5).

Assessment of access to education and extension services

Access to education includes the opportunity to gain formal education i.e. academic qualification. The extent of education accessibility shows that 21% of the female farmers are Illiterate, 39% of them have studied up to the Primary level, 29% till Middle, 08% till Matric & only 03% of them have studied till Secondary level.

Regarding accessibility to extension services, it includes the accessibility to agencies like Department of Agriculture Extension (DAE)/Department of Livestock Services (DLF) to develop technical skill. The data in the table-IV reveals that (28%) of the respondents have replied in negative the accessibility, while (72%) have been affirmative about it. Those who get an opportunity, to have services, their accessibility extent has shown that (10%) of them rarely, (51%) sometimes & (11%) of them get it frequently. As is revealed from the data in Table-IV, almost half of the sample female farmers do not/rarely get an opportunity to have such services. The reason, they reported for this is-being residing in the interior & remote area, they do not get the timely information for the same and also they reported that most of the time male member of the family goes for it. As a result, they lack modern avenues of knowledge and information, new technologies and opportunities for training to increase their farm productivity and income. Though, they shared that they are aware about some of the technologies but do not have access to it.

Inferential analysis for accessibility

From the table-V, we find that the value of t for accessibility of farming females to education Q.5.5 & to extension services Q.5C is -9.81 & -8.266 respectively, which is negative and also lower than 1.96, mean difference column for them also shows negative value. The confidence intervals lie entirely below 0.0 and also it is negative. The p-value for both of them is found to be .000 which is less than 0.05. We can safely say that null hypothesis for this view is rejected and thus alternate hypothesis for it is accepted, which says that there is significant difference between the sample and the population parameter. Since mean difference column for it shows negative values. Thus there are valid reasons to say that accessibility of farming females to education and extension services is not more.

Assessment of female farmer's views:

The extent of feeling for Q.6A, Q.6B, Q.6C, Q.6D, Q.6E and Q.6N in table-IV shows that 34% of the respondents for Q.6A, 57.0% for Q.6B, 37% for Q.6C, 85% for Q.6D, 70% for Q.6E and 90% for Q.6N have rated their view for the respective questions up to 3 i.e. range of between (05-06). This shows that more number of respondents end up their view till Somewhat Happy level for Views of moving towards urban area Q.6D, Views regarding accompanying their husbands in case they move

towards urban area Q.6E, Feeling about the income they get from their farm Q.6N. So, we can say that more number of female farmers feel unhappy for the respective views.

While less number of respondents till Somewhat Happy level are there for Doing anything except agriculture Q.6A, Inclination to leave farming Q.6B, Inclination for their contribution in farming Q.6C. So, we can say that more number of female farmers feel happy for the respective views.

Inferential analysis for female farmer's views:

From the table-V, we find that the value of t for Views regarding moving towards urban area Q.6D, Views regarding accompanying their husbands in case they move towards urban area Q.6E and Feeling about the income they get from their farm Q.6N is -9.656, -3.147 & -8.915 respectively, which is negative and also lower than 1.96, mean difference column for them also shows negative values. The confidence intervals lie entirely below 0.0 and also it is negative. The p-value for both of them is found to be less than 0.05. We can safely say that null hypothesis for this view is rejected and thus alternate hypothesis for it is accepted, which says that there is significant difference between the sample and the population parameter. Since mean difference column for it shows negative values. Thus there are valid reasons to say that females do not hold the views for moving towards urban area Q.6D, do not want to accompany their husbands in case they move towards urban area Q.6E and do not feel happy about the income they get from their farm Q.6N.

From the table-V, we find that the value of t for Views regarding Doing anything except agriculture Q.6A, Inclination to leave farming Q.6B and Inclination for their contribution in farming Q.6C is 12.562, .464 & 9.928 respectively, which is positive. For Q.6A & Q.6C the value is higher and for Q.6B it is lower than 1.96, mean difference column for them shows positive values. The confidence intervals lie entirely above 0.0 & positive for Q.6A & Q.6C, but for Q.6B it is negative at a lower end and positive at the upper one. Also the upper confidence interval value is more than the lower one. The p-value for Q.6A & Q.6C is < 0.05 but for Q.6B it is found to be greater than 0.05. We can safely say that null hypothesis for Q.6A & Q.6C view is rejected and thus alternate hypothesis for it is accepted, which says that there is significant difference between the sample and the population parameter. Since mean difference column for it shows positive values. Thus there are valid reasons to say that females happily admit the views for doing anything except agriculture Q.6A & feel for their contribution in farming Q.6C. We can safely say for Q.6B that null hypothesis for it is accepted and thus alternate hypothesis for it is rejected, which says that there is no significant difference between the sample and the population parameter. Since mean difference column for it shows positive values. Thus there are valid reasons to say that females happily admit the views for leave farming Q.6B.

