Turkish Online Journal of Qualitative Inquiry (TOJQI)
Volume 12, Issue 7, July 2021: 3944 - 3955

Research Article

Impacts Of Seemai Karuvelam (Prosopis Juliflora) Charcoal Heap Units In Ramanathapuram District Of Tamil Nadu

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ABSTRACT
Community entrepreneurship is one of the conventional methods of self employment activities of local people with available resources. Seemai karuvelam charcoal heap units are one of the traditional way to convert the wood into charcoal which in used in hotel, fireworks, laundering etc. Environmental aspects of wood energy use are diverse. They range from local land use to global climate change and from applications in smoky kitchens to electricity generation in large-scale power stations. Consequently environmental impacts of wood energy use and production can be both positive and negative, and an assessment of these impacts should always be part of wood energy policy making. Seemai karuvelam charcoal heap units is one of the environmental of its smoke and activities which directly affect the environment of its smoke and the seemai karuvelam will affect the ground water. Therefore, there is a need of understanding the Seemai karuvelam charcoal heap units and its impact on socio-economic and environmental aspects.

KEY WORDS: *Seemai karuvelam, charcoal, commercial wood, ICPS, TNMOC, employee generation, environment.*

INTRODUCTION

Community entrepreneurship is one of the conventional methods of self employment activities of local people with available resources .These kind of economic activities are mainly engaged with a particular community or group of people in a particular region or a place. The local people in Sivaganga and Ramanathapuram districts found a method to turn them into charcoal, called 'Karimootam' (charcoal heap) in the locality. With high carbon content in the wood, the charcoal derived from Prosopis Juliflora is high in demand in the industrial sector. Charcoal is one of the earliest fuels found by humans. It was also used for writing and drawing during that time. Charcoal was extensively used in industries in blast furnaces and bloomeries for metal processing which was then later replaced by other fuels such as coke, gas, etc. during the industrial revolution in nineteenth century. The entire karimootam business is roughly estimated to be around Rs.1,000 crore, according to people involved in it. The units are functions with conventional manner without using any technology of machine. Raw materials are seemai karuvelam which is plenty available in and around the district and the finished products are supplied to hotels and fire energy based units throughout the country. but at the same time seemai karuvelam is consume and absorb more water

from ground and air which also erase other plants and trees in their nearby so that High Court of Tamilnadu issued an order to eradicates these seemai karuvelam from all lands in a given period. With this situation Seemai Karuvelam Karimootam units are facing the problems of raw materials and a particular community people was loss their employment.

REVIEW OF LITERATURE

Bhattacharya, S. C. et al. (2002) this study of comparable to those reported in the literature. The emission of all the pollutants per unit of useful heat was found to decrease with increasing stove efficiency for both wood and charcoal fired stoves. Compared with the charcoal stoves, wood stoves emit less CO2, CO and NOx per kg of fuel; emission of CH4 and TNMOC for wood seems in the same range with charcoal stoves.

J.C. Adam (2009). Observed that unit is called ICPS (Improved Charcoal Production System). Importantly, it has a much higher efficiency rating than traditional earth-mound kilns, which have until now been the main means of domestic charcoal production in developing nations. The efficiency of traditional charcoal production methods is about 10%–22% while the efficiency of the ICPS is approximately 30%–42%.

Kalu. C, and Izekor, D N (2007) has argued the study was conducted to determine peoples' involvement, uses and reasons for using charcoal, distribution channel as well as weekly sales and profit of the enterprise. The results revealed that people involved in sales of charcoal were 28.26%, 9% and 2% of the respondents for Igun Street, Oba market/New Benin and Ikpoba Hill market respectively.

Mwampamba, T. H. (2007). This study uses a survey of 244 households in six Tanzanian cities to determine whether current consumption levels, charcoal production techniques and forest management practices are sufficient to meet present and future charcoal demand. Projections to year 2100 were made to determine whether forests can continue to meet future demand under 24 scenarios that capture the numerous uncertainties that exist of converting charcoal consumption into forest needed.

