

Impact of KVK Activities on Sustainable Rural Livelihood of Farmers

M. K. Rathod¹

Abstract

The present study was conducted in Wardha district for evaluation of Krishi Vigyan Kendra (KVK) activities to ascertain the impact on Sustainable Rural Livelihood (SRL) of farmers. The results revealed that the farmers who were engaged only in traditional farming system before involvement in KVK activities then tried different farming systems like sericulture, livestock, horticulture, apiculture etc. due to the need based and multidisciplinary approach pursued by the KVK. The core indicators of SRL i.e. human capital, physical capital, social capital, financial capital and food security significantly increased over a period of time because of KVK activities. Overall 40.27 per cent increase was recorded which was a highly significant change.

Introduction

To begin with, the emphasis of KVK was on vocational training to farmers / rural youth. Due to the successful attempt made through the KVK, demand increased for additional functions to be operated through the KVK. Likewise activities of the KVK were tailored as per demand and later on emphasis was given on front line demonstrations, on farm testing, other extension activities. Coordinated projects were also conducted with the state departments and other agencies. KVK has adopted an integrated strategy for livelihood security based on farming system perspectives with emphasis on diversified technologies and integration of allied practices/enterprises generating additional income and employment.

A road map to an integrated approach and comprehensive strategy of KVK for addressing the requirements of household livelihood security was studied with specific objectives viz., (i) To analyse the impact of KVK activities on rural livelihoods of farmers (ii) To ascertain the association between personal, socio-economic, communicational, technological and psychological characteristics and sustainable rural livelihoods of farmers and (iii) To enlist the problems and suggestions for sustaining the rural livelihoods of farmers.

¹ Associate Professor of Extension Education, College of Agriculture, Nagpur (Maharashtra)

Methodology

KVK, Wardha is one of the oldest KVKs in the country and the second KVK established in Maharashtra. As per the mandate prescribed by the ICAR, activities were formulated by collecting the information regarding socio-economic status of farmers, agro-ecological condition, cropping pattern, yield data, employment generation etc. with the help of participatory method, survey method, general observations of subject matter specialists and the extension functionaries of agriculture and line departments. The problems faced by the farmers were listed out and prioritized according to their importance. On the basis of priorities, interventions were given to the farmers through different activities like FLD, OFT, training and other group activities. In the 11th FYP, the following interventions were given to the farmers of focal villages and satellite villages.

Major Interventions	Specific Interventions
1. INM	I. Varietal interventions
2. IWM	II. Use of bio-fertilizer
3. IPDM	III. Green manuring
4. IFS	IV. Preparation & use of vermicompost
5. WCHC*	V. Use of HaNPV, NSKE
	VI. Judicious use of chemical fertilizers, insecticides etc.
	VII. Patta (BBF) method of sowing
	VIII. Use of weedicide
	IX. Backyard poultry and goat rearing
	X. Dairy/Sericulture/Vegetables
	XI. Drudgery reduction
	XII. Nutrition management of pregnant women

* WCHC - Women and Child Health Care

After completion of 11th FYP these activities were evaluated to ascertain the impact on Sustainable Rural Livelihood of farmers. Ex-post facto research design was used for the study. The data was collected from the farmers before and after the KVK activities were conducted in the last FYP. For the present study, ten villages were selected purposively where the KVK activities were concentrated. These villages were covered under three tahsils viz. Deoli, Wardha and Pulgaon. The selected ten villages were the adopted villages of Krishi Vigyan Kendra, Wardha. From each village, ten farmers were randomly selected from the list of farmers connected with the KVK for different extension activities. In total, 100 respondents were personally interviewed and data was collected. The data was collected regarding the Sustainable

Rural Livelihood as a dependent variable which was measured with the help of a scale developed by Dolli (2006) as a base, with certain modifications comprised of livelihood assets such as human capital, physical capital, social capital, financial capital and food security for which sub indices were computed and summed up to arrive at the Sustainable Rural Livelihood Index. Problems and suggestions were listed with the help of participatory method. The data was analysed with the help of suitable statistical methods viz. mean, standard deviation, percentage, coefficient of correlation and z test.

Results and Discussion

Impact on Rural Livelihood Activities of Farmers

In the present study different livelihood activities of farmers were studied and are presented in Table 1.

