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Social Benefit–Cost Ratio of the Interventions in the Coconut Based Homesteads of Central Kerala

S. Helen[1] and B. Shammugasundaram[2]

ABSTRACT

Analysis of Social benefit – cost ratio of the interventions in the coconut based homesteads of Central Kerala was carried out. It showed that all the six dimensions of Social Cost Index Value (SCIV) were found as the lowest in High Elevation- Medium Rainfall (HEMR) situation (Kizhakkanchery). Among all the dimensions, exploitation by middlemen was rated as the maximum Social Cost Index Value (SCIV) in almost all the situations and therefore this dimension required the attention of policy makers to ensure suitable price for the farm produce. Among the six dimensions in the Social Benefit Index Value (SBIV), family labour utilisation and self confidence were the dimensions which contributed maximum to Social Benefit Index Value. It indicated that the interventions made in the homesteads better utilized family labour and enhanced the self confidence of the participating farmers. Social Benefit Cost Ratio was computed as the highest with 2.04 at High Elevation- Medium Rainfall (HEMR) situation (Kizhakkenchery) and the lowest with 1.07 at Medium elevation- Low Rainfall (MELR) situation (Eruthenpathy) after 18 months of interventions. It was concluded that the interventions on restructuring of coconut based homesteads were economically viable and socially desirable.

Coconut based homestead farming with the integration of allied enterprises is a predominant cropping system in Kerala. One of the reasons for the low food security in the state is attributed to the low productivity of the coconut in the homestead gardens. Farmers depending on farming alone were found in distress with low and fluctuating income. It could not be denied that there was a crisis in maintaining the age old tradition of integrated farming. The traditional concept of integration in homestead farming in Kerala is declining because of various socio- economic reasons. Under such situation, it was felt that the interventions on appropriate combinations of enterprises based on the preferences of participating farmers in the coconut based homesteads would rejuvenate the integration of coconut based homesteads.

METHODOLOGY

With this in view, the ICAR adhoc scheme on 'Possible Diversifications and Restructuring of Coconut based Homesteads' was implemented in the six agro-ecosystems of Central zone of Kerala covering three districts namely Palakkad, Thrissur and Ernakulam from the year 2005 to 2008 with the wholistic approach in coconut based homesteads with the participation of all the stakeholders. In this research scheme, it was aimed to generate additional income for the sustenance of the families depending on coconut based homesteads with the major thrust on conserving natural resources apart from meeting the basic needs of a family. The gradual shift in the socio-economic development in Kerala forces many families to move away from traditional conservation practices to money spinning vocations. To prevent non-judicious use of resources, encourage conservation practices, increase employment opportunities and thereby enhancing income of families, it was planned to take up interventions on farmer participatory mode.

Representing each of the six agro-ecological situations, a panchayat was selected on the basis of discussion with the extension personnel of the relavant block. Two wards from each selected panchayats were

[1]Assistant Professor (Agricultural Extension) Communication Centre, Kerala Agricultural University, Mannuthy, Thrissur
[2]Assistant Professor, (Agricultural Extension) Regional Agricultural Research Station,(KAU) Pattambi.Palakkad

selected based on the discussions with respective Agricultural Officers, Panchayat Presidents, Chair persons of the agricultural development council and board members, with the criteria of intensive coconut based homestead farming in the panchayat. Sixty farmers, mainly involved in coconut based homestead farming, representing the selected two wards, were invited for a PRA session and household surveys were conducted. Based on the discussion in the PRA session, farmers' interest and preferences, ten farm families from each of the six agro-ecological situations constituting sixty farm families were selected randomly for practicing the viable models in their homesteads.

Details of interventions made in the coconut based homesteads of the project area are given in the Table 1. Based on the preferences of the participating farmers, interventions were made with fifty per cent contribution from the project. For adopting each intervention, they were trained and exposed to various technologies developed by the Kerala Agricultural University. Most of the inputs required to adopt the interventions were also made available through the University. Field visits were made to solve the field problems and monitored the adoption of technologies taken up by the farmers. After creating the preferred enterprises, their performance was assessed in terms of social benefit-cost ratio of the interventions.