Possession of farms sizes with women

In order to analyse the land holding status, three categories of farms sizes of the land for primary data collection has been taken into consideration i.e. Small (upto-2 hectare), Medium (2-10 hectare) and Large (10 & above). Here, it is important to mention that farm size up to 1.9 has been counted in small category, up to 9.9 in medium and rest in the large one. For agricultural surveys an abridged version could be used. But, this scale is chosen because FAO, for the purposes of international comparisons, fits a statistical probability distribution to the national data and redistributes the number and area of holdings as per standard size classes (in hectares). Implementation of such a procedure becomes difficult if the number of size classes reported by the countries is too few. For facilitating cross-country comparison, FAO recommends to member countries to adopt a detailed distribution of classes for tabulation of "number and area of holdings", at least for the purpose of agricultural census. Also the Sikkim state uses this scale for the size of land holdings.

In the type of land holdings with women, two types of distinctions are made – land owned/ possessed but not owned i.e. cultivators and neither land possessed nor owned i.e. agricultural labourers. Women

who work mainly on their family farms are classified as 'cultivators' and women who work on somebody else's farm for a wage paid either in cash or in kind are classified as agricultural labourers. Thus while the former are self-employed, the latter are wage-employed, but in both cases, work in the sense of economically productive work – has got to be the principal criterion. Moreover, the category of cultivators covers both owner cultivators and tenant cultivators. As regards the type of work, both persons are doing actual cultivation involving manual work and persons engaged in active supervision or direction of cultivation fall in this category.

An agricultural labourer is defined as a person who works on another person's land, without exercising any supervision or direction in cultivation, for wages in money, kind or share of produce, but has no right or lease or contract on land on which she works.

Possession of size of farm land details:

Q.1.2AA in the table-VI represents possession of size of farm land by female farmers. Their frequency shows that out of total 230 female sample farmers, 147 of them admitted of having small size of farm land, 65 for medium size of farm land and a very less number of them i.e. only 18, acknowledged that size of farm land with them is of larger size. The percentage column of the table gives the clearer picture of the data. It shows that a huge 64% replied in favour of small size of farm land, 28% for medium and almost negligible i.e. only 8% of female sample farmers asserted for the larger size of farm land with them. The mean & the Standard deviation values for it are 1.44. & 0.636 respectively.

Table-VI-Q.1.2AA Frequency Table for Possession of Size of Farm Land							
		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std. Dev.
Valid	**Small**	147	63.9	63.9	63.9	1.44	.636
	Medium	65	28.3	28.3	92.2		
	Large	18	7.8	7.8	100.0		
	Total	230	100.0	100.0			

Type of land holdings with women

Type of land holdings with women details:

Table-VII-Q.1.2A1 Frequency Table for Type of Land Holdings with Women							
		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std. Dev.
Valid	**Neither land possessed nor owned (agri. labours)**	23	10.0	10.0	10.0	1.90	.301
	Land owned/ possessed but not owned (cultivators)	207	90.0	90.0	100.0		
	Total	230	100.0	100.0			

Q.1.2A1 in the table-VII represents type of land holdings with female farmers. Their frequency shows that out of total 230 female sample farmers, 23 of them admitted of not owning but in possession of the farm and 207 of them own the farm land. The percentage column of the table gives the clearer picture of the data. It shows that only 10% of sample female farmers are agriculture labours. On the other hand, a massive i.e. 90% of sample female farmers are cultivators. The mean & the Standard deviation values for it are 1.90 & 0.301 respectively.

3. The Model

Given the cross-sectional nature of the data and equations to be estimated, a linear hierarchical regression model has been used.

