



ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.03
TPI 2021; SP-10(2): 141-148
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www.thepharmajournal.com
Received: 22-11-2020
Accepted: 14-01-2021

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Livelihood sustainability of small and marginal farmers in western vidarbha

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Abstract

The present study was carried out to know the livelihood sustainability of small and marginal farmers in western Vidarbha. Total 120 small and marginal farmers were selected from 12 villages for this study, it covers total 4 Tahsils of 2 districts of Western Vidarbha. The study revealed that the livelihood sustainability index of majority (52.50%) of the small and marginal farmers was low due to low natural, social, and financial capital availability with them, although human and physical capital is on supporting side. It is therefore recommend that the natural, social, and financial capital availability with small and marginal farmers in Western Vidarbha should be increased and need attention. It will help for increasing the income of small and marginal farmers.

Keywords: Marginal farmers, western Vidarbha, Livelihood

Introduction

This slogan of a visionary prime minister had lost its potential over the time. After the independence, according to Gandhiji's vision of Gram-swaraj, villages and specially farmers were to be the main focus of any development plan of India. As years passed, by agriculture as an industry lost its importance for policy makers of India (Behere and Behere 2008). Agriculture is the primary sector for the Indian economy. It is economically and socially vital for India as it contributes 23 per cent to GDP, feeds a billion people and employs 66 per cent of the workforce. However the status of the vast majority of the farming communities is filled with misery, illiteracy, socio-economic backwardness, vagaries of monsoon, increasing input costs, lack of timely credit and unfavourable market conditions has deprived them of their livelihood securities. In recent years, land based livelihood of small and marginal farmers are increasingly becoming unsustainable, since their land has not been able to support the family's food requirements and fodder for their cattle. National Sample Survey Organisation revealed that one-third of the farmers indicated that farming is not profitable and another 40 per cent of the farmers are ready to give up farming in favour of a job. The state government has expressed a strong commitment to the reduction of poverty in Vidarbha region. As they fall under backward within the Maharashtra state.

Methodology

The present research investigation was carried out in two districts of Western Vidarbha region of Maharashtra. The study was carried out by selecting small and marginal farmers in Akola and Akot tahsil in Akola districts and Shegaon and Khamgaon tahsil in Buldhana districts of Vidarbha region in Maharashtra. Exploratory research design was used. Respondents were the small and marginal farmers. The total 120 respondent were selected by random sampling method. Out of which 60 small and 60 marginal farmers were selected from Akola and Buldhana districts of Vidarbha. From Akola, Akot, Shegaon and Khamgaon tahsil, 3 villages from each tahsil were selected. Comprising total sample of 12 villages for the present study. A structured interview schedule was prepared and used for data collection. Data were collected by personal interview method with the help of structured interview schedule.

Measurement of Livelihood Sustainability Index (LSI)

It was recognized that more attention must be paid to the various factors and processes which either constraint or enhance poor people's ability to make a living in an economically, ecologically and socially sustainable manner. The corresponding mean man days of employment created or generated per year was computed to achieve sustainable livelihoods.

Different livelihood capitals such as human capital, physical capital, natural capital, social capital and financial capital would play a greater role to cope with records from shocks or stresses and to maintain or enhance the individuals capabilities and assets both in present and in the future without degrading the natural resource base. An index was developed for the study comprising of the livelihood assets such as human capital, physical capital, natural capital, social capital and financial capital for which sub indices are computed and summed up to arrive at the Rural Livelihood Sustainability Index (RLSI). The concept of sustainable livelihood was studied by using the broad philosophy of sustainable livelihoods of DFID, UK, (Department for international Development).

The livelihoods sustainability was studied under the following livelihoods capital assets such as. Human capital, Physical capital, Natural capital, Social capital and Financial capital. The measurement of each capital was done by using the Livelihood Index developed by Rathod (2007) [3], UAS, Dharwad with slight modification as given below.

Human Capital

Human capital is operationalised as the good health facilities, education and availability to labor facilities important for the successful pursuit of different livelihood options.

I. Health: Health is operationalised as the various medical facilities availability and their accessibility in terms of distance and means of transport in case of emergency situations.