Social Benefit – cost ratio of the interventions made in the selected homesteads

In the present study, the social benefit-cost ratio of the interventions was found out based on the SCIV and SBIV calculated for each agro-ecological situation. The formula used was as follows:

$$\text{Benefit – Cost ratio (B-C ratio)} = \frac{\text{Total SBIV}}{\text{Total SCIV}}$$

Where, SBIV – Social Benefit Index Value

SCIV – Social Cost Index Value

It was calculated based on the procedure developed by Sadanandan (2003). Generally, cost – benefit analysis is done to find out the feasibility and profitability of the interventions made under the project. Social costs and development benefits are not taken into account in most of the projects. After the development efforts, intended results are not achieved since social aspects of the society played a major part in the development process. Therefore in this research project, Social Cost Benefit Analysis (SCBA) was worked out including the likely social costs and social benefits realised by the participating farmers.

Computation of social cost index value (SCIV)

Total social cost of the interventions made in the research project was measured by computing the SCIV of each participating farmer and compared. In this study, social cost met after adopting the preferred interventions was measured by using the SCIV developed for the purpose. Perishability, conversion of any crop or shift to any crop, displacement of agricultural labourers, exploitation by middlemen, time constraint and involvement at the cost of education were the six dimensions used to compute Social Cost Index Value. The SCIV of each participating farmer was worked out by considering the social cost score, the maximum possible score and weightage used for each dimensions. The formula used for this purpose was

Where

w1, w2 ----------w6, are the weightage of six dimensions

$$SCIV = \frac{S \left[\frac{Sc_i}{Ci} \right] wi}{S\ wi}$$

$$= \frac{\left[\frac{Sc_1}{C_1} \right] w_1 + \left[\frac{Sc_2}{C_2} \right] w_2 + \text{----------} + \left[\frac{Sc_6}{C_6} \right] w_6}{w_1 + w_2 + \text{----------} + w_6}$$

Sc1, Sc2 ----------Sc6 are the scores of the six dimensions of social cost

C1, C2 ----------C6 are the maximum possible scores of the six dimensions of social cost.

Computation of social benefit index value (SBIV)

Social benefits derived out of the interventions preferred by the farmers were measured by computing SBIV of each participating farmer and compared. Family labor utilisation, increased living standard, self confidence, dignity of farmers, equity and satisfaction were the six dimensions included to assess the SBIV. It was computed for each participating farmer by applying the method similar to that of SCIV. Extent of social benefit score, the maximum possible score and the weightage of each

dimension were applied in the following formula to find out SBIV of each participating farmer.

Where

w1, w2 ----------w6 are the weightage of six dimensions of social benefit.

Sb1, Sb2 ----------Sb6 are the scores of six

$$SBIV = \frac{\left[\frac{S}{Bi}\right]^{Sb_i \; wi}}{\frac{S\, wi}{\left[\frac{Sb_1}{B_1}\right] w_1 + \left[\frac{Sb_2}{B_2}\right] w_2 + \text{-----} + \left[\frac{Sb_6}{B_6}\right] w_6}} = \frac{}{w_1 + w_2 + \text{----------} + w_6}$$

dimensions of social benefit

B1, B2 ----------B6 are the maximum possible scores of six dimensions of social benefit

RESULTS AND DISCUSSION

Agro ecosystem wise Social Cost Index Values rated by the participating farmers after 18 months of interventions

Social Cost Index Values rated by the participating farmers after 18 months of interventions is presented in the Table 2. Perishability was reported as the lowest in HEMR (High Elevation- Medium Rainfall) situation (Kizhakkanchery Panchayat) with the Social Cost Index Value (SCIV) of 0.17 followed by HEHR (High Elevation-High Rainfall situation) (Pananchery) with the SCIV of 0.22. The reason might be that these two situations were situated near towns so that they could dispose the produce at the earliest. Highest magnitude of perishability was observed in MELR (Medium elevation- black soil- Low Rainfall) situation (Eruthempathy) with SCIV of 0.79 followed by in HELR (High Elevation- Low Rainfall) situation (Muthalamada) with the SCIV of 0.73. Since these two situations were far off from towns and therefore the chances of decaying the farm produce, the cost of transportation and the time consumption for marketing were high. Conversion of crops was noted as the lowest in HEMR situation (Kizhakkanchery) with SCIV of 0.22 and the highest in MELR (Eruthempathy) situation with SCIV of 0.73. It was found that farmers in HEMR situation (Kizhakkanchery) were stable in maintaining their crops since they had the assurance of irrigation water from the nearby dam, even if rainfall fails, whereas farmers from MELR situation (Eruthempathy) were highly depending on the vagaries of nature and slowly converting rainfed crops to irrigated crops by digging wells with pump sets. All the six dimensions of SCIV were found the lowest in HEMR situation (Kizhakkanchery).

