

Female farmers Views to Absorb Future Generation in Farming–A Study of Rural Area of Sikkim in North- Eastern India

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Abstract: The present study has analyzed the existing information about female farmer's views to absorb future generation in farming in the rural area of Sikkim in North- Eastern India and suggested some points so that the socio-economic condition of the stakeholders can be improved thus making them understand the dynamics of the existing structures and helping the farming sector make sustainable by attracting the younger age band. Keeping this in mind, data has been collected from 230 female farmers through interviews using a pre-designed schedule from 24 circles from all the four districts of Sikkim State. Based on their subjective judgments, female farmer's views to absorb future generation in farming have been measured and analyzed using the Statistical Package for the Social Science (SPSS). Some descriptive statistics, such as percentage, mean, standard deviation as well as one sample t-test of inferential statistics is used to interpret the data. The findings of the study reveal that significantly no more number of sample female farmers on an average feel satisfied with the income they get from agriculture. Data in the study area also discloses that significantly no more number of sample female farmers would like to absorb their future generation in agriculture. Results pertaining to these findings have been discussed in this paper.

Keywords: *Female farmers, agriculture income, future generation, Rural Area, Sikkim*

1. Introduction

Women play a distinctive role in shaping the rural economic activities and earning a livelihood. India is a agriculture dominated country and most of manual operations like sowing, weeding, transplanting, harvesting, threshing and winnowing and even marketing of agricultural produce are being done by women. Their contribution to the rural economy is enormous. However, the role of women in economic and social development has not received due recognition so far in our society. However, efforts are being made by the Government to give due recognition to their participation by making various laws time to time in favour of women. Contrary to the common perception about women in India, a large percentage of them work (Women of India, 2006). The National data collection agencies accept the fact that there is a serious under-estimation of women's contribution as workers. However, there are far fewer women in the paid workforce than there are men (Kalyaniand & Kumar, 2001). In urban India, women have impressive number in the workforce and they are at par with their male counter parts in terms of wages, position at the work place (Singh and Hoge 2010). In rural India, agriculture and allied industrial sectors employ as much as 89.5% of the total female labour (Asia's women, 2006). In overall farm production, women's average contribution is estimated at 55% to 66% of the total labour. According to a 1991 World Bank report, women accounted for 94% of total employment in dairy production in India. Women constitute 51% of the total employed in forest-based small-scale enterprises (Asia's women, 2006). Actuality, the social, economic and cultural conditions of the area determine women's participation in home and farm activities. The nature and extent of women's involvement in agriculture, no doubt, varies greatly from region to region and within a region, their involvement varies among different farming systems, castes, classes and socio- economic status. However, regardless of these variations, there is hardly any activity in agricultural production, except ploughing in which women are not actively involved (Swaminathan, 1985). In some of the farm activities like processing and storage, women predominate so strongly that men workers are numerically insignificant. However, the Indian Himalayan region (IHR) displays a different picture in land use pattern and its dependency on agricultural land. The Himalayan people have traditionally practiced integrated agriculture, balancing cultivation, agro-forestry, animal husbandry and forestry. Mountain geography and inaccessibility have helped maintain agro-biodiversity; yet commercial agriculture is not as high yielding and profitable as in the plains. Here forest is the major land use pattern, which covers over 52% of total reporting area followed by wastelands and agricultural land. However, the dependency on its limited arable land is marginally higher in the IHR as cultivators and agricultural labourers together comprise about 59% of total workforce in the region (Nandy and Samal, 2005).

Agriculture is not only in India, but also world over especially in developing countries, depends on monsoon because in these countries irrigation facilities are not fully developed. For the sake of industrialization and urbanization, more and more trees have been cut, leading to global warming and causing imbalance in climatic conditions thereby making farming occupation even harder. Himalayan glaciers are also receding at the fastest rates in the world due to global warming, threatening water shortage for millions of people particularly in India, China and Nepal. Indian agriculture is prone to all possible hazards which often end up in disasters thereby making rural life miserable and forcing people to shift to the urban areas in search of earning a livelihood. India's population is currently in excess of 1.1 billion people and predictions state that by 2050, the population will have grown by another 500 million (UN 2008). This increase in population will undoubtedly lead to a strain on resources, especially when coupled with the impacts of climate change. The widespread affect that climate change is expected to have on agriculture and rural livelihoods will lead to greater migration from rural areas to urban, further straining resources in these urban centres (Liggins 2008). Climate change will lead to increased hardship for India's poorest women. Women in India, especially in rural areas, are often responsible for providing daily essentials such as food and water. When climate change related disasters strike, research has shown that the workload of women and girls increases, thus leading to their exclusion from opportunities like education and a diminishment in their equal participation in development. For example, deforestation increases the time women need to spend looking for fuel. Research has further shown that women have fewer means to adapt and prepare for extreme weather conditions. Many poor women are also actively engaged in agricultural activities, including paddy cultivation and fishing, that will be affected by changing weather patterns in India; loss of livelihood will increase their vulnerability and marginalization (UNDP 2007/8). 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). However, 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). Here, lower hierarchy is seen as inequality & practices adopted against them in their rights as compared to men. It is very important to remove them from the society to get the complete result of the policies & to make all the members of the society to contribute equally in the development process.