Table 1. Livelihood activities before and after intervention of KVK

S. No.	Livelihood activities	Before intervention of KVK		After intervention of KVK	
		F	%	F	%
1	Traditional Farming only	63	63.00	13	13.00
2	Farming + Wage labour	27	27.00	20	20.00
3	Improved Farming	05	05.00	22	22.00
4	Agriculture + Sericulture	00	00.00	05	05.00
5	Farming + Livestock	03	03.00	16	16.00
6	Agriculture + Horticulture	02	02.00	15	15.00
7	Agriculture + Apiculture	00	00.00	03	03.00
8	Agriculture + Business	00	00.00	04	04.00
9	Hi-tech Agriculture	00	00.00	02	02.00
		100	100.00	100	100.00

It is revealed from Table 1 that majority of respondents (63%) were practicing only traditional farming followed by 27 per cent respondents engaged in farming plus wage labour ten years ago. After the interventions of KVK, the respondents in traditional farming came down to 13 per cent and the rest moved to improved farming (22%), farming + wage labour (20%), farming + livestock (16%) and agriculture + horticulture (15%). The remaining 4, 3 and 2 per cent of the respondents were found to be engaged in livelihood activities like agriculture + business, agriculture + apiculture and hi-tech agriculture, respectively. It clearly indicates that the multidisciplinary activities of KVK helped the farmers to adopt different enterprises,

which resulted in generation of family employment of respondents (Table 2). On similar lines Eshwarappa and Varadaraju (2008) reported that many of the trained farmers of KVK started their own ventures to improve their livelihood and a few had tried multiple livelihood outcomes too, which has led to a multiplier effect to the rest of the community.

Impact on sub indicators of Sustainable Rural Livelihood of farmers

Impact of KVK interventions suggested to the farmers through different activities on the indicators of Sustainable Rural Livelihood of farmers was studied and the indicator wise findings are given in the following tables.

Human Capital

A critical analysis of data presented in Table 2 indicates that the ability of respondents to educate members as desired by the family increased from 42 to 69 per cent. Encouragement of women for education or continuation of education increased from 34 to 61 per cent. Ability to send children for education to tahsil or district increased from 39 to 68 per cent. It clearly shows that the attitude of the respondents to education improved which may be due to livelihood or income generating activities adopted by the farmers with the help of Krishi Vigyan Kendra.

Table 2. Change in indicators of Human Capital due to KVK activities

S.No.	Area/Aspects	Before		After	
		F	%	F	%
1	Educational Attitude				
	Ability to educate members as desired by the family	42	42.00	69	69.00
	Encouraging women for education or continuation of education	34	34.00	61	61.00
	Ability to send children to tehsil or dist. for education	39	39.00	68	68.00
	Functional literacy of family members	44	44.00	50	50.00
2	Health	F	%	F	%
	Poor	55	55.00	24	24.00
	Average	38	38.00	62	62.00
	Good	07	07.00	14	14.00
3	Employment generation	Man days	% of avg.	Man days	% of avg.
	Man days of family head	92	43.40	141	66.51
	Man days of women members	54	25.47	78	36.79
	Man days of other family members	30	14.15	55	25.94
	Total Family Man days	176	83.02	274	129.24
4	Understanding of technology	F	%	F	%
	No understanding	47	47.00	12	12.00
	Poor understanding	44	44.00	39	39.00
	Good understanding	09	09.00	49	49.00

The health status of the respondent's family was found to be poor in case of 55 per cent of the respondents. This got enhanced to average health for 62 per cent of the respondents. Health awareness provided by the Home Science wing of KVK was also found to be very effective.

Employment generation of family head, women member and other members of the family increased from 92 to 141 man days, 54 to 78 man days and 30 to 55 man days, respectively. The total employment generated by the respondent's family increased from 176 to 274 man days. The Government of India has estimated 212 man days of employment per year in rural areas as a bench mark for achieving rural livelihoods. When compared to this average, it appears that KVK has played an important role in generating more family employment. This clearly means that KVK has a role in increasing the human capital formation of the farm family.