Displacement of agricultural labourers was felt as the highest in Low coastal area, Low Elevation- High Rainfall (LEHR- Thalikulam) situation with SCIV of 0.92 and the lowest in MEHR -Medium Elevation- High Rainfall situation (MEHR- Karukutty) with SCIV of 0.70. It was of the common scenario in all the situations where the interventions created additional employment to the family members and didn't displace agricultural labourers.

Exploitation by middlemen was experienced as the highest with the SCIV of 1.35 by the farmers of High Elevation- Low Rainfall situation (HELR- Muthalamada). The farmers of this situation complained that their produce was rated by the middlemen as low quality and paid less price. The farmers were also forced to sell the produce to middlemen since they had no other option of escaping from this kind of exploitation. They also did not have better transportation facilities. Sreedaya (2000) indicated similar social costs met by self- help groups in vegetable production.

Time constraint was reported as the highest by the farmers of Medium elevation- black soil- Low Rainfall situation (MELR- Euthenpathy) with the Social Cost Index Value of 1.27. In this situation farmers preferred to rear heifers and experienced that it required intensive care and labour from the whole family and thereby they could not participate in any other activities.

Involvement of family members at the cost of education was observed the highest among the farmers of LEHR situation (Thalikulam) with the SCIV of 1.16. It was noted that majority of the children voluntarily attended farm work only after school timings. Few families were observed that they stopped their children entering higher studies and opted for getting assistance from them in farm activities.

Among all the dimensions, exploitation by middlemen was rated as the maximum SCIV in almost all the situations and therefore this dimension required the attention of policy makers to ensure suitable price for the farm produce as well as marketing facilities must be improved in the village itself creating a network of marketing centers.

Agro ecosystem wise Social Benefit Index Values rated by the participating farmers after 18 months of

interventions among the six dimensions in assessing the Social Benefit Index Value (SBIV), family labour utilisation and self confidence were the dimensions which contributed maximum to SBIV. It indicated that the interventions made in the homesteads better utilized family labour and enhanced the self confidence of the participating farmers. Increased living standard was the lowest contributing dimension to SBIV. The reason may be that the participating farmers just started realizing the profit. Under the reporting period, time was too short to increase their living standard with the profit obtained from the interventions.

In utilizing family labour after the intervention, farmers from MEHR situation (Karukutty) stood first with the SBIV of 1.67 and the lowest from the farmers of HEHR situation (Pananchery). Family labour was utilized better in MEHR situation where, goat and poultry rearing and vegetable cultivation were taken up by the farm families. Especially the women members of these families previously looking after the household activities alone contributed their labour in managing these micro enterprises. Nagesh (2001) reported the similar results of contribution of labour by women.

Increased living standard was rated as the highest in MEHR situation (Karukutty) with the SBIV of 0.99 and the lowest in HEMR situation (Kizhakkenchery). Farmers from both situations preferred goats and poultry rearing. MEHR situation (Karukutty) lies near the town, Angamali and hence enjoying better market accessability.

Self confidence was reported to be the highest among the farmers of HEMR situation (Kizhakkenchery) with SBIV of 1.51. Farmers were confident of their own abilities and available facilities to achieve greater heights in farming.

The highest dignity was realized by the farmers of HEHR situation (Pananchery) with SBIV of 1.27 and the lowest was 0.85 among the farmers of MELR situation (Eruthenpathy). Farmers of HEHR situation (Pananchery) reported that they gained recognition in the society and felt that they involved in respectable profession striving for self reliance in food security, feeding many mouths in the country, depending on their own ability.

Equity and satisfaction were experienced the highest by the farmers of HEMR (Kizhakkenchery) and the lowest by the farmers of MELR situation (Eruthenpathy). The farmers of HEMR situation (Kizhakkenchery) felt that they had equal opportunity in decision making and shared profit equally by all the members of the family. They were also satisfied with their working condition and status in the society. (Table: 3) Similar findings were reported by Sadanandhan (2002).

