



Livelihood Analysis of Tuber Crop Farmers in Kerala

Sheela Immanuel, P. Sethuraman Sivakumar, P. Prakash and D. Jaganathan

ICAR - Central Tuber Crops Research Institute, Sreekariyam, Thiruvananthapuram 695 017, Kerala, India

Corresponding author: Sheela Immanuel, e-mail: sheela.immanuel@icar.gov.in

Received : 21 March 2017 Accepted : 20 May 2017

Abstract

Tuber crops are mainly grown in Kerala, Tamil Nadu, Andhra Pradesh, Karnataka, Odisha and in the north-eastern states of India. Tubers are not only used for edible purposes but also for industrial purpose. Most of the farmers grow cassava, sweet potato, yams and elephant foot yam in their farms for their livelihood. Livelihood assessment of the tuber crop farmers help to identify the different assets possessed by the tuber crop farmers and how they are contributing to their livelihood. This study was conducted with the objective of assessing the livelihood capitals of tuber crop farmers. Two districts, from Kerala namely Thiruvananthapuram and Pathanamthitta were selected for the study. From each district, two villages were selected. Thirty farmers involved in tuber crops cultivation were selected randomly from each district, and a total of 60 farmers were selected as respondents. Data were collected using pre tested interview schedule. Index was worked out for all the livelihood capitals. Of the five livelihood capitals, physical and social capital possessed the highest value of more than 70 in both the districts and financial capital index in Pathanamthitta (53) and natural index in Thiruvananthapuram (53) had relatively lower value.

Key words : Livelihood, tuber crop farmers, capital index

Introduction

In India, tuber crops are mainly grown in Kerala, Tamil Nadu, Karnataka, Andhra Pradesh and Odisha and it is used both for edible purpose and also for extraction of starch by the industries. Tuber crops provide livelihood to the farmers in Kerala to a greater extent. Tuber crops are also grown as intercrop in coconut gardens and with other crops. Most of the farmers grow cassava, yams and elephant foot yam in their farms and earn their livelihood. Livelihood assessment of the tuber crop farmers help to identify the different assets possessed by the tuber crop farmers and how they are contributing to their livelihood. With this aim the study was conducted with the objective of assessing the livelihood capitals of tuber crops farmers. To improve the livelihood status the concept of sustainable livelihoods is increasingly gaining great importance in research and development initiatives for poverty alleviation, rural agriculture development and rural resources management (Chambers, 1987; Ashley, 2000).

Broad sustainable livelihood principles underpin application of the sustainable livelihood approach, and most of them draw on some form of livelihood analysis to assess how development activities fit with the livelihoods of the poor (Carney et. al., 1999, DFID). Livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base (Carney, 1998). Livelihood capitals provide substantial contributions to the well-being of rural population. Livelihood capitals differ across households and locations. A single asset can generate multiple benefits, for example, if a household has secured access to land, they are also likely to be well endowed with financial assets, as they can use the land for productive purposes and to secure loans (Chambers, 1987). Livelihood capital plays a pivotal role in healthy development of rural areas and agriculture

production itself to solve the inherent problems of the livelihood of farmers as well as to enhance their capacity for self-development (Peter, 1999).

Materials and Methods

The present study adopted the DFID's livelihood framework to assess the different capitals possessed by the tuber crop farmers. Each capital consists of key indicators. For example, human capital includes education of the farmers, training undergone by the farmers, their knowledge level about tuber crops farming and labour availability. Two districts from Kerala namely Thiruvananthapuram and Pathanamthitta were selected for the study based on the area of tuber crops cultivation. From each district two villages dominated by tuber crops were selected purposively. The farmers who are deriving 50% of their income from tuber crops were selected as respondents and thus thirty farmers involved in tuber crops cultivation were selected randomly from each district and thus a total of 60 farmers were selected as respondents. Data were collected using pre tested interview schedule. Data were collected on household level to identify the various capitals namely natural, financial, social, physical and human capital. Index was worked out for each capital using the formula

Capital Index = Actual score/Maximum obtainable score x 100

Actual Score is the score obtained by the respondent under the capitals.