Rob Bailis (2009). This paper analyzes the climate change mitigation potential of charcoal production in East Africa by examining the impact of changing both land management and technology. Current production in a major charcoal producing region of Kenya where charcoal is made as a by-product of land clearance for commercial grain production is modelled as the ‘‘businesses- usual’’ scenario.

Sugumaran Pachaiyappan and Sundaram Seshadri (2009) have mentioned that Sugarcane bagasse and empty oil palm fruit bunch were converted into charcoal using carbonization process. An increase in temperature from 200°C to 400°C decreased charcoal yield gradually in all samples. Energy content in fresh biomass was lower than pyrolysed charcoal.

William, M. and Pinto, F., (2008) indicated *that* generally advised that charcoal production and export should be done during the dry season. Production and export of charcoal during the raining season could be rejected by buyers because of the high moisture that usually characterized the charcoal produced during this period.

Luvanda A. et al. (2016) has suggested that results of a gross margin analysis demonstrated that the producers, vendors and wholesalers earned an average monthly income of KShs 11,000, 51,000 and 160,000 respectively in 2013. The average producer price was Ksh 400 while wholesalers/transporter received a price of KShs. 1,200 in Nairobi and Thika.

Paramasivan C and Premadas J (2019) This study concludes that socio economic and environmental impact of community based seemai karuvelam charcoal heap units in Ramanathapuram district of Tamil Nadu made on significant role to provide employment in un Mansoon periods. More than thousands of the people who are belongs to pallar community belongs to this units, but their socio economic status is not improved due to lack of marketing channel and non availability of raw material.

Emmanuel Chidumayo and Davison J. Gumbo (2013) have instructed that emissions of greenhouse gases from charcoal production in tropical ecosystems in 2009 are estimated at 71.2 million t for carbon dioxide and 1.3 million t for methane. The failure of past charcoal policies to address environmental impacts and achieve sustainability can be attributed to erroneous assumptions and predictions by national and international organizations regarding wood-based fuels.

STATEMENT OF THE PROBLEM

Environment is one of the very serious issue which deals with society economy and ecological system of the country. In recent years, serious environmental concerns like global climate change related to the use of fossil fuels, have revived the interest in wood energy as a renewable, sustainable and environmentally benign energy source. Wood energy is renewable, and if sustainably used and produced it is carbon neutral. Wood emits CO2 while burning or decomposing naturally, but trees absorb carbon from the atmosphere through photosynthesis. Natural decomposition also emits methane, which doesn't occur when the wood is burned completely, so from an environmental point of view burning wood residues from logging and processing is beneficial. In addition, wood fuel does not emit SO2, unlike coal and oil. Therefore, wood energy can be used to reduce greenhouse gas emissions related to energy use, by replacing fossil fuels. For this reason, modern wood energy applications are becoming more and more competitive with conventional applications. Other benefits of modern wood energy are employment generation, saving on foreign exchange due to reduced oil import, and the upgrading of barren and deforested areas by energy plantations.

Most wood fuels in Asia are used by households which mostly use traditional stoves. These stoves have low efficiencies and often burn wood incompletely, leading to the emission of pollutants such as carbon monoxide, methane and nitrogen oxides. These pollutants can have serious health impacts and they also contribute to greenhouse gas emissions. This doesn't mean that wood is a dirty fuel and should be replaced but that traditional technologies are inadequate and need improvements. In addition to focusing on fuel conservation, improved cook stove programs should also focus on aspects of health and convenience for users. This paper made an attempt to discuss the social, environment and environment impact of Seemai karuvelam charcoal heap units in Ramanathapuram District.

OBJECTIVE OF THE STUDY

The main objective of the study is to measure the impact of community based seemai karuvelam charcoal heap units on socio-economic and environmental conditions

METHODOLOGY

Descriptive research methods used with primary data which has collected through structured interview scheduled. No probability sampling techniques were adapted to collect the sample respondents distributed to 385 respondents.

Table 1

Cross tabulation between social impacts of community based entrepreneurs in seemai karuvelam charcoal heap units across gender

Gender		Social Impact			Total
		Low	Moderate	High	
Male	Count	81	102	109	292

	Row %	27.7%	34.9%	37.3%	100.0%
Female	Count	31	44	18	93
	Row %	33.3%	47.3%	19.4%	100.0%
Total	Count	112	146	127	385
	Row %	29.1%	37.9%	33.0%	100.0%

Source: Survey data

The table 1 shows the gender and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 292 male category of respondents 27.7 percent have low level, followed by 34.9 percent have moderate level and 37.3 percent have high level of opinion on social impact.