Hypothesis Statement – There is a statistically significant relationship between the set of independent variables (control variable - possession of size of farm land [1.2AA], the additional variables - accessibility to extension service and training [Q.5C], level of education [Q.5.5] and type of land holdings [Q.1.2A1] and the dependent variable - the satisfaction level of the income females get from their farm [Q.6N]

Ho – There is a statistically no significant relationship between the set of added independent variables and the dependent variable

Ha – There is a statistically significant relationship between the set of added independent variables and the dependent variable

Inferential analysis of the model:

The purpose of this paper is to analyse the relationship between metric, ordinal or dichotomous independent variables and a metric dependent variable. In this we will be looking at the relationship between farm size categories and the responses for the satisfaction level of the income females get from their farm. The hypothesis is that the lower the farm size, lower is the satisfaction level of the income females get from their farm against the reference population. We will start with some data manipulation, followed by exploratory analyses and then to the simple linear regression.

After controlling for the effects of the metric variable "possession of size of farm land" [1.2AA], the addition of the ordinal variables "accessibility to extension service and training (C) " [Q.5C], " level of education " [Q.5.5], and dichotomous variable" type of land holdings"[Q.1.2A1] reduces the error in predicting " the satisfaction level of farm income " by 0.8%. 0.05 level of significance has been used.

After controlling for 1.2AA, the variables accessibility to extension service and training, level of education, and type of land holdings each make an individual contribution to reducing the error in predicting the satisfaction level of farm income. Survey respondents who had low accessibility to extension service and education were less satisfied with the level of farm income. With 230 valid cases and 4 independent variables, the ratio for this analysis is 57.5.0 to 1, which satisfies the minimum requirement.

Table-VIII-Descriptive Statistics			
	Mean	Std. Deviation	N
Q.6N	2.49	.865	230
Q.1.2AA	1.44	.636	230
Q.5C	2.44	1.021	230
Q.5.5	2.34	1.015	230
Q.1.2A1	1.90	.301	230

Table-IX-Correlations		Q.6N	Q.1.2AA	Q.5C	Q.5.5	Q.1.2A1
Pearson Correlation	Q.6N	1.000	.138	.000	.051	.072
	Q.1.2AA	.138	1.000	.062	-.059	.071
	Q.5C	.000	.062	1.000	.122	.245
	Q.5.5	.051	-.059	.122	1.000	.113
	Q.1.2A1	.072	.071	.245	.113	1.000
Sig. (1-tailed)	Q.6N	.	.018	.497	.222	.138
	Q.1.2AA	.018	.	.175	.187	.143
	Q.5C	.497	.175	.	.032	.000
	Q.5.5	.222	.187	.032	.	.044
	Q.1.2A1	.138	.143	.000	.044	.
N	Q.6N	230	230	230	230	230
	Q.1.2AA	230	230	230	230	230
	Q.5C	230	230	230	230	230
	Q.5.5	230	230	230	230	230
	Q.1.2A1	230	230	230	230	230

Table-X-Variables Entered/Removed[b]			
Model	Variables Entered	Variables Removed	Method
1	Q.1.2AA[a]	.	Enter
2	Q.5.5, Q.1.2A1, Q.5C[a]	.	Enter
a. All requested variables entered.			
b. Dependent Variable: Q.6N			

Table-XI-Model Summary[c]					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.138[a]	.019	.015	.859	.019	4.418	1	228	.037
2	.163[b]	.027	.009	.861	.008	.580	3	225	.629
a. Predictors: (Constant), Q.1.2AA									
b. Predictors: (Constant), Q.1.2AA, Q.5.5, Q.1.2A1, Q.5C									
c. Dependent Variable: Q.6N									

The R Square Change statistic for the increase in R² associated with the added variables (accessibility to extension service and training], level of education and type of land holdings) is 0.008. Using a proportional reduction in error interpretation for R², information provided by the added variables reduces our error in predicting the female's satisfaction level from their farm income by 0.8%.

The p-value for the change in R² associated with the addition of the predictor variables to the regression analysis containing the control variables is .629 and is > 0.05. We accept the null hypothesis that there is no improvement in the relationship between the set of independent variables and the dependent variable when the predictors are added (R² Change = 0.008).

We support the research hypothesis that there is a statistically no significant improvement in the relationship between the set of independent variables and the dependent variable.