Rural livelihood sustainability index = HCI+ SCI + FCI+ NCI+ PCI/5

HCI : Human Capital Index

SCI : Social Capital Index

FCI : Financial Capital Index

NCI : Natural Capital Index

PCI : Physical Capital Index

Results and Discussion

Human Capital Index

Human capital provides labour for the various enterprises (income generation, subsistence farming, water collection etc.) engaged in by a household. While human capital is partly related to

the size of the household much also depends on the level of education, experience, age, gender, occupation, and so on (Morse et al, 2009). Human capital index was studied under five key factors, namely education, training received on tuber crops, labour availability, health facilities and knowledge possessed on tuber crops cultivation.

From Table 1a, it was clear that no farmer was under the low category of human capitals. Seventy percent of the farmers from Pathanamthitta had high human capital whereas it was 50 per cent for farmers from Thiruvananthapuram district. This may be due to the reason that the Pathanamthitta farmers who are involved in tuber crop cultivation were more educated than the Thiruvananthapuram farmers and the labour availability was also more.

From Table 1b, it is inferred index for education was higher for farmers from Pathanamthitta district than farmers from Thiruvananthapuram district and this may be an indication that educated people were involved in tuber crops cultivation. Regarding training, the index was more for farmers from Thiruvananthapuram district (51) and it was less for farmers from Pathanamthitta district (26). This may be due to the reason that farmers had more access to trainings organised by the agricultural Institutions in Thiruvananthapuram district than Pathanamthitta district. Both the districts have good health

Table 1a. Distribution of respondents according to human capital index

Category	Pathanamthitta (n= 30)		Thiruvananthapuram (n= 30)	
	Number	Percentage	Number	Percentage
Low	0	0	0	0
Medium	9	30	15	50
High	21	70	15	50
Total	30	100	30	100

Table 1b. Human capital index of the tuber crops farmers

Key indicators	Pathanamthitta (n= 30)	Thiruvananthapuram (n= 30)
Education	63	44
Training on tuber crops	26	51
Labour availability	64	62
Health facilities	95	88
Knowledge on tuber crops cultivation	75	79
Overall HCI	65	63

facilities. The labour availability was more or less the same for both the districts. The overall index on human capital was 65 for farmers from Pathanamthitta district and 63 for the farmers from Thiruvananthapuram district, which was more or less similar in both the districts.

Physical Capital Index

Physical capital comprises of basic infrastructure and producer goods required to support livelihoods. This infrastructure consists of changes to the physical environment that helps people meet their basic needs and to become more productive (Jonathan, 2000)

The Table 2(a) clearly indicated that in Pathanamthitta district more than 90 percent of farmers involved in tuber crops farming had a high level of physical capital whereas only 70 % of the Thiruvananthapuram farmers came under the high category level.

The physical capital index was high for transport facilities in both the districts (Table 2b). The table shows that drinking water (90) and electricity facilities (90) were similar in both the districts. This was also reported by Sreedevi (2005), that access to drinking water in Kistapur and Powerguda villages were similar and both villages were totally electrified and the consumption of energy was also satisfactory, but Powerguda village had a higher score (24.82) as against Kistapur village (16.76). Fuel resources were more in Pathanamthitta (55) district rather than Thiruvananthapuram (49) district.

Social Capital Index

The term “social capital” elicits much debate. In the context of the Sustainable Livelihoods Framework (Moser, 1998), it was taken to mean social resources in which people were drawn towards the pursuit of livelihood objectives.

It is observed from the Table 3(a) that as far as social capital is concerned more than 50 per cent of the farmers were coming under the medium category of social capital index in Pathanamthitta whereas in Thiruvananthapuram 66.66 % were under the high level of social capital index.