A. Medical treatment availability

Medical treatment sources	Score
No availability	0
Traditional practioner	1
PHC	2
Private clinic	3
Rural hospital	4

Labour availability	Score
Engagement of family member	Yes- 1 No- 0
Engagement of hired labour	Yes-1 No -0
Adequacy of labour	Adequacy-3 Partially adequacy-2 Inadequate-1
Labour wages outside	More-2 Less-1
Skillfulness of labour engaged	Highly skillful – 3 Moderately skillful – 2 Less skillful - 1

The scores obtained by the respondent in items I, II and III were summed up to obtain the human capital score. The human capital index is the ratio of actual score obtained by the respondent and maximum possible score.

The formula is as follows.

$$HCI (%) = \frac{\text{Actual score}}{\text{Maximum possible score}} \times 100$$

HCI=Human Capital Index (%)

B. Access to health facilities (in kms)

Distance to medical facilities (in km)	Score
>10	1
5-10	2
<5	3

C. Means of transport in case of emergency

Means of transport in case of emergency	Score
Bullock cart/ Bicycle	1
Motorcycle	2
Auto	3
Ambulance/ Any car	4

II. Education: This variable was operationalised as the formal education an individual respondent received. The educational status was quantified based on the following scores.

a) Availability of primary education facilities in village?

Yes – 1

No - 0

b) Education

Education	Score
Illiterate	1
Primary school	2
Middle school	3
High school	4
College	5

c) Education of women members

Yes – 1

No - 0

III. Labor availability

Labor availability is defined as the extent of use of own labor as well as hired labor and the quality of work they performed. A weightage of ‘1’ score was assigned for ‘yes’ and ‘0’ for no type of response, the scoring pattern followed is as follows.

Actual score = Actual score obtained by the respondent under human capital

The respondents according to Human Capital Index (%) were categorized as follows

Level	Human Capital Index (%)
Low	Upto 33.33
Medium	33.34 to 66.66
High	Above 66.66

Physical capital

Physical capital is defined as the infrastructural facilities like affordable transport facilities, type of house where respondent lives, adequate water supply and sanitation and information sources by the respondent at the time of investigation.

I. Affordable transport: It is defined as the affordability of the respondent for using the transport facilities for various purposes.

Transport Means	Score
Bullock cart	1
Public transport	2
Jeep / autos	3
Own vehicles	4

II. Type of house: It is the house where the respondent is living at the time of investigation.

Type of house	Score
Katcha	1
Pucca	2
Tiled	3
Building	4

III. Adequacy of water supply and sanitation: It is the supply of drinking water for household purpose and disposal of sewage water. The scoring pattern for the items is as follows.

Items	score
Source of drinking water	Owned well / Water supply scheme of Grampanchay
Regularity of water supply	Yes / No

IV. Information sources: It is operationalised as the respondent's accessibility to seek information related to either farm or non-farm activities from various sources.

Information source	Score		
	Always 2	Sometime 1	Never 0
Neighbors			
Local leaders			
Panchayat/ society official			
Newspaper			
Radio			
Television			
Cinema/film shows			
Dealer			
VEO/AEO/AO			
Leaflet			
Internet			

The scores obtained by the respondent in item I,II,III and IV were summed up to obtain the physical capital score. The physical capital index is the ratio of actual score obtains by the respondent and maximum possible score. The formula is as follows.

$$PCI (\%) = \frac{\text{Actual Score}}{\text{Maximum possible score}} \times 100$$

Actual score=Actual score obtained by the respondent under physical capital

PCI=Physical capital Index

Distribution of the respondents according to

Physical Capital:

Level	Physical Capital Index (%)
Low	Upto 33.33
Medium	33.34 to 66.66
High	Above 66.66

Natural Capital

Natural capital operationalised as the natural resource base available such as type of land, status of soil, irrigation facilities for various types of cultivation, through various crops, cropping systems and different farming systems which operate in complex ecosystems for income generation, profit maximization and enhancing the livelihood capabilities.

I. Type of land: Type of land respondent possessed for farming was scored as follows.

Type of land	Score
Rich fertile	3
Moderate fertile	2
Poor/Wreaks	1

II. Status of soil: Conceptually, it refers to the quality of land possessed by the respondent. Operationally, type of land was defined as soil status of an individual farmers farm as mentioned in land use classification as very deep, deep, moderately deep, shallow and very shallow. Categorization and scoring was done on the basis of higher status of their farm soil as given below.