The status of human resources reveals that 47 per cent of the respondents were not aware about the improved technology before the KVK activities and 44 per cent of respondents were having poor understanding of the technology. The situation changed positively due to the intensive extension activities conducted by KVK Wardha. Majority of the respondents i.e. 49 per cent were having a good understanding about the improved technologies of agriculture and allied activities of KVK. Still there is scope for improvement in case of 39 per cent of the respondents having poor understanding of the technology and 12 per cent of the respondents who still have no understanding of the technology. Reaching half of the respondents who understood the technologies imparted by KVK can help to increase confidence and make farmers' attitude favourable towards the technology.

Table 3. Change in Human Capital Value due to KVK activities

S. No.	Category	Before		After	
		F	%	F	%
1	Low	35	35.00	13	13.00
2	Medium	55	55.00	60	60.00
3	High	10	10.00	27	27.00
	Total	100	100.00	100	100.00

The data in Table 3 clearly shows that majority of respondents (55%) were placed in the medium category in terms of overall human capital value followed by 35 per cent of the respondents in low category i.e. most of the respondents were having medium to low human capital value before their involvement with KVK. After the involvement in KVK programmes, majority of respondents (60%) possessed medium human capital value followed by 27 per cent respondents found in the

category of high human capital value. This indicates that medium to low human capital of respondents before KVK activities was converted into medium to high human capital after the interventions of KVK. This implies that KVK programmes helped the farmers to improve their human capital formation.

Physical Capital

Table 4 indicates that farm energy use slightly increased by keeping more farm animals by the respondents. For respondents having no farm animals energy use came down from 30 per cent to 21 per cent after the KVK interventions. The respondents having one farm animal increased energy use from 49 per cent to 51 percent, respondents possessing two farm animals increased from 11 per cent to 13 per cent, the respondents possessing more than two farm animals increased from 8 to 9 per cent. The use of tractor or other farm machineries increased from 2 per cent to 6 per cent by respondents, during the period.

Table 4. Change in indicators of Physical Capital due to KVK activities

S. No.	Areas/Aspects	Before		After	
		F	%	F	%
1	Farm Energy				
	No Bullock/Farm Animal	30	30.00	21	21.00
	One Bullock/Farm animal	49	49.00	51	51.00
	Two Bullocks/Farm animals	11	11.00	13	13.00
	More than two Bullocks/Farm Animals	08	08.00	09	09.00
	Tractor/Machinery	02	02.00	06	06.00
2	Domestic Energy				
	Firewood	22	22.00	10	10.00
	Kerosene + Firewood	25	25.00	08	08.00
	LPG + Firewood/Kerosene	43	43.00	58	58.00
	Only LPG	10	10.00	24	24.00
3	Dwelling				
	Katchha	83	83.00	60	60.00
	Renovated	15	15.00	26	26.00
	New Construction	02	02.00	14	14.00
4	Entertainment				
	Radio/CD Player	79	79.00	22	22.00
	TV with Doordarshan	53	53.00	12	12.00
	TV + Cable/ Dish Antenna	13	13.00	87	87.00
	Mobile	03	03.00	29	29.00

Use of firewood came down from 22 per cent to 10 per cent; similarly combined use of kerosene and firewood was also lower from 25 per cent to 8 per cent. Traditional domestic energy use shifted towards modern energy. The respondents using LPG with the support of firewood or kerosene increased from 43 per cent to 58 per cent and the respondents using only LPG increased from 10 to 24 per cent.

Dwelling of KVK beneficiaries has improved as given in Table 4. Katchha houses possessed by respondents were down from 83 per cent to 60 per cent. These beneficiary respondents renovated their house or constructed a new cement house. The respondents who renovated their house were 15 per cent which then increased to 26 per cent. The respondents with cement houses increased to 14 per cent from 2 per cent.

In the physical capital assets of villagers entertainment media were an important item studied. Radio was the most important media of entertainment for 79 per cent of the respondents followed by television with only Doordarshan for 53 per cent of the respondents. Over a period of time tools of entertainment also changed. Now 87 per cent of the respondents were using colour television with satellite cable connection or dish TV connection with 24 hours entertainment. Younger and middle age farmers wanted to have a mobile with multimedia, 29 per cent of the respondents were having mobile communication as well as entertainment. This was possible and affordable due to the increase in socio-economic conditions of farmers over a period of time. These findings are in tune with the findings of Jaiswal (2002).