Table 2a. Distribution of respondents according to physical capital index

Category	Pathanamthitta (n= 30)		Thiruvananthapuram (n= 30)	
	Number	Percentage	Number	Percentage
Low	0	0	0	0
Medium	2	6.67	9	30
High	28	93.33	21	70
Total	30	100	30	100

Table 2b. Physical capital index of the tuber crops farmers

Key indicators	Pathanamthitta (n= 30)	Thiruvananthapuram (n= 30)
Transport facilities	83	84
Type of housing	70	87
Drinking water facilities	90	90
Electricity facilities	98	98
Fuel resources	55	49
Overall index	73	74

The Table 3b clearly indicated that the social capital index was more for farmers from Thiruvananthapuram district (84) than Pathanamthitta (73) district. Membership in the organisation was low (28) for farmers from Pathanamthitta. This aspect needs

Table 3a. Distribution of respondents according to social capital index

Category	Pathanamthitta (n= 30)		Thiruvananthapuram (n= 30)	
	Number	Percentage	Number	Percentage
Low	0	0	0	0
Medium	17	56.67	10	33.34
High	13	43.33	20	66.66
Total	30	100	30	100

Table 3b. Social capital index of tuber crops farmers

Key indicators	Pathanamthitta (n= 30)	Thiruvananthapuram (n= 30)
Societal relationship	83	88
Membership in organisation	28	54
Access to communication	70	86
Peer group communication	59	64
Communication facilities	87	91
Overall SCI	73	84

to be taken care of as the membership in social organisations help farmers to get more interaction with the fellow farmers and also it will help them to acquire and share more information regarding agriculture. The societal relationship existing in both the districts had scored higher value and this showed that the villagers had good community feeling among themselves and developmental intervention will definitely be successful.

Financial Capital Index

Financial capital index denotes the financial resources that people use to achieve livelihood objectives (Lasse, 2001).

Table 4a indicated that in Thiruvananthapuram district 46.66 per cent of the farmers came under the high category of financial capital. This may be an indication that the farmers involved in tuber crops farming had better standard of living .

Of the five livelihood capitals, financial capital was more significant as it influences most of the other capitals. Any downfall in financial capital would affect the farmers livelihood activities and in turn would affect the farm level production. The index for savings was only 25 for the farmers from Pathanamthitta district, whereas it was on the higher side for the farmers from Thiruvananthapuram district (56). Credit source and credit availability showed a positive sign. Household income needs to be improved as it would enable the farmers to invest more in their agricultural operations, thereby improving their standard of living. The overall financial capital was more for farmers from Thiruvananthapuram district (64) than Pathanamthitta district (53) (Table 4b).

Natural Capital Index

Natural capital is the term used for natural resource stocks from which resource flow and services that are useful for livelihoods. (Goldman, 2000).

As far as natural capital was concerned, majority (> 60%) of the farmers were under the medium category and only more than 30 per cent were under the high category in both the districts (Table 5a).

Table 4a. Distribution of respondents according to financial capital index

Category	Pathanamthitta (n= 30)		Thiruvananthapuram (n= 30)	
	Number	Percentage	Number	Percentage
Low	0	0	1	3.34
Medium	26	86.67	15	50.00
High	4	13.33	14	46.66
Total	30	100	30	100

Table 4b. Financial capital index of Tuber crops farmers

Key indicators	Pathanamthitta (n= 30)	Thiruvananthapuram (n= 30)
Household income	60	62
Credit availability	82	83
Credit source	76	87
Savings	25	56
Debt	33	45
Overall FCI	53	64

Natural capital index was analysed and it is clear that the index for ownership of land was 100 which indicated that all the farmers had own land. The area of land possessed by the Pathanamthitta farmers was less (43) when compared to Thiruvananthapuram farmers (56). This may be due to the reason that mostly the tuber crops cultivation was done on homestead basis and hence the area of land used for cultivating tuber crops were also less. The index for irrigation source was more than 50 for both the districts (Table 5b).