The table also shows the gender and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 93 female category of respondents 33.3 percent have low level, followed by 47.3 percent have moderate level and 19.4 percent have high level of opinion on social impact.

As regards the gender and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 385 respondents 29.1 percent have low level, followed by 37.9 percent have moderate level and 33.0 percent have high level of opinion on social impact.

Table 2

Cross tabulation of economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units across gender

Gender		**Economic Impact**			**Total**
		Low	**Moderate**	**High**	
Male	Count	59	141	92	292
	Row %	20.2%	48.3%	31.5%	100.0%
Female	Count	44	49	0	93
	Row %	47.3%	52.7%	0.0%	100.0%
Total	Count	103	190	92	385
	Row %	26.8%	49.4%	23.9%	100.0%

Source: *Survey data*

The table 2 shows the gender and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 292 male category of respondents 20.2 percent have low level, followed by 48.3 percent have moderate level and 31.5 percent have high level of opinion on economic impact.

The table also shows the gender and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 93 female category of respondents 47.3 percent have low level and 52.7 percent have moderate level of opinion on economic impact.

As regards the gender social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 385 respondents 26.8 percent have low level, followed by 49.4 percent have moderate level and 23.9 percent have high level of opinion on economic impact.

Table 3

Cross tabulation between environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units across gender

Gender		**Environmental Impact**			**Total**
		Low	**Moderate**	**High**	
Male	Count	80	112	100	292
	Row %	27.4%	38.4%	34.2%	100.0%
Female	Count	21	43	29	93

	Row %	22.6%	46.2%	31.2%	100.0%
Total	Count	101	155	129	385
	Row %	26.2%	40.3%	33.5%	100.0%

Source: *Survey data*

The table 3 shows the gender and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 292 male category of respondents 27.4 percent have low level, followed by 38.4 percent have moderate level and 34.2 percent have high level of opinion on environmental impact.

The table also shows the gender and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 93 female category of respondents 22.6 percent have low level, followed by 46.2 percent have moderate level and 31.2 percent have high level of opinion on environmental impact.

As regards the gender and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 385 respondents 26.2 percent have low level, followed by 40.3 percent have moderate level and 33.5 percent have high level of opinion on environmental impact.

Table 4

Cross tabulation between annual income and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units

Annual income (in Rs.)		**Level of Social Impact**			**Total**
		Low	**Moderate**	**High**	
Less than 50000	Count	86	28	27	141
	Row %	61.0%	19.9%	19.1%	100%
50001 – 1 lakh	Count	13	66	75	154
	Row %	8.4%	42.9%	48.7%	100%
More than 1 lakh	Count	13	52	25	90
	Row %	14.4%	57.8%	27.8%	100%
Total	Count	112	146	127	385
	Row %	29.1%	37.9%	33.0%	100%

Source: *Survey data*

The table 4 shows the annual income of less than Rs.50000 and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 141 respondents 61.0 percent have low level, followed by 19.9 percent have moderate level and 19.1 percent have high level of opinion on social impact.

The table also shows the annual income of Rs.50001 – Rs. 1lakh and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 154 respondents 8.4 percent have low level, followed by 42.9 percent have moderate level and 48.7 percent have high level of opinion on social impact.

The table shows the annual income of more than Rs.1 lakh and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 90 respondents 14.4 percent have low level, followed by 57.8 percent have moderate level and 27.8 percent have high level of opinion on social impact.

As regards the annual income and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 385 respondents 29.1 percent have low level, followed by 37.9 percent have moderate level and 33.0 percent have high level of opinion on social impact.