Table 5. Change in Physical Capital due to KVK activities

S.No.	Category	Before		After	
		F	%	F	%
1	Low	46	46.00	10	10.00
2	Medium	32	32.00	36	36.00
3	High	22	22.00	64	64.00
	Total	100	100.00	100	100.00

It is revealed from Table 5 that the situation of the respondents before KVK intervention on overall physical capital was found to be poor. Majority of the respondents (46 %) were depicted in low category of physical capital followed by 32 per cent and 22 per cent in medium and high category of physical capital respectively. After getting benefits from the extension activities of the KVK over a period of time, majority of respondents i.e. 64 per cent were having high physical capital, followed by medium (36%) and low (10%) physical capital. Overall physical capital of respondents appears to have significantly increased after the interventions of KVK adopted by the respondents.

Social Capital

The results from Table 6 reveal that majority of respondents (92.00%) had no position in any organization followed by official position in one or more organizations (4%) and official position in SHG's (4%) prior to KVK activities.

Table 6. Change in indicators of Social Capital due to the KVK activities

S.No.	Areas/Aspects	Before		After	
		F	%	F	%
1	Organizational participation				
	No position in any organization	92	92.00	77	77.00
	Official position in one or more organization	04	04.00	04	04.00
	Official position in SHG's/ other groups	04	04.00	19	19.00
2	Social status/contribution				
	Financial contribution in community work	15	15.00	35	35.00
	Involvement in community work	36	36.00	58	58.00
3	Extent of trust				
	Small extent	12	12.00	10	10.00
	Medium extent	68	68.00	60	60.00
	High extent	20	20.00	30	30.00

KVK helped the beneficiary farmers to join self-help groups or some commodity groups. Hence, participation of respondents who had an official position in SHG's or other groups increased from 4 to 19 per cent. In social status, involvement of respondents in community work was 36 per cent, but financial contribution was only by 15 per cent before the KVK programmes. It increased to 58 per cent respondents being involved in community work and 35 per cent respondents involved by way of financial contribution in community work over the period of extension activities of the KVK. Due to the upgradation of organizational participation and social contribution, extent of trust of respondents at home and at the village was also slightly upgraded as shown in Table 6. Majority of the respondents (68%) at medium extent of trust declined to 60 per cent respondents and contributed in the high extent of trust (30%) after involvement in intensive extension programmes of the KVK. Therefore, it is inferred that social groups of varying degrees of inclusiveness in the society, socio-political participation or organizational participation, inter connectedness through trust and solidarity among the members of the community and the extent of trust amongst them forms a strong social network for achieving livelihood objectives through various options and strategies provided by KVK.

Table 7. Change in Social Capital due to KVK activities

S.No.	Category	Before		After	
		F	%	F	%
1	Low	28	28.00	18	18.00
2	Medium	62	62.00	55	55.00
3	High	10	10.00	27	27.00
	Total	100	100.00	100	100.00

The data in Table 7 indicates that overall social capital of majority of the respondents (62%) was medium followed by 28 per cent of the respondents who had low social capital and 10 per cent of the respondents with high social capital. It changed to 55 per cent respondents in medium category, followed by high (27%) and low (18%) after the interventions of KVK.

Financial Capital

It can be observed from Table 8 that prior to becoming a beneficiary of KVK, 55 per cent of the respondents were unable to save the money in a year followed by 32 per cent of the respondents who were saving only upto Rs.5000. Only 6, 4 and 3 per cent of the respondents were found to save from Rs.5001-10000, Rs.10001-20000 and more than Rs. 20000 respectively. After the implementation of activities of the KVK the number of respondents with no savings were down to 40 per cent, there was increase in the savings of 33 per cent respondents (up to Rs.5000), 13 per cent respondents (Rs.5001-10000), 5 per cent respondents (Rs.10001-20000) and 9 per cent respondents (more than Rs.20000).