Table 5a. Distribution of respondents according to natural capital index

Category	Pathanamthitta (n= 30)		Thiruvananthapuram (n= 30)	
	Number	Percentage	Number	Percentage
Low	0	0	0	0
Medium	20	66.67	18	60
High	10	33.33	12	40
Total	30	100	30	100

Table 5b. Natural capital index of tuber crop farmers

Key indicators	Pathanamthittan (n= 30)	Thiruvananthapuram (n= 30)
Area of land	43	56
Ownership of land	100	100
Crops grown	68	65
Irrigation source	65	57
Overall NCI	66	65

Overall livelihood index

Of the five livelihood capitals, physical and social capital index showed the highest value of more than 70 in both the districts and financial capital index in Pathanamthitta (53) and natural capital index in Thiruvananthapuram district (65) exhibited relatively lower value (Table 6). Financial capital index and natural capital index will affect crop production and this area

Table 6. Overall livelihood index for tuber crops farmers

Key indicators	Pathanamthittan (n= 30)	Thiruvananthapuram (n= 30)
Human Capital	65	63
Physical Capital	73	74
Social Capital	73	84
Financial Capital	53	64
Natural Capital	66	65
Rural Sustainable Livelihood Index	66	70

needs special attention to improve the livelihood of tuber crop farmers. Financial capital always has the most significant role in the adoption of new technologies by tuber crop farmers.

Conclusion

The study gives a vivid picture about the livelihood status of tuber crop farmers in both the districts. It reveals the enormity and scope of tuber crops farming to serve as a livelihood activity, and it may be adopted in a larger scale as it contributes to livelihood. The rural livelihood sustainability indicated the relative importance and the role of each capital for the development of tuber crop farming. Reduction in financial capital and natural capital would inhibit the tuber crop farmers to increase production scales and develop infrastructures that would, consequently, make it difficult to achieve more livelihood diversifications. So the Government and other departments need to improve the lending policies to farmers and strengthen the effect of cooperative organizations and associations, thereby improving the financial capital of farmers. This would enable improvement of other capitals, thereby contributing to the improvement of the livelihood of tuber crop farmers. Tuber crops farming also needs to be promoted in areas where it is

feasible to cultivate as it contributes to the livelihood and food security of the farming community.

References

- Ashley, 2000. Applying Livelihood Approaches to Natural Resources Management Initiatives: Experiences in Namibia and Kenya. Working Paper 134; Overseas Development Institute, U.K.
- Carney, D. (ed.) .1998. Sustainable Rural Livelihoods: What contribution can we make? London: DFID.
- Carney, D., Drinkwater, M., Rusinow, T., Neefjes, K., Wanmate, S. and Singh, N. 1999. Livelihoods approaches compared. London: DFID (Available at www.livelihoods.org/info/docs/docs/lacv3.pdf)
- Chambers, R. 1987. Sustainable livelihoods, environment and development: putting poor rural people first. IDS Discussion Paper no. 240, University of Sussex, Institute of Development Studies, Brighton, UK, 37 pp.
- DFID, 2000. Sustainable Livelihoods-current thinking and practice. London: Department for International Development.
- Jonathan, G. 2000. Sustainable livelihoods. *International Social Science Journal*, **17**(4): pp 77– 86.
- Lasse, K. 2001. The Sustainable Livelihood Approach to Poverty Reduction. International Development Cooperation Agency, Sweden. http://www.forestry.umn.edu/prod/groups/cfans/@pub/@cfans/@forestry/documents/asset/cfans_asset_202603.pdf.
- Moser CON., 1998. The asset-vulnerability framework: reassessing urban poverty reduction strategies. *World Development*, **26** 1: 1–19.
- Peter CA, 1999. Sustainable Livelihoods Analysis: An Introduction. Maxwell School of Citizenship and Public Affairs Syracuse, New York.
- Sreedevi, T.K., 2005. Livelihoods Analysis in Powerguda and Kistapur Micro-watersheds in Southern India. International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru, Andhra Pradesh, India [www.docslides.com/livelihood analysis in Powerguda and Kistapur](http://www.docslides.com/livelihood%20analysis%20in%20Powerguda%20and%20Kistapur)
- Stephen Morse, Nora McNamara and Moses Acholo .2009. Sustainable Livelihood Approach: A critical analysis of theory and practice. Geographical Paper No. 189, Geography, The University of Reading.