Tamale (2004) argues that the non-recognition of women's labour for domestic chores is reinforced by the unequal allocation of resources. Thus, the lack of access to and control over productive resources is the main factor limiting women's equal participation in economic activities, thereby hampering the human development process (Acharya, 2003). Generally, the access of women to productive resources and education is very low in developing countries, as properties are owned by men. Babangida (1986) noted that, a nation could not truly develop if her women remain illiterate, unskilled and unable to harness resources in their environment and actually operating below their potential. It is the ability to harness the resources in the environment and improve on such environment that is the hallmark of development and most women cannot contribute effectively to development with the limited or basic education they acquire. Of course, high-powered education is available for the women but in poor families a very few of them have access to it. The resultant effect is what has been called "genderization of poverty" (Suara, 1996). It hinders their contributions in the dimensions required for sustainable development. Researches have shown that when women are supported and empowered, it helps in improving the health of their families, improving the education of the children, increasing the agricultural productivity and ultimately increasing their income. In short, communities become more resilient. 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. 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.

2. Farming strategies adopted by the Agriculture Department in the state

The state has a target of converting it into a fully organic state by 2015. In this regard, the Department has started many measures to replace the chemical fertilizers by using bio fertilizers and organic manures. Effective Microorganism (EM) technology in production of compost and bokashi and bio-pesticide is being propagated among the farmers in technical collaboration with MAPLE ORTECH, Dehradun to give boost to organic farming in Sikkim. Integrated Pest Management (IPM) technology is being practiced to control the pests. Predators are produced in Sikkim State IPM Lab and are released in the farmers' field as and when required. The Government has set up a livelihood school also on organic farming at Tadong, Gangtok. This is first of its' type in the country. Participants will be given 3 months training on organic farming processes. Trained youths will go to villages and assist farmers at village level. Popularization of HYV seeds, production of quality seeds, mixed cropping, pest management through Farmers Field Schools (FFS), recycling of farm waste for compost production, soil reclamation by liming, seed treatment campaign and integrated farming through watershed approach is some of the strategies adopted by the Department in the state. Mechanization has varied connotations. While in the developed world it tends to be synonymous to automation but in developing countries, like India especially in hilly areas, mechanization means any improved tool, implement, machinery or structure that assists in enhancement of workers' output, multiplies the human effort, supplements or substitutes human labour, avoids drudgery or stresses that adversely affect human mental activities leading to errors, imprecision and hazards and eventually loss of efficiency. It also means automation and controls that assure quality, hygiene. Agricultural mechanization in a limited sense relates to production agriculture. Farming with machinery in Sikkim is almost nonexistent. However, Power operated Thresher, Hand Winnower, Hand Maize Sheller, Iron Plough and other gender friendly machineries have been introduced on experimental basis. Sprinkler and drip irrigation has been taken up on demonstration basis. Agriculture in the state is mainly rain fed. Farm mechanization here in Sikkim is meant for increasing the production and productivity, comfort and safety, return and profitability to farmer.

Demographic Features: 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 321661 are 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 are 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.