Table 5

Cross tabulation between annual income and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units

Annual income (in Rs.)		Level of Economic Impact			Total
		Low	Moderate	High	
Less than 50000	Count	50	63	28	141
	Row %	35.5%	44.7%	19.9%	100%
50001 – 1 lakh	Count	40	50	64	154
	Row %	26.0%	32.5%	41.6%	100%
More than 1 lakh	Count	13	77	0	90
	Row %	14.4%	85.6%	0.0%	100%
Total	Count	103	190	92	385
	Row %	26.8%	49.4%	23.9%	100%

Source: *Survey data*

The table 5 shows the annual income of less than Rs.50000 and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 141 respondents 35.5 percent have low level, followed by 44.7 percent have moderate level and 19.9 percent have high level of opinion on economic impact.

The table also shows the annual income of Rs.50001 – Rs. 1 lakh and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 154 respondents 26.0 percent have low level, followed by 32.5 percent have moderate level and 41.6 percent have high level of opinion on economic impact.

The table shows the annual income of more than Rs.1 lakh and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 90 respondents 14.4 percent have low level, followed by 85.6 percent have moderate level of opinion on economic impact.

As regards the annual income and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 385 respondents 26.8 percent have low level, followed by 49.4 percent have moderate level and 23.9 percent have high level of opinion on economic impact.

Table 6

Cross tabulation between annual income and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units

Annual income (in Rs.)		Environmental Impact			Total
		Low	Moderate	High	
Less than 50000	Count	63	38	40	141
	Row %	44.7%	27.0%	28.4%	100%
50001 – 1 lakh	Count	25	66	63	154
	Row %	16.2%	42.9%	40.9%	100%
More than 1 lakh	Count	13	51	26	90
	Row %	14.4%	56.7%	28.9%	100%
Total	Count	101	155	129	385
	Row %	26.2%	40.3%	33.5%	100%

Source: *Survey data*

The table 6 shows the annual income of less than Rs.50000 and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 141 respondents 44.7

percent have low level, followed by 27.0 percent have moderate level and 28.4 percent have high level of opinion on environmental impact.

The table also shows the annual income of Rs.50001 – Rs. 1lakh and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 154 respondents 16.2 percent have low level, followed by 42.9 percent have moderate level and 40.9 percent have high level of opinion on environmental impact.

The table shows the annual income of more than Rs.1 lakh and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 90 respondents 14.4 percent have low level, followed by 56.7 percent have moderate level and 28.9 percent have high level of opinion on environmental impact.

As regards the annual income and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 385 respondents 26.2 percent have low level, followed by 40.3 percent have moderate level and 33.5 percent have high level of opinion on environmental impact.

Table 7

Cross tabulation between origin of business and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units

Origin of business		Social Impact			Total
		Low	Moderate	High	
Inherited	Count	86	80	103	269
	Row %	32.0%	29.7%	38.3%	100.0%
Newly started	Count	26	66	24	116
	Row %	22.4%	56.9%	20.7%	100.0%
Total	Count	112	146	127	385
	Row %	29.1%	37.9%	33.0%	100.0%

Source: *Survey data*

The table 7 shows the origin of business and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 269 inherited category of respondents 32.0 percent have low level, followed by 29.7 percent have moderate level and 38.3 percent have high level of opinion on social impact.

The table also shows the origin of business and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 116 newly started category of respondents 22.4 percent have low level, followed by 56.9 percent have moderate level and 20.7 percent have high level of opinion on social impact.

As regards the origin of business and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 385 respondents 29.1 percent have low level, followed by 37.9 percent have moderate level and 33.0 percent have high level of opinion on social impact.

Table 8

Cross tabulation between origin of business and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units

Origin of business		Economic Impact			Total
		Low	Moderate	High	
Inherited	Count	37	153	79	269
	Row %	13.8%	56.9%	29.4%	100.0%
Newly started	Count	66	37	13	116

	Row %	56.9%	31.9%	11.2%	100.0%
Total	Count	103	190	92	385
	Row %	26.8%	49.4%	23.9%	100.0%

Source: *Survey data*

The table 8 shows the origin of business and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 269 inherited category of respondents 13.8 percent have low level, followed by 56.9 percent have moderate level and 29.4 percent have high level of opinion on economic impact.

The table also shows the origin of business and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 116 newly started category of respondents 56.9 percent have low level, followed by 31.9 percent have moderate level and 11.2 percent have high level of opinion on economic impact.