Land use classes	Status of soil	Score
Class-I	Very deep	5
Class-II	Deep	4
Class-III	Moderately deep	3
Class-IV	Shallow	2
Class-V	Very shallow	1

III. Irrigation facilities: It refers to the sources available such as well, tube well, canal etc. for irrigation to the respondent and scored as follows.

Type of irrigation facilities	Score
Canals	1
Wells	2
Tanks	3

IV. Type of crop: The type of crop under cultivation by the respondent and the scoring is as follows.

Type of crop	Score
Cereals/Millets	1
Pulses	2
Oilseed	3
Fruits and vegetables	4
Other (cash crops)	5

V. Cropping system: It is defined as the cropping pattern followed by the respondent on a farm based on farm resources, other farm enterprises and available technology.

The scoring for cropping system is as follows.

Cropping pattern followed	Score
Mono cropping	1
Double cropping	2
Multiple cropping	3

VI. Farming system: Farming system is operationalised as a appropriate combination of farm enterprises viz, cropping system, livestock, poultry, apiary, sericulture and fisheries to raise them for increasing income and profitability. The scoring is as follows.

Farming system	Score
Crop-crop	1
Crop-dairy/poultry.	2

The score obtained by the respondent in items I,II,II,IV,V and VI were summed up to obtain the natural capital score. The natural capital index is the ratio of actual score obtained by the respondent and maximum possible score.

$$NCI (\%) = \frac{\text{Actual Score}}{\text{Maximum possible score}} \times 100$$

Actual score=Actual score obtained by the respondent under natural capital

NCI=Natural capital index (%)

Distribution of the respondents according to available Natural capital

Level	Natural Capital Index (%)
Low	Upto 33.33
Medium	33.34 to 66.66
High	Above 66.66

Social capital: Social capital is operationalised as the combination of respondent’s socio-political participation which forms an effective social safety network for improving one’s livelihoods.

I. Socio-political participation: Sociopolitical participation was oprationalised as the degree of involvement of respondents in number of social and political organizations. The following items and weightage were used to quantify the socio-political participation.

Organization	Score
Grampanchyat	1
Co-operative society	2
School committee	3
Farmers club	4
SHG group	5

The scores obtained by the respondent in items I was summed up to obtain the social capital score. The social capital index is the ratio of actual score obtained by the respondent and maximum possible score. The formula is as follows:

$$SCI (\%) = \frac{\text{Actual Score}}{\text{Maximum possible score}} \times 100$$

Actual score=Actual score obtained by the respondent under

social capital

SCI = Social capital index (%)

Distribution of the respondents according to available social capital

Level	Social Capital Index (%)
Low	Upto 33.33
Medium	33.34 to 66.66
High	Above 66.66

Financial capital: Financial capital is defined as the capital base (cash), credit/debt, savings, and other economic assets, which are essential for the pursuit of any livelihood strategy.

I. Debts: It is the total loans (debts) taken by the respondent from various sources during the study year i.e. 2018-2019

Loan taken	Score
Not availed	0
Up to Rs. 20000	1
Rs. 20001 - 40000	2
Above 40000	3

II. Savings: It is operationalised as the amount of the money left after deducting expenditure and loans from the total annual income of the respondent at the time of investigation for the study year.

Saving (in Rs.)	Score
No saving	0
Up to Rs. 20000	1
20001 - 40000	2
Above 40000	3

The scores obtained by the respondents in items such as debts availed and savings were summed up to obtain the financial capital score The financial capital index is the ratio of actual score obtained by the respondent and maximum possible score.

$$FCI (\%) = \frac{\text{Actual Score}}{\text{Maximum possible score}} \times 100$$

Actual score =Actual score obtained by the respondent under Financial capital

FCI =Financial capital index (%)

Distribution of the respondents according to available financial capital

Level	Financial Capital Index (%)
Low	Upto 33.33
Medium	33.34 to 66.66
High	Above 66.66

Livelihoods Sustainability Index (LSI)
(Includes overall five components):

$$LSI (\%) = \frac{HCI + PCI + NCI + SCI + FCI}{5} \times 100$$

LSI= Livelihoods Sustainability Indx (%)

On the basis of overall index of five components the Livelihoods Sustainability of the respondents was categorized

by equal interval method as low (Up to 33.33), medium (33.34 to 66.66) and high (Above 66.66).