Workers Profile: According to (Census 2001), there are 37,936 cultivators (About 26,000 of them are small/medium farmers) out of which 19,725 are males and 18,211 are females in East district. Of them 37,889, live in rural and only 47 live in urban area. In rural area, 19,701 are males and 18,188 are females. Total no. of agricultural labourers 8,143 out of which 4,076 are males and 4,067 are females. Of them 8,110, live in rural and only 33 live in urban area. In rural area, 4,056 are males and 4,054 are females. There are 35,764 cultivators (About 16,000 of them are small/medium farmers) out of which 20,634 are males and 15,130 are females in West district. Of them 35,762, live in rural and only 02 live in urban area. In rural area, 20,632 are males and 15,130 are females. Total no. of agricultural labourers in the district is 4,112 out of which 2,389 are males and 1,723 are females. Of them 4,110, live in rural and only 02 live in urban area. In rural area, 2,389 are males and 1,721 are females. There are 9,180 cultivators (About 6,000 of them are small/medium farmers) out of which 4,831 are males and 4,349 are females in North district. Of them 9,173, live in rural and only 07 live in urban area. In rural area, 4,824 are males and 4,349 are females. Total no. of agricultural labourers in the district is 2,051 out of which 1,045 are males and 1,006 are females. Of them 2,038, live in rural and only 13 live in urban area. In rural area, 1,033 are males and 1,005 are females. There are 48,378 cultivators (About 20,000 of them are small/medium farmers) out of which 24,917 are males and 23,461 are females in South district. Of them

48,377, live in rural and only 01 live in urban area. In rural area, 24,917 are males and 23,460 are females. Total no. of agricultural labourers in the district is 2,694 out of which 1,252 are males and 1,442 are females. All of them live in rural and no one live in urban area. In rural area, 1,252 are males and 1,442 are females. The above data, showed that in all the districts more than half of the cultivators are small/medium farmers. It was also observed that almost all of them live in rural areas and equal number of female participants was sighted as that of men.

3. Methodology

Universe or population: The universe or population for the study consisted of total number of married females in rural areas who are employed in farming in the state of Sikkim. This formed the pivotal point of the present research.

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 for this study. Non-probability methods are of three types, namely Judgment sampling, Convenience sampling and Quota sampling. The state has only four districts; so, all of them have been taken for the study. Initially, under the multistage stratified random sampling technique- a selection of a tentative list of circles and revenue blocks from all the four districts was made followed by a selection of villages to be visited at the second and a selection of respondents at the final stage. A final list of the respondents from different farm households was prepared based on convenience and their accessibility to the researcher by stratified random sampling.

Sample size: Rural areas from all 4 districts of Sikkim were selected. As is clear from the table 1 below, 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. Therefore, for this study, maximum no. of females for data collection is from East & minimum are from North. 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. However, the sample size of each district is just an indicative of the reason of taking maximum/minimum sampling units from that area.

Table 1: Selection of Sample Size

District/ State	Total area(sq. km)	%of total area	Population Concentrat ion	% Of total Population	Total no. of circle	Total no. of circles sampled	No. of female sample farmers
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

Source- figures extracted from census 2001.

A data collected from a total of 24 circles from all the four districts in Sikkim has been analyzed. 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.

4. Data collection and analysis

In order to collect qualitative data, three group discussion sessions were arranged separately in three villages (Syari, Sichey and Rawtey rumtek); each group contained 10 participants. 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, 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 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 analyzed using the Statistical Package for the Social Science (SPSS) and some descriptive statistics, such as percentage, mean, standard deviation (SD) were used to interpret the data. There is only one sample in the study. Ordinal and nominal level data can be analyzed 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 are given the few hypotheses.

For views about the income they get from their Farm

Hypothesis Statement –More farming females of rural area are satisfied with the income they get from their farm.

Ho –no more number of sample female farmers are satisfied with the income they get from their farm.

Ha - more number of sample female farmers are satisfied with the income they get from their farm.

For Views to absorb their sons in agriculture

Hypothesis Statement–More farming females of rural area would like to absorb their sons in agriculture.

Ho- no more number of sample female farmers would like to absorb their sons in agriculture.

Ha - more sample female farmers would like to absorb their sons in agriculture.

For Views to absorb their daughters in agriculture

Hypothesis Statement –More farming females of rural area would not like to absorb their daughters in agriculture.

Ho- no more number of sample female farmers would like to absorb their daughters in agriculture.

Ha - more sample female farmers would like to absorb their daughters in agriculture.