Table-XII--ANOVA[c]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.260	1	3.260	4.418	.037[a]
	Residual	168.223	228	.738		
	Total	171.483	229			
2	Regression	4.550	4	1.138	1.533	.193[b]
	Residual	166.932	225	.742		
	Total	171.483	229			
a. Predictors: (Constant), Q.1.2AA						
b. Predictors: (Constant), Q.1.2AA, Q.5.5, Q.1.2A1, Q.5C						
c. Dependent Variable: Q.6N						

The p-value for the overall regression relationship for all independent variables is 0.193, which is > 0.05. We accept the null hypothesis that there is no relationship between the set of all independent variables and the dependent variable ($R^2 = 0$). We support the research hypothesis that there is statistically not a significant relationship between the set of all independent variables and the dependent variable.

Table-XIII--Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.221	.140		15.826	.000
Q.1.2AA	.188	.089	.138	2.102	.037
2 (Constant)	1.826	.393		4.648	.000
Q.1.2AA	.189	.090	.139	2.094	.037
Q.5C	-.027	.058	-.032	-.462	.645
Q.5.5	.047	.057	.055	.831	.407
Q.1.2A1	.184	.196	.064	.935	.351
a. Dependent Variable: Q.6N					

The table-XI above shows that although the relationship between (small, medium and large sized farm) and the satisfaction level of the income females get from there is very weak i.e. 0.138, but p-value shows that it is statistically significant. Our variables together explain about 1.9% of the variance in satisfaction level of the income females get from their farm thereby suggesting a low fit of our model to the data. In this case, p-value, which is below .05 shows that it is a statistically significant result. We support the research hypothesis that there is a statistically significant relationship between the size of farm (small, medium and large sized farm) and the dependent variable (the satisfaction level of the income females get from their farm). Therefore, the predictor is significant. Since our predictor is statistically significant, so, coefficient is interpretable.

The coefficients for size of the farm are interpretable because predictors were statistically significant. We reject the null hypothesis that the slope associated with size of the farm is equal to zero (b = 0) and conclude that there is a statistically significant relationship between size of the farm and the satisfaction level of the income females get from their farm. The coefficients of added variable are not interpretable because none of our added predictors were not statistically significant.

The model summary table-XI above also shows that not only the relationship between the satisfaction levels of the income females get from their farm and the predictors Q.5.5, Q.1.2A1 and Q.5C when added with Q.1.2AA, is very weak i.e. 0.163, but p-value also is not statistically significant. Our output shows us that R Squared is .027. This means that variables are added together could show the improvement only by about .027. It could explain only 2.7% of the variance in satisfaction level of the income females get from their farm. This suggests a low fit of our model to the data. In this case, p-values, which is above .05 shows that it is a statistically not significant result. We support the research hypothesis that there is a statistically not significant relationship between the dependent variable the satisfaction level of the income females get from their farm and independent variables Q.5.5, Q.1.2A1 and Q.5C. Therefore, the predictors are not significant. Since our predictor are not statistically significant, so, the added variables coefficients are not interpretable. The statement in the problem that "low level of satisfaction for the level of the income females get from their farm depends upon the independent variables Q.5.5, Q.1.2A1 and Q.5C" is incorrect.

The equation would be:

Predicted the satisfaction level of the income females get from their farm [Q.6N]

Predictor [possession of size of farm land Q.1.2AA]

[Q.6N] = 2.221 + 0.188 [Q.1.2AA].
The constant term is 2.221 indicating that a small sized farm with size 0 (impossible, but this is the theory) will be 2.221 standard deviations below the mean for their satisfaction level of the income

females get from their farm. The b for size of the farm is 0.188. Therefore, the positive value of b implies that survey respondents who were having small farms were unhappy with their farm income overall.

The last table -XV ("Variables Excluded from the Equation") just lists the variables that weren't included in the model at each step.

Table-XIV-Excluded Variables					Collinearity Statistics
Model	Beta In	t	Sig.	Partial Correlation	Tolerance
1 Q.5C	-.009[a]	-.139	.890	-.009	.996
Q.5.5	.059[a]	.897	.371	.059	.997
Q.1.2A1	.063[a]	.954	.341	.063	.995
a. Predictors in the Model: (Constant), Q.1.2AA					
b. Dependent Variable: Q.6N					

4. Conclusion and discussion

Table-V substantiates the validity of the sampled data regarding the feeling of female farmers for doing anything except agriculture without moving towards urban area/accompanying their husbands in case they move towards urban area

Table-VI corroborates the fact of possessing small/medium farms with them (Dwivedy Nidhi, 2012)[2]. Owing to this, the sample female farmers reported that subsistence farming is prevalent here and production is mainly done for consumption purpose. In the absence of good marketing facility the farmers grow a little bit of everything that they require. Low scale of operation does not generate much surplus to be taken to the market. Our model in table-XI also portrays that survey respondents who were having small farms were unhappy with their farm income overall. Post-harvest activity like storage etc. has not been recorded much in the area and confined mainly to household level.