Results and Discussion

Livelihoods Sustainability Index (LSI): The distributions of selected small and marginal farmers according to each

indicator with separate Index (%) of Human capital, Physical capital, Natural capital, Social capital, Financial capital and Overall Livelihoods Sustainability Index (LSI) has been presented in subsequent Table No.1 to 11 as below.

Human Capital

Table 1: Distribution of small and marginal farmers according to the indicators of the Human Capital

Medical treatment availability		
Medical treatment facility	No.	%
No availability	0	00.00
Traditional practitioner	7	03.24
PHC	135	62.50
Private clinic	54	25.00
Rural hospital	20	09.25
Total	216*	100.00
Access to health facilities (in kms)		
>10km	5	4.17
5 – 10 km	82	68.33
<5	33	27.50
Total	120	100.00
Means of transport in case of emergency		
Bullock cart/ Bicycle	0	00.00
Motorcycle	45	26.78
Auto	113	67.26
Ambulance/ Any car	10	05.95
Total	168*	100.00
Education		
Illiterate	3	2.50
Primary school	59	49.17
Middle school	40	33.33
High school	14	11.67
College	4	3.33
Total	120	100.00
Education to women members		
Yes	62	51.67
No	58	48.33
Total	120	100.00
Availability of primary education facility in village		
Yes	120	100.00
No	0	00.00
Total	120	100.00
Labor availability		
Engagement of family members		
Yes	89	74.17
No	31	25.83
Engagement of hired members		
Yes	79	65.83
No	41	34.17
Adequacy of labour- Adequate	25	20.83
Sometimes adequate	92	76.67
Not adequate	03	2.50
Skill fullness of labour engaged		
Highly skilful	2	1.67
Moderately skilful	77	64.17
Less Skilful	41	34.17
Labour wages outside-More	94	78.33
Less	26	21.67

Table 2: Distribution of the respondents according to Human Capital Index

Human Capital Index (%)	No.	%
Low (Up to 33.33)	04	3.33
Medium (33.34 to 66.66)	114	95.00
High (Above 66.66)	02	01.67
Total	120	100.00

Table 2 clears that vast majority of (95.00%) of the farmers had medium human capital index, 3.33 percent of the farmers under the low human capital index and remaining 1.67 percent farmers under the high human capital index. It might be due to the average availability of health facilities, low educational level and average labour availabilities with majority of selected small and marginal farmers in study area.

Physical capital

Table 3: Distribution of the families according to the Indicators of the Physical Capital

Transport means	No.	%
Affordable transport:		
Bullock cart	2	01.67
Public transport	41	34.17
Jeep / autos	69	57.50
Own vehicles	8	06.67
Total	120	100.00
<i>Type of house</i>		
Katcha	77	64.16
Pucca	36	30.00
Tiled	5	04.17
Building	2	01.67
Total	120	100.00
Adequacy of water supply and sanitation		
Source of drinking water		
Owned well	9	7.5
Water supply scheme of Gram panchyat	111	92.5
Total	120	100
Regularity of water supply		
Yes	47	39.17
No	73	60.83
Total	120	100.00
Information sources		
Neighbours	54	45.00
Local leaders	2	01.67
Panchayat/ society official	3	03.00
Newspaper	9	08.00
Radio	5	04.17
Television	36	30.00
Cinema/film shows	1	00.83
Dealer	3	02.50
VEO/AEO/AO	2	01.67
Leaflet	0	00.00
Internet	4	03.33

Table 4: Distribution of the respondents according to Physical Capital

Physical Capital Index (%)	No.	%
Low (Up to 33.33)	43	35.83
Medium (33.34 to 66.66)	77	64.17
High (Above 66.66)	0	00.00
Total	120	100.00

Table 4 exposes the fact, majority 64.17 percent of farmers had medium physical capital and remaining 35.83 percent comes under low physical capital. No single farmers had high physical capital.