Table 8. Change in indicators of Financial Capital due to KVK activities

S.No.	Areas/Aspects	Before		After	
		F	%	F	%
1	Saving (Rs.)				
	No savings	55	55.00	40	40.00
	Up to 5000	32	32.00	33	33.00
	5001 to 10000	06	06.00	13	13.00
	10001 to 20000	04	04.00	05	05.00
	More than 20000	03	03.00	09	09.00
2	Indebtedness				
	No indebtedness	00	00.00	08	08.00
	Up to 10000	13	13.00	26	26.00
	10001 to 20000	24	24.00	32	32.00
	20001 to 50000	26	26.00	20	20.00
	50001 to 100000	30	30.00	10	10.00
	More than 100000	07	07.00	04	04.00

Almost all the respondents were indebted before the inception of KVK programmes. Majority of them (30%) had Rs.50000-100000 debt followed by 26, 24 and 13 per cent of the respondents having debt of Rs.20001-50000, Rs.10001-20001 and up to Rs.10000, respectively. About 7 per cent of the respondents had more than Rs.100000 debt. The situation of indebtedness changed after the interventions of

KVK; 8 per cent of the respondents had nil debt. The remaining beneficiary respondents were also observed to be minimizing their debt and distributed in the indebtedness categories of up to Rs.10000 (26 %), Rs.10001-20000 (32%) Rs.20001-50000 (20 %), Rs.50001-100000 (10%) and more than Rs.100000 (4%).

Table 9. Change in Financial Capital due to KVK activities

S.No.	Category	Before		After	
		F	%	F	%
1	Low	58	58.00	30	30.00
2	Medium	32	32.00	55	55.00
3	High	10	10.00	15	15.00
	Total	100	100.00	100	100.00

The data presented in Table 9 reveals that majority of respondents (58%) had low level of financial capital before the inception of KVK programmes followed by 32 per cent respondents in medium category and 10 per cent respondents in high category. After interventions of KVK over a period of time, expected changes were observed. Majority of beneficiary respondents (55%) moved to medium category in terms of financial capital followed by 30 per cent respondents in low category and 15 per cent in high category. It indicates that activities of KVK helped the farmers to generate income from agriculture and allied occupations and also catalyzed them to save money through joint efforts.

Food Consumption

A critical view of Table 10 reveals that majority of the respondents (44%) had low grain availability followed by medium (32%) and high (24%) before involvement with the KVK. A similar trend was observed in vegetables and milk availability for family members where majority of the respondents (65%) belonged to low category consumption of vegetables and milk availability followed by medium (29%) and high (6%) category prior to the KVK activities. In the indicator of feed availability for farm animals, majority of the respondents (71%) had low feed availability followed by medium (21%) and high (8%) category.

After adoption of socio-economic and technological interventions 49 per cent of the respondents were found in the category of high grain availability followed by 41 per cent in the medium category and 10 per cent in low category; while, 54 per cent of the respondents were in the medium category in consumption of vegetables and milk availability followed by 32 per cent in high category and 14 per cent in low category. Regarding feed availability of farm animals, majority of respondents (55%) were having medium feed availability followed by 33 per cent respondents who had

low feed availability and 12 per cent who had high feed availability for farm animals after the interventions of KVK.

Table 10. Change in indicators of Domestic Food Consumption due to KVK activities

S.No.	Areas/Category	Before		After	
		F	%	F	%
1	Grains availability				
	Low	44	44.00	10	10.00
	Medium	32	32.00	41	41.00
	High	24	24.00	49	49.00
2	Vegetables and milk availability				
	Low	65	65.00	14	14.00
	Medium	29	29.00	54	54.00
	High	06	06.00	32	32.00
3	Feed availability				
	Low	71	71.00	33	33.00
	Medium	21	21.00	55	55.00
	High	08	08.00	12	12.00

From Table 11 it can be concluded that fifty per cent of the total respondents had low food consumption followed by medium food consumption by 40 per cent respondents before the interventions of KVK. Multidisciplinary activities of KVK helped the farmers improve their food consumption. Majority of them (60%) had shifted to medium category of domestic food consumption followed by low (22%) and high (18%) category of food consumption.

Table 11. Change in Food Consumption due to the KVK activities

S.No.	Category	Before		After	
		F	%	F	%
1	Low	50	50.00	22	22.00
2	Medium	40	40.00	60	60.00
3	High	10	10.00	18	18.00
	Total	100	100.00	100	100.00

A cursory glance at Table 12 shows that respondents with lower category of overall sustainable rural livelihood came down from 43 per cent before, to 19 per cent after the activities of KVK, percentage of respondents in medium category of SRL changed from 45 per cent before to 55 per cent and in high category of SRL from 12 per cent earlier to 26 per cent after the benefits of KVK activities. It is inferred from the data that the overall impact of the multidisciplinary activities of KVK on the beneficiary farmers was positive. Almost all the attributes of SRL positively contributed in sustainability of rural livelihood of KVK beneficiaries.