To test these hypotheses, one-sample t-test has been conducted. The t column displays the observed t statistic for each sample, calculated as the ratio of the mean difference divided by the standard error of the sample mean. The column labeled Sig. (2-tailed) displays a probability from the t distribution with 229 degrees of freedom df, calculated as (n-1). The value listed is the probability of obtaining an absolute value greater than or equal to the observed t statistic, if the difference between the sample mean and the test value is purely random. The Mean Difference is obtained by subtracting the test value, from each sample mean. The 95% Confidence Interval of the Difference provides an estimate of the boundaries between which the true mean difference lies in 95% of all possible random samples of 230 females. At this level if value of ‘t’ is less than 1.96 and is also negative, then our null hypothesis is accepted else alternate hypothesis is accepted.

Quantitative Data Analysis Representation for the Parameter: A, B and C in the tables below represent - Views to the income they get from their farm (A), Views to absorb their sons in agriculture (B), Views to absorb their daughters in agriculture (C),. Degree of answers for A,B and C in tables-4, 6 and 9 below, ranges from 1 to 10. 1 indicates strongly negative and 10 indicate strongly positive feeling. Whereas, degree level 5 indicates moderate feeling for the question. More than 5 means their views are more inclined towards positive side and less than 5 means, their views are more inclined towards negative side.

Table 2: One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q.(A)	230	4.47	1.725	.114
Q. (B)	230	3.75	2.848	.188
Q. (C)	230	3.45	2.716	.179

One sample ‘t’-test is conducted to test our hypothesis

Table 3: One-Sample Test

	Test Value = 5			95% Confidence Interval of the Difference		
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Q..(A)	-4.702	229	.000	-.535	-.76	-.31
Q..(B)	-6.646	229	.000	-1.248	-1.62	-.88
Q..(C)	-8.644	229	.000	-1.548	-1.90	-1.19

For views about the income they get from their Farm

- **Parameter details:** Statistics for views about the income female farmers get from their farm (A) is shown in the Table-2 above. From the table we find that there are 230 valid scores and value of mean for it is 4.47. Standard deviation is 1.725 and standard error of mean is 0.114.
- **Extent of Feeling for their views about the income female farmers get from their farm:** Tables-4 shows that 9% of the respondents strongly feel negative (unhappy) about the income they get from their farm. About 28% of them rated 5 for their view and 26% rated it 4. Only 14% rated their view for this question as 6. Only 1% of them strongly feel positive (happy) about the income Female farmers get from their farm. Since 76% of the respondents rated their view for this question up to 5. This shows the inclination of the view towards negative side. Therefore, we can say that most of the female farmers are unhappy with the income they get from their farm.

Table 4: Degree of answer for their Views about the income Female farmers get from their farm-Q.(A)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strong Negative	21	9.1	9.1	9.1
	1				
	2	10	4.3	4.3	13.5
	3	19	8.3	8.3	21.7
	4	60	26.1	26.1	47.8
	5	65	28.3	28.3	76.1
	6	33	14.3	14.3	90.4
	7	12	5.2	5.2	95.7
	8	8	3.5	3.5	99.1
	9	2	.9	.9	100.0
	Total	230	100.0	100.0	

- **Inferential analysis for their views about the income female farmers get from their farm:** From the table 3 we find that value of 't' for views about the income female farmers get from their farm is -4.702, which is negative which is negative and also less than 1.96. This is further confirmed by significance level which are 0.00 and also by confidence intervals, both limits of which lie entirely below 0.0 for it. Mean difference column for it also shows negative values. Thus, there are valid reasons for null hypothesis to be accepted for it, which says that no more number of sample female farmers are satisfied with the income they get from their farm.

Views to Absorb their Sons in Agriculture

Parameter Details: Statistics for views to absorb their sons in agriculture (B), is shown in the Table-2 above. From the table we find that there are 230 valid scores and value of mean for it is 3.75. Standard deviation is 2.848 and standard error of mean is 0.188. Table-5 shows the frequency of sample female farmers for the views to absorb their sons in agriculture. 76% of them are not in favour of absorbing them in agriculture and only 24% are in favour of absorbing them in agriculture.

Extent of Their Views to absorb their Sons in Agriculture: Table -6 shows that 31% of the respondents strongly feel negative for absorbing their sons in agriculture. 10% of them rated 5 for their view and 09% rated it 4. 06% rated their view for this question as 6. 07% of them strongly feel positive for absorbing their sons in agriculture. Since 75% of the respondents rated their view for this question up to 5. This shows the inclination of the view towards negative side. Therefore, we can say that most of the female farmers do not feel for absorbing their sons in agriculture.