Natural capital

Table 5: Distribution of the families according to the Indicators of the Natural Capital

Items	No.	%
Type of land		
Rich fertile	7	05.83
Moderate fertile	83	69.17
Poor/Warkas	30	25.00
Total	120	100.00
Status of soil		
Very deep	2	01.67
deep	36	30.00
Moderately deep	63	52.50
Shallow	19	15.83
Total	120	100.00
Irrigation facilities		
No source	79	65.83
River	0	00.00
Well/ Tube well	41	34.17
Canal	0	00.00
Total	120	100.00
Type of Crops		

Cereals/millet	8	06.67
Pulses	42	35.00
Oil seeds	32	26.67
Fruits and vegetables	0	00.00
Other (cash crops)	38	31.66
Total	120	100.00
Cropping system		
Mono cropping	36	30.00
Double cropping	80	66.67
Multiple cropping	04	03.33
Total	120	100.00
Farming system		
Crop-crop	94	78.33
Crop-dairy/poultry.	26	21.67
Total	120	100.00

Table 6: Distribution of the respondents according to available Natural capital

Natural Capital Index (%)	No.	%
Low (Up to 33.33)	63	52.50
Medium (33.34 to 66.66)	54	45.00
High (Above 66.66)	3	02.50
Total	120	100.00

The results from Table 6 clearly reveal that majority (52.50%) of the farmers had low natural capital followed by medium (45.00%) and high (2.50%). The reason might be due to low availability of maximum indicators of the natural capital and these are, moderately deep soil (52.50%) and not availability of irrigation sources (65.83%).

Social capital

Table 7: Distribution of the families according to the indicators of the Social Capital

Item	No.	%
Socio-political participation		
No participation	67	55.83
Participation		
Grampanachyat	6	11.31
Co-operative society	1	1.89
School committee	9	16.98
Farmers club	2	3.77
SHG group	35	66.04
Total	120	100.00

Table 8: Distribution of the respondents according to Social capital Index

Social capital index (%)	No.	%
Low (Up to 33.33)	103	85.83
Medium (33.34 to 66.66)	17	14.17
High (Above 66.66)	0	00.00
Total	120	100.00

Table 8 clearly shows that relatively higher proportion (85.83%) of the farmers had low social capital and 14.17 percent farmers comes under medium social capital.

Financial Capital

Table 9: Distribution of the families according to the Indicators of the Financial Capital

Loan taken	No.	%
Not availed	58	48.33
Up to Rs. 20000	31	25.83
Rs. 20001 - 40000	19	15.83
Above 40000	12	10.00
Total	120	100.00
<i>Savings</i>		
No saving	103	85.83
Up to Rs. 20000	11	09.17
20001 - 40000	4	03.33
Above 40000	2	01.67
Total	120	100.00

Table 10: Distribution of the respondents according to the financial capital

Financial Capital Index (%)	No.	%
Low (Up to 33.33)	104	86.67
Medium (33.34 to 66.66)	13	10.83
High (Above 66.66)	03	02.50
Total	120	100.00

The results from Table 10 clearly reveal that majority of respondents (86.67%) had low financial capital followed by 10.83 percent respondents had medium financial capital and 2.50 percent respondents had high financial capital.

Livelihoods Sustainability Index (includes five components)

Table 11: Distribution of the respondents according to Livelihood Sustainability Index (Includes overall five components of Livelihood Sustainability)

Livelihood sustainability Index	No.	%
Low (Up to 33.33)	63	52.50
Medium (33.34 to 66.66)	55	45.83
High (Above 66.66)	2	01.67
Total	120	100.00

The results from Table 11 clearly shows that majority of 52.50 percent small and marginal farmers of western Vidharbha had low livelihood sustainability, 45.83 percent farmers had medium livelihood sustainability and remaining only 1.67 percent farmers had high livelihood sustainability.

Conclusion

Livelihood Sustainability Index (LSI) was found to be low in 52.50 per cent of small and marginal farmers in Western Vidarbha due to low natural, social, and financial capital, although human and physical capital is on supporting side. It is therefore recommend that increase the natural, social, and financial capital availability and need attention for increasing the income of small and marginal farmers in Western Vidarbha. This research study clears that in study area there is a need to raise educational level, increase employment opportunities, increase the irrigation sources for profitable crop cultivation and involve them in socio-political organizations for raising their livelihood sustainability. Government should focus more investment in agriculture for increasing the farmer's income. Shift policies to focus on dryland farming through technology, extension, price and other incentives.

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