As regards the origin of business and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 385 respondents 26.8% have low level, followed by 49.4% have moderate level and 23.9% have high level of opinion on economic impact.

Table 9

Cross tabulation between origin of business and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units

Origin of business		**Environmental Impact**			**Total**
		Low	**Moderate**	**High**	
Inherited	Count	101	90	78	269
	Row %	37.5%	33.5%	29.0%	100.0%
Newly Started	Count	0	65	51	116
	Row %	0.0%	56.0%	44.0%	100.0%
Total	Count	101	155	129	385
	Row %	26.2%	40.3%	33.5%	100.0%

Source: *Survey data*

The table 9 shows the origin of business and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 269 inherited category of respondents 37.5 percent have low level, followed by 33.5 percent have moderate level and 29.0 percent have high level of opinion on environmental impact.

The table also shows the origin of business and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 116 newly started category of respondents 56.0 percent have moderate level and 44.0 percent have high level of opinion on environmental impact.

As regards the origin of business and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 385 respondents 26.2 percent have low level, followed by 40.3 percent have moderate level and 33.5 percent have high level of opinion on environmental impact.

Table 10

Cross tabulation between on sources of fund and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units

Sources of Fund		**Social Impact**			**Total**
		Low	**Moderate**	**High**	
Own Fund	Count	24	41	38	103
	Row %	23.3%	39.8%	36.9%	100.0%
	Count	88	105	89	282

Borrowed Fund	Row %	31.2%	37.2%	31.6%	100.0%
Total	Count	112	146	127	385
	Row %	29.1%	37.9%	33.0%	100.0%

Source: *Survey data*

The table 10 shows the sources of fund and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 103 own fund category of respondents 23.3 percent have low level, followed by 39.8 percent have moderate level and 36.9 percent have high level of opinion on social impact.

The table also shows the sources of fund and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 282 borrowed fund category of respondents 31.2 percent have low level, followed by 37.2 percent have moderate level and 31.6% have high level of opinion on social impact.

As regards the sources of fund and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 385 respondents 29.1 percent have low level, followed by 37.9 percent have moderate level and 33.0 percent have high level of opinion on social impact.

Table 11

Cross tabulation between sources of fund and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units

Sources of fund		**Economic Impact**			**Total**
		Low	**Moderate**	**High**	
Own fund	Count	25	52	26	103
	Row %	24.3%	50.5%	25.2%	100.0%
Borrowed fund	Count	78	138	66	282
	Row %	27.7%	48.9%	23.4%	100.0%
Total	Count	103	190	92	385
	Row %	26.8%	49.4%	23.9%	100.0%

Source: *Survey data*

The table 11shows the sources of fund and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 103 own fund category of respondents 24.3 percent have low level, followed by 50.5 percent have moderate level and 25.2 percent have high level of opinion on economic impact.

The table also shows the sources of fund and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 282 borrowed fund category of respondents 27.7 percent have low level, followed by 48.9 percent have moderate level and 23.4 percent have high level of opinion on economic impact.

As regards the sources of fund and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 385 respondents 26.8 percent have low level, followed by 49.4 percent have moderate level and 23.9 percent have high level of opinion on economic impact.

Table 12

Cross tabulation between sources of fund and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units

Sources of fund	**Environmental Impact**			**Total**
	Low	**Moderate**	**High**	

Own fund	Count	24	66	13	103
	Row %	23.3%	64.1%	12.6%	100.0%
Borrowed fund	Count	77	89	116	282
	Row %	27.3%	31.6%	41.1%	100.0%
Total	Count	101	155	129	385
	Row %	26.2%	40.3%	33.5%	100.0%

Source: *Survey data*

The table 12 shows the sources of fund and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 103 own fund category of respondents 23.3 percent have low level, followed by 64.1 percent have moderate level and 12.6 percent have high level of opinion on environmental impact.

The table also shows the sources of fund and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 282 borrowed fund category of respondents 27.3 percent have low level, followed by 31.6 percent have moderate level and 41.1 percent have high level of opinion on environmental impact.

As regards the sources of fund and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 385 respondents 26.2% have low level, followed by 40.3 percent have moderate level and 33.5 percent have high level of opinion on environmental impact.