Table 5: Frequency of sample female farmers for the views(B)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT ABSORBED	174	75.7	75.7	75.7
	ABSORBED	56	24.3	24.3	100.0
	Total	230	100.0	100.0	

Table 6: Degree of answer for their Views to absorbing their sons in agriculture Q (B)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strong Negative	71	30.9	30.9	30.9
	1				
	2	36	15.7	15.7	46.5
	3	23	10.0	10.0	56.5
	4	20	8.7	8.7	65.2
	5	23	10.0	10.0	75.2
	6	14	6.1	6.1	81.3
	7	7	3.0	3.0	84.3
	8	17	7.4	7.4	91.7
	9	3	1.3	1.3	93.0
	Strong positive	16	7.0	7.0	100.0
	10				
	Total	230	100.0	100.0	

Inferential analysis for their views: From the table 3, we find that value of 't' for feeling to absorb their sons in agriculture (B) is -6.646, which is negative. This is further confirmed by significance level which are 0.00 and also by confidence intervals, both limits of which lie entirely below 0.0 for it. Mean difference column for it also shows negative values. Thus, there are valid reasons for null hypothesis to be accepted for this feeling, which says that no more number of sample female farmers would like to absorb their sons in agriculture.

Table 7: One-Sample Test for frequency of sample female farmers for the feeling (B)

Test Value = 1.5				95% Confidence Interval of the Difference	
t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
-9.045	229	.000	-.257	-.31	-.20

The above-mentioned findings further are strengthened by the findings of the above Table-7. In this table, we find that value of 't' for it is -9.045, which is negative and also less than 1.96. This is further confirmed by confidence intervals, both limits of which lie entirely below 0.0 for it. Mean difference column for it also shows negative values. This shows that most of them are not interested in absorbing their sons in agriculture. This proves to be the valid support for this view to show the above-mentioned findings.

Reasons Given by Sample Female farmers for Absorbing Sons in Agriculture: Proud to be landowner and love their sons also to be engaged in this occupation but in an advanced way. Until now, we have been doing it and want to get our children also engage in farming because city job is not secure. .

Reasons Given by Sample Female farmers for Not Absorbing Sons in Agriculture:

There is no future in agriculture.

City job is easy and comfortable way to earn income.

For good education and better living, we want our son to get a city job.

Views to Absorb their Daughters in Agriculture

Parameter Details: Statistics for feeling of female farmers to absorb their daughters in agriculture (C), is shown in the Table-2 above. From the table we find that there are 230 valid scores and value of mean for it is 3.45. Standard deviation is 2.716 and standard error of mean is 0.179.

Frequency of female farmers for this feeling: Table-8 shows the frequency of sample female farmers' views to absorb their daughters in agriculture. 78% of them are not in favour of absorbing them in agriculture and only 22% are in favour of absorbing them in agriculture.

Table 8: Frequency of sample female farmers for the feeling(C)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NOT ABSORBED	180	78.3	78.3	78.3
	ABSORBED	50	21.7	21.7	100.0
	Total	230	100.0	100.0	

Extent of feeling for absorbing their daughters in agriculture: Table-9 shows that 35% of the respondents strongly feel negative for absorbing their daughters in agriculture. 09% of them rated 5 for their view and 07% rated it 4. 06% rated their view for this question as 6. 05% of them strongly feel positive for absorbing their daughters in agriculture. Since 77% of the respondents rated their view for this question up to 5. This shows the inclination of the view towards negative side. Therefore, we can say that most of the female farmers do not feel for absorbing their daughters in agriculture.

Table 9: Degree of answer about absorbing their daughters in agriculture-Q.(C)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strong Negative	80	34.8	34.8	34.8
	1				
	2	41	17.8	17.8	52.6
	3	19	8.3	8.3	60.9
	4	17	7.4	7.4	68.3
	5	21	9.1	9.1	77.4
	6	14	6.1	6.1	83.5
	7	11	4.8	4.8	88.3
	8	13	5.7	5.7	93.9
	9	3	1.3	1.3	95.2
	Strong positive	11	4.8	4.8	100.0
	10				
	Total	230	100.0	100.0	

Inferential analysis for their views: From table-3 we find that value of 't' for views to absorb their daughters in agriculture (C) is -8.644, which is negative which is negative and also less than 1.96. This is further confirmed by significance level which are 0.00 and also by confidence intervals, both limits of which lie entirely below 0.0 for it. Mean difference column for it also shows negative values. Thus, there are valid reasons for null hypothesis to be accepted for this feeling, which says that no more number of sample female farmers would like to absorb their daughters in agriculture.