The low level of accessibility of sampled female farmers to education and extension services has been authenticated in table-V. Within the districts, East is the district where maximum percentage of illiterate sampled female farmers have been observed followed by (South and West equally) and North (Dwivedy Nidhi, 2012)[5]. The census data of 2011 in the district wise demographic features heading of the state shows that the decade has seen an increase in female literacy rate from 66.81to 79.41 in East district, which is the highest of all the districts as far as increase in decadal female literacy rate is concerned, yet the district has got the maximum percentage of sampled female farmers who are illiterate. The reason behind is that the maximum development tertiary and the secondary sectors is in this district, which provides gainful employment to the educated lot. Therefore they get absorbed there leaving behind the illiterate lot. Even those who are a less educated, they start shifting there to get rid of the hardship faced in the rugged terrain of the mountainous region (Dwivedy Nidhi, 2012)[1].

Multiple factors have contributed to women's impoverishment. Women, who are the mainstays of the agricultural food sector and labour force, are continually prone to various constraints like insufficient production inputs, credit and educational access which hinder the advancement of women (Dwivedy Nidhi, 2012)[4]. This scenario thwarts the income earning capacity of the stakeholders thereby making them feel dissatisfied with the income they earn from the farms. Hence, it causes the female farmers to have the feeling to leave farming in spite of the proud feeling for their contribution in farming (Dwivedy Nidhi, 2012)[3]. Analysis of the data of study area in table-V depicts the very same thing. (Abiola and Omoabugan, 2001) studied this issue for Nigeria and hold the view that one of the major factors responsible for the declining agricultural productivity in Nigeria is the relegation to the background of the contributions of women in the issues of food crop production.

Since operational holdings in the area are very small and also the terrain is steep, mechanization of agriculture is still a distant reality. Due to this, agriculture practices require very high human energy inputs and are full of drudgery. Nonetheless, agriculture is the main economic activity of all the districts in the state, but, the initiation of off-farm income- generating activities is deemed an essential shift for rural folk The main reason behind that is :-

 i) Due to low accessibility to education and extension services, female farmers are not able to generate much income from the small land holdings in the State
ii) Hardship faced by the people due to hilly terrain and
iii) Most importantly tertiary as well as the industrial sector is developing providing more gainful employment at these places facing less hardship than the farming sector.

Census 2011 in Table- (II) epitomises the percent decrease in the female cultivator category and percentage increase in female workers than men in the agriculture labourers, household industry and other workers categories. The main reason for this is that within the increasing poverty and unemployment, the lower strata both male and female were increasingly joining the latter category.

Sampled females reported the reasons for decrease in the cultivator category as-
1.) The land got taken over by some company for some project
2.) The owner does not stay on the land
3.) Family land dispute
4.) The owner is on the lookout for a trustworthy person to whom they can give the land on 'Adhia'.

Besides, the some socio-economic condition of the female food crop farmers in the study area also demands attention which impedes the technical efficiency of the female farmers. (ERIE, 2011) is also in agreement with this view who carried out similar study in Edo State, which is one of the 36 States in Nigeria and it revealed the significant differences in the socioeconomic attributes of male and female food crop farmers, resulting in differences in their technical efficiencies in the study area.

At the same time, there is no denying the fact that women possess a strong innate quality of conservation. With a proper technical guidance and training this can be harnessed more efficiently. Deficiency of it causes many small farmers not to exploit fully this limited natural resource (land) because they lack the necessary small farm and livestock best-management practices/skills to successfully manage or operate it. In addition, these small owners are often unaware of available training and counselling support provided by agriculture extension organizations. As a result, many farmers fail to take advantage of resources that are designed to help them succeed. Researches have shown that participation in relevant and effective training can reduce the failure rate and help owners make better management decisions and avoid costly mistakes (Muske and Stanforth, 2000).