Agro ecosystem wise Social benefit cost ratio rated by the participating farmers after 18 months of interventions is presented in the Table no: 4. Social Benefit Cost Ratio was computed as the highest with 2.04 at HEMR situation (Kizhakkenchery) and the lowest with 1.07 at MELR situation (Eruthenpathy). Reasons might be that the HEMR situation was blessed with the favourable climatic conditions, participating farmers were entirely depending on farming alone, access to market was also high and the total Benefit Cost Index value was the highest when compared to rest of the situations. John and Nair (2007) conducted economic analysis in the homesteads of South Kerala and revealed that the system in general was profitable, resulting in a net profit of 28, 532 Rs/year and an average benefit:cost ratio of 2.35.

In MELR situation, climatic conditions were highly erratic, because of lower income from the farming sector, younger generation turned to off-farm sector and thereby involvement in farming sector came down, total Social Cost Index Value was the highest and the intervention preferred by the farmers of this situation was rearing heifers and few of their heifers yet to yield income.

Table: 1 Details of interventions made in the coconut based homesteads

Sl. No.	Agro- ecological situations	Selected Panchayats	Interventions made based on the individual preference of farmers	Number of components	Number of farm families involved
1	High Elevation-High Rainfall (HEHR)	Pananchery	Goats- Malabari	14	6
			Heifers- Cross breeds	4	4
			Fodder- Co-1	450slips	9
			Turmeric- Sona and Kanthi	10kgs of rhizomes	2
			Vegetables		10

2	Medium Elevation-High Rainfall (MEHR)	Karukutty	Goats- Malabari	16	8
			Chicks- Gramapriya	55	7
			Turmeric- Sona and Kanthi	40kgs	8
					1
			Fruit tree seedlings	4	
			Vegetables		10
3	Low coastal area, Low Elevation-High Rainfall (LEHR)	Thalikulam	Goats- Malabari	6	3
			Heifers- Cross breeds	2	2
			Chicks- Gramapriya	45	2
			Banana- Njalipoovan	75	4
			Turmeric- - Sona and Kanthi	50kgs	9
				250slips	5
			Fodder- Co-1		
			Vegetables		10
4	High Elevation-Medium Rain Fall (HEMR)	Kizhakkenchery	Goats- Malabari	20	10
			Chick- Gramapriya	20	4
			Fodder- Co-1	300slips	6
			Vegetables		10
5	High Elevation-Low Rainfall (HELR)	Muthalamada	Chicks- Gramapriya	140	9
			Biocontrol agents for vegetables	1	1
			Vegetables		10
6	Medium - elevation black soil- Low Rainfall (MELR)	Eruthenpathy	Heifers- Cross breeds	10	10
			Vegetables		10

CONCLUSION

All the six dimensions of SCIV were found as the lowest in HEMR situation (Kizhakkanchery). Among all the dimensions, exploitation by middlemen was rated as the maximum SCIV in almost all the situations and therefore this dimension required the attention of policy makers to improve the marketing facilities convenient to farmers and therefore the intervention of middlemen could be avoided. Among the six dimensions in the Social Benefit Index Value (SBIV), family labour utilisation and self confidence were the dimensions which contributed maximum to BCIV. It indicated that the interventions made in the homesteads better utilized family labour and enhanced the self confidence of the participating farmers. Social Benefit Cost Ratio was computed as the highest with 2.04 at HEMR situation (Kizhakkenchery) and the lowest with 1.07 at MELR situation (Eruthenpathy). The findings of this study revealed that the interventions on restructuring of coconut based homesteads were economically viable and socially desirable.

REFERENCES

John, J and Nair. (2007). Socio-economic characteristics of homestead farming in South Kerala. Journal of Tropical Agriculture. 45(1-2): 66-68.

Nagesh, S. (2001). Economic Analysis of Production and Marketing of vegetables in Thiruvananthapuram Dt. Unpublished M.Sc (Ag) Thesis. Kerala Agricultural University, Thrissur. p118.

Sadhanandhan Sindhu. (2003). Social Cost-Benefit Analysis in vegetable production programmes in Kerala through participatory approach. Unpublished PhD Thesis. Kerala Agricultural University, Thrissur. p182.

Sreedaya, G.S. (2000). Preference analysis of the self-help groups in vegetable production in Thiruvananthapuram Dt. Unpublished M.Sc. (Ag.) Thesis, Kerala Agricultural University, Thrissur.p146.