Table 10: One-Sample Test for frequency of sample female farmers for the views (C)

Test Value = 1.5				95% Confidence Interval of the Difference	
t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
-10.368	229	.000	-.283	-.34	-.23

The above-mentioned findings further are strengthened by the findings of the above Table-10. In this table, we find that value of 't' for it is -10.368, which is negative and also less than 1.96. This is further confirmed by confidence intervals, both limits of which lie entirely below 0.0 for it. Mean difference column for it also shows negative values. This shows that most of them are not interested in absorbing their daughters in agriculture. This proves to be the valid support for this view to show the above-mentioned findings.

Reasons Given by Sample Female farmers for Absorbing Daughters in Agriculture: Until now, we have been doing it and want to get our children also engage in farming because city job is not secure.

Reasons Given by Sample Female farmers for Not Absorbing Daughters in Agriculture

- For good education and better living, we want our daughter to get a city job.
- After getting educated, daughters would not like to settle down in agriculture.

5. Conclusion

In the region despite majority of the population is dependent on agriculture sector, still it is in the evolving shape and poses a variety of challenges. Moreover, tertiary as well as the industrial sector is developing at a very fast pace making rural population to move to these places for greener pastures leaving behind the female population in the farming. Women, who are the mainstays of the agricultural food sector and labour force, are continually prone to various constraints like insufficient production inputs and educational access, which hinder the advancement of women. 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 turn into non-assertive about absorbing the future generation in farming. Analysis of data of the study area depicts the very same thing. This mindset has to be reversed because sustainable rural development through agriculture cannot be achieved without full participation of women's intellect and younger generation's enthusiasm.

Discussion and recommendations: Data in section 3.1 about workers profile reveals that a majority of women in Sikkim are small/medium farmers. 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. In spite of the State being declared an Organic one yet the females complained about not getting timely and in sufficient quantity, the inputs like organic seeds/saplings. This forces farmers to use HYV seeds, which are not organic. There is scarcity of good post harvesting processing and storage facilities. However, most of them reported, were selling vegetables in local vicinity. Post-harvest activity like storage etc. has not been recorded much in the area and confined mainly to household level. Multiple factors have contributed to women's impoverishment; however, a major impediment to the advancement of women has been the discriminatory laws and traditions prohibiting women's land ownership and inheritance rights—leaving women without adequate collateral to obtain credit to support either on- or off-farm income-generating activities. In spite of the fact that population density in the State is not very high yet, the size of the land holdings are extremely small for everyone (males and females), with most of the farmers are having up to 2 hectares. 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 for the reason that i) the small land holdings in the State does not generate much income 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. However, impeding this shift requires access to education, knowledge, information, financial services and markets. Deficiency of it causes many small farmers and young people 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 counseling support provided by agriculture extension organizations.

As a result, many farmers fail to take advantage of resources that are designed to help them succeed. The researcher's data regarding possession of size of farm landholdings confirms the fact that significantly more number of the sample female farmers are in possession of small land holdings and their socio economic condition is poor. 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). As the terrain of the hilly State is sloppy, hence livestock production through mobile artificial insemination units using frozen semen would prove to be very beneficial to remotely located locality. In the absence of mechanization, bullocks are widely used for ploughing. Therefore, supply of good quality bullocks through bull rearing farms would be of great help to the farmers using them. From the perspective of sustainable development, empowerment in agriculture is of utmost importance. Young people should be seen as an opportunity to invest in the future. Education can be used as a tool to overcome this challenge. Agro-technical schools on the pattern the ones which are there in Brazil where people can work in the field (countryside itself provides open-air laboratory facility) for half of the month and then attend classes for the other half (to have access to instruments of technical capacity-building) can be given a try, so that young generation can have empathy to the growing need. The time to act is now. 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. With a strong focus on empowerment, there is a requirement to sustain a global effort for education as well as developmental programmes. The goal of any developmental policy, programme or project should be directed towards enabling the women in learning a skill, literacy and earning income to support their family in particular and in building social capital for the balanced progress of any country/state. Such kind of endeavours directed towards the womenfolk will lead to a positive change in their social and economic status, life, attitude, and behaviors ultimately leading to the development of the rural economy. It would be a very long drawn and difficult battle but the reward is worth the effort.

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