Table 13

Cross tabulation between sources of raw materials and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units

Sources of raw materials		**Social Impact**			**Total**
		Low	**Moderate**	**High**	
Own Sources	Count	49	69	50	168
	Row %	29.2%	41.1%	29.8%	100.0%
Purchase	Count	63	77	77	217
	Row %	29.0%	35.5%	35.5%	100.0%
Total	Count	112	146	127	385
	Row %	29.1%	37.9%	33.0%	100.0%

Source: *Survey data*

The table 13 shows the sources of raw materials and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 168 own sources category of respondents 29.2 percent have low level, followed by 41.1 percent have moderate level and 29.8 percent have high level of opinion on social impact.

The table also shows the sources of raw materials and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 217 purchase category of respondents 29.0 percent have low level, followed by 35.5 percent have moderate level and 35.5 percent have high level of opinion on social impact.

As regards the sources of raw materials and social impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 385 respondents 29.1 percent have low level, followed by 37.9 percent have moderate level and 33.0 percent have high level of opinion on social impact.

Table 14

Cross tabulation between sources of raw materials and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units

Sources of raw materials	**Economic Impact**	**Total**

		Low	Moderate	High	
Own Sources	Count	51	104	13	168
	Row %	30.4%	61.9%	7.7%	100.0%
Purchase	Count	52	86	79	217
	Row %	24.0%	39.6%	36.4%	100.0%
Total	Count	103	190	92	385
	Row %	26.8%	49.4%	23.9%	100.0%

Source: *Survey data*

The table 14 shows the sources of raw materials and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 168 own sources category of respondents 30.4 percent have low level, followed by 61.9 percent have moderate level and 7.7 percent have high level of opinion on economic impact.

The table also shows the sources of raw materials and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 217 purchase category of respondents 24.0 percent have low level, followed by 39.6 percent have moderate level and 36.4 percent have high level of opinion on economic impact.

As regards the sources of raw materials and economic impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 385 respondents 26.8 percent have low level, followed by 49.4 percent have moderate level and 23.9 percent have high level of opinion on economic impact.

Table 15

Cross tabulation between sources of raw materials and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units

Sources of raw materials		**Environmental Impact**			**Total**
		Low	**Moderate**	**High**	
Own Sources	Count	52	79	37	168
	Row %	31.0%	47.0%	22.0%	100.0%
Purchase	Count	49	76	92	217
	Row %	22.6%	35.0%	42.4%	100.0%
Total	Count	101	155	129	385
	Row %	26.2%	40.3%	33.5%	100.0%

Source: *Survey data*

The table 15 shows the sources of raw materials and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 168 own sources category of respondents 31.0 percent have low level, followed by 47.0 percent have moderate level and 22.0 percent have high level of opinion on environmental impact.

The table also shows the sources of raw materials and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 217 purchase category of respondents 22.6 percent have low level, followed by 35.0 percent have moderate level and 42.4 percent have high level of opinion on environmental impact.

As regards the sources of raw materials and environmental impact of community based entrepreneurs in seemai karuvelam charcoal heap units, out of 385 respondents 26.2 percent have low level, followed by 40.3 percent have moderate level and 33.5 percent have high level of opinion on environmental impact.

CONCLUSION

Seemai karuvelam charcoal heap units in Ramanathapuram District are the major activities of the people who belong to particular community which help to provide employment in the summer period.

When talking about wood energy and environment, many people think of deforestation. Cutting wood for fuel wood and charcoal has often been cited as a major cause of deforestation. This idea was largely based on the "fuel wood gap theory" formulated in the seventies that assumed that all wood fuels came from forest resources and that wood fuel consumption would increase at the same rate as population. It ignored the substantial supply of wood from non-forest areas and responses of wood fuels users to scarcities, such as fuel switching, changing cooking habits and developing alternative supply sources.

It is concluded that, Seemai karuvelam charcoal heap units in Ramanathapuram District play a significant role in income generation, employment, utilization of local resources and convention of traditional knowledge in charcoal production. Seemai karuvelam charcoal heap units influence society, economically and environment in the study area.

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