Table 12. Change in overall Sustainable Rural Livelihood (SRL) due to the KVK activities

S. No.	Category	Before		After	
		F	%	F	%
1	Low	43	43.00	19	19.00
2	Medium	45	45.00	55	55.00
3	High	12	12.00	26	26.00
	Total	100	100.00	100	100.00

It can be observed from Table 13 that Human Capital, Physical capital, Social capital, Financial capital and Food security significantly increased after the activities of KVK. Human capital increased by 39.95 per cent, physical capital increased by 59.38 per cent, social capital increased by 29.50 per cent, financial capital increased by 43.72 per cent, food security increased by 29.84 per cent and overall SRL showed an increase of 40.27 per cent due to the multidisciplinary activities of KVK. To test the significance of difference between the mean index of two groups i.e. before and after, Z value was calculated. All five indicators as well as overall SRL were found to be significantly changed before and after the KVK activities at 0.01 level of probability. In conformity with the present findings Goswami and Paul (2012) found similar results in case of human, physical and financial capital and Ponnusamy and Gupta (2006) regarding social capital.

Table 13. Impact of KVK activities on Sustainable Rural Livelihood

S.No.	Capital	Index (%)		% change	'Z' value
		Before	After		
1	Human Capital	56.45	79.00	39.95	8.42**
2	Physical Capital	51.67	82.35	59.38	12.06**
3	Social Capital	45.25	58.60	29.50	4.68**
4	Financial Capital	48.92	70.31	43.72	7.85**
5	Food Security	62.00	80.50	29.84	4.98**
	Overall SRL	52.86	74.15	40.27	6.15**

** Significant at 0.01 level of probability

The data in Table 14 represents the relationship of independent variables with sustainable rural livelihood and its indicators. It is observed from the table that annual income of the respondents had a highly and positively significant relationship with overall SRL, while technology utilization and economic motivation were found to be significantly correlated at 0.05 level of probability. It means annual income, technology utilization and economic motivation helped to increase the Sustainable Rural Livelihood of respondents.

Table 14. Correlates of Sustainable Rural Livelihood

S. No.	Farmers Profile	SRL indicators					Overall SRL
		Human Capital	Physical Capital	Social Capital	Financial Capital	Food Security	
1	Age	0.132	-0.121	0.097	0.113	0.128	0.118
2	Education	0.113	0.081	0.099	0.146	-0.122	0.112
3	Land Holding	0.083	0.153	0.010	0.095	0.136	0.095
4	Annual Income	0.256**	0.386**	0.185	0.401**	0.199*	0.285**
5	Family Size	-0.084	0.052	-0.009	-0.198	0.073	-0.083
6	Occupational Status	0.147	0.098	0.116	0.0140	0.0135	0.077
7	Sources of Information	-0.032	0.100	0.069	0.018	-0.043	0.052
8	Extension Participation	0.085	0.007	0.126	0.093	0.088	0.080
9	Technology Utilization	0.168	0.359**	0.153	0.211*	0.286**	0.235*
10	Achievement Motivation	0.136	0.147	-0.063	0.144	0.094	0.117
11	Economic Motivation	0.214*	0.176	0.191	0.375**	0.265**	0.244*
12	Risk Orientation	0.189	0.090	0.003	-0.172	0.052	0.101

* Significant at 0.05 level of probability ** Significant at 0.01 level of probability

In the attributes of SRL, human capital, physical capital and financial capital were positively correlated with the annual income of respondents at 0.01 level of probability, whereas relationship of food security and annual income was significant at 0.05 level of probability. The data given in Table 15 reveals that technology variable i.e. technology utilization by the farmers was significantly correlated with physical capital and food security at 0.01 level of probability and financial capital was found significant at 0.05 level of probability. Further the independent variable viz. economic motivation had shown highly significant relationship with financial capital and food security, while human capital was significant at 0.05 level of probability. On the same lines Shaik *et al.* (2011) also found significant relationship of sustainable rural livelihood with technology utilization and economic motivation.