Douglas William Jerrold has very rightly said "If you tickle the earth with a hoe she laughs with a harvest."
Thus, by enabling the female farmers to have credit, extension & training and education access will assist them in converting their role from passive recipients to active own managers and will also support them in efficiently participating and contributing more even on the small piece of land.

5. Suggestions

(i)   Provision of group global gap certification of small farm growers to be implemented

This act will enable them to

a. Get their product recognised at national & international levels
b. Financial security

c. It will give their customers more assurance about food safety. Only certified growers should be allowed to supply their product to the retailers.

(ii)   Resilient small and medium enterprises (SMEs) are helpful in creating a more balanced demographic profile locally

The rural businesses are particularly innovative and responsive to change as they are able to turn the disadvantages they face into motivations to achieve competitive advantage. They help to maintain the working–age population and a 'demographic balance' in a local area. Such strategies will also help attract and retain young people, thus creating a more balanced demographic profile locally.

Clearly, there is also a role for local authorities and organisations, such as Regional Rural Development Authorities, to provide ongoing financial assistance to businesses and to continue to invest in infrastructure and technology, including roads, broadband, and mobile phone networks.

(iii)   Educated & healthy population who can productively employ themselves in farm activities is very important

To flourish rural sector, educated & healthy population who can productively employ themselves in farm activities is very important. These are the main two features with which Germany and Japan could recover more speedily after World War II than the United Kingdom. Technology can prove labour-saving for labour scarce countries & land-saving for labour-abundant but land-scarce countries for rapid increases in the productivity. Therefore, abundance of farm products requires investment in farmer's health & accessibility to productive resources.

(iv)   Technical capacity building of female farmers through extension workers will help in making agriculture sustainable

As the collected data of Sikkim farming females for the extent of education accessibility shows that a significant number of female farmers are either illiterate or are educated till primary level. Consequently it becomes one of the main reasons which makes them the victim for not getting benefitted from modern scientific and technologic technique. Data for extension agencies has also revealed that almost half of the sample female farmers do not/rarely get an opportunity to have such services. The reason, they reported for this is-being residing in the interior and remote area, they do not get the timely information for the same and also they reported that most of the time male member of the family goes for it. As a result, they lack modern avenues of knowledge and information, new technologies and opportunities for training to increase their farm productivity and income. It in turn will limit their capacity to fully exploit the piece of land they possess thereby making their attitude reluctant for absorbing the younger age band in the agriculture.

A study by the (USAID, 2001) has also found that countless women in the developing world are removed from the information age because of their lower levels of education and negative attitudes towards other forms of achievement. The suggested activity which emerges here is that technical capacity building through extension workers will make the female farmers understand the dynamics of the existing structures and appreciate the need for change in the desired direction. This act will also lead the female farmers to have an empathy to the growing need of making agriculture sustainable by changing the mind-set of educated youth for absorbing them in agriculture.

Combinations of adaptive and preventive measures are urgently required with future generation willingly ready to accept risk to ensure sustainable agriculture development, so that food security does not suffer. Failure to respond to this growing crisis at both a national and global level will result in catastrophe consequences that will affect us all.

Undoubtedly, by converting their role from passive recipients to active own managers helps them in improving their condition in the State.

(v)   Since most farmers have small land-holding and consequentially they live in subsistence economy, mechanisms to enhance their income may be devised

Since significantly more number of sample female farmers have opted for doing any entrepreneurial activity to enhance their income for improving their socio-economic condition. Hence, few activities like food processing business, milk processing, poultry/fishing industry, floriculture and sericulture have been suggested for them (Dwivedy Nidhi, 2013)[6].

Here, Government should create market infrastructure to induce more inclusive growth in the food as well as the allied agriculture sector products, so that, mechanisms to enhance their income may be devised for these subsistence farmers.

(vi)   Micro-finance through SHGS should be encouraged

Microfinance programs have significant potential for contributing to women's economic, social and political empowerment. It refers to the provision of various financial services like savings, credit, money transfers, insurance etc. in small doses for the poor. Micro-finance operates on the principle that a group of individuals is more bankable than a single individual.

Government should come forward to encourage poor performing SHGs by helping them visit the matured one to learn from their experience. Mature SHGs should be converted into Producer groups and preference should be given in government purchase.

Also the Government should take necessary steps to revive the poor performing SHGs by capacity building of group members and supporting institutions, arranging initial working capital for them and thereafter assessing the activities of group members.

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