Problems in Sustaining Rural Livelihood

Major problems presented in Table 15 show that fluctuation in climatic factors is placed at first rank with the rank base quotient of 96.78. The second ranked problem on the basis of importance related to damage caused by wild animals. It was reported that if the crop was not protected specially in the night, wild animals could cause major damage to the crop. Improper supply of electricity was the third important problem expressed by the respondents. Due to the non-availability of electricity it was

not possible to irrigate the crop that could lead to losses in the net income of the farmers from their livelihood. A non remunerative and high fluctuating price of farm produce was placed at fourth rank with 82.00 RBQ. The least expected price or remunerative price was not received by the farmers from the market, hence causing unsustainability of rural livelihood. Non availability of labour was the next important problem in rural livelihood expressed by the farmers. Due to the guaranteed work in MIDC area and National Rural Employment Guarantee Act of the Government, labour was not easily available when required for the farm work. With the extension efforts, labour may be available from far off places which would not be cost effective because of labour charges a farmer has to pay for their transportation. These are the major top five ranked problems in sustainable rural livelihood of farmers.

Table 15. Problems of Farmers associated with Sustainable Rural Livelihood

S. No.	Problems	RBQ	Rank
1	High fluctuation in climatic factors	96.78	I
2	Problem of wild animals	90.45	II
3	Improper supply of electricity	83.53	III
4	Non remunerative and high fluctuating prices of farm produce	82.00	IV
5	Non availability of labour at proper time	80.72	V
6	Non availability of money at the time of important farm practices	79.86	VI
7	Very costly inputs	79.00	VII
8	Deception in quality of inputs	79.00	VIII
9	Complexity of crop insurance	64.84	IX
10	Complexity of bank loan procedure	62.68	X
11	Increase in pest disease prevalence	62.04	XI

Another important problem faced by the respondents in SRL is non availability of money at the time of important farm practices that could cause loss in yield and income. Very costly inputs and deception in quality of inputs may cause major damage by increasing the cost of production. Complexity in crop insurance, complexity in bank loan procedure and increase in pest disease prevalence are other important problems faced by the farmers in sustainability of rural livelihood.

Suggestions for Sustaining Rural Livelihood

To overcome the constraints in sustainable rural livelihood, respondents gave suggestions which are presented in Table 16. Farmers were always worried about the erratic nature of climate and not able to plan for cultivation of specific crops. Hence, farmers demanded provision for local climate forecast system that could support the farmers in decision making.

Table 16. Major suggestions by Respondents for Sustaining Rural Livelihood

S. No.	Suggestions
1	Area wise climate forecasting should be provided to farmers
2	Government should provide protection from wild animals to the farmers
3	First priority shall be given to agriculture and 24 hours electricity provided in the rural areas
4	Prices of all commodities should be declared before planting of crops
5	Facility of farm mechanization should be provided by the Government
6	Provision of seed and other quality input need to be strengthened
7	Individual crop insurance should be provided
8	User friendly bank loan procedure needs to be promoted
9	Better road connectivity and transportation at village level

Wild animals are creating problems for farmers. Wild animals are protected by the legislative act, hence farmers are helpless and unable to protect their crop. Farmers are demanding that the Government take steps to keep wild animals away from their crops or remove the legislative act of wild animals.

Load shedding is one of the major problems in rural livelihood activities. Erratic supply of electricity especially in rural areas creates a major problem in irrigation of crops and effective entrepreneurial activities in agriculture and allied areas. This might have resulted in diversion of rural youth towards urban areas and non agricultural sectors for their livelihood. Farmers expressed that first priority should be given to agriculture and 24 hours electricity provided in the rural areas can help to make rural livelihood sustainable.

Farmers also suggested that the commodity price may be declared before the crop season, provision of farm mechanization to be by the government, provision of seed and other quality input to be strengthened by the Government. Individual crop insurance should be provided, along with promoting a user friendly bank loan procedure. Better road connectivity and transportation at village level are other important suggestions given by farmers for sustainability of rural livelihood.

Conclusion

It can be observed from the data that multidisciplinary activities of KVK helped the farmers to adopt different farming systems and generate family income. This consequently improved the human capital, physical capital, social capital, financial capital and food security of the farming community that led to improvement in sustainable rural livelihood.

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