Smallholder Rubber Farming based Agro-tourism: Potential, Attitude and Challenges in Sri Lanka-A Case Study in Moneragala District

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Abstract

This study was carried out to assess the possibilities of the Rubber Farming based Agro-Tourism (RFAT) in the smallholder rubber sector in Moneregala. The study covered 222 rubber smallholdings in eight rubber growing DS divisions and was conducted in 2019 through a questionnaire survey and focus group discussions. Stratified random sampling technique was applied. Rubber Agro-tourism Potential Index (RAPI) was developed to measure the resource availability in rubber smallholdings. The 18 potential rubber farming practices which could be offered to a tourist were identified. The younger Rubber Smallholders (RSs) were more aware of the agro-tourism. Young, educated and experienced RSs had a highly positive attitude for RFAT. Comparatively, more positive impacts of RFAT were highlighted by RSs. Lack of practical exposure to RFAT and low level of different language skills were identified as major constraints by the RSs. Badalkumbura DS division was the most potential resourceful area for development of RFAT in Moneragala. Hence, there is an utmost need to work for uplifting the RFAT industry from governmental, non-governmental, private and community sectors. There is a felt necessity to implement awareness programmes, training and workshops, especially for RSs and small-scale tourism business entrepreneurs to uplift the RFAT industry through forming the relevant organizations. This information will be provided with an immense value for policy makers, researchers, extension planners to make the RFAT industry a profitable, socially acceptable and an environmentally friendly approach for the betterment of the nation.

Keywords: Agro-tourism, smallholder rubber farming

1. Introduction

Tourism is a typical activity where the public participates widely, and the evidence of travel and tourism can be identified even since the pre-historic era in the world. Tourism is among the three largest industries in the world and has been the primary source of foreign exchange earnings in 46 developing nations. Globally, tourism is rated as the fastest-growing industry and employing 10% of the world labour force (WTTC, 2019). The most of the developing countries have exposed their economies to the tourism industry (Mubarak, 2019). In Sri Lankan context, tourism is one of the fastest growing industries and in 2019, the foreign exchange was US$ 3,606.9 million and 4.3% GDP contribution to the country. Although in Sri Lanka tourism is a seasonal industry, it has provided around 400,000 direct and indirect employment opportunities (STDA, 2019). According to the diversified natural settings and various patterns of human life, mass tourism has been shaped.

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The new phenomena and forms of tourism concepts in the modern world as beach tourism, religious tourism, cultural tourism, nature tourism, adventure tourism, eco-tourism, community-based tourism, indigenous tourism and agro-tourism.

Among them, agro-tourism is an emerging and very prospective sub-sector of tourism which is one of the most extensive and influential forms of tourism in Europe and Asia (Oppermann, 1995; Sharpley and Vass, 2006; Upadhyaya, 2006; Haugen and Vik, 2008). Agro-tourism is the amalgamation of tourism and agriculture. Sonnino (2004) defines as the Tourism activities exercised by farmers through the utilization of their own farm in consonance with the rationale of "connection," "complementarity" and "non- prevalence. Agro-tourism is constantly hybridizing and evolving which promotes excitement and discovery (Ogidi and Odiba, 2014). Agro-tourism is defined as any custom developed on a working farm with the objective of attracting tourists (Barbieri and Mshenga, 2008). Due to low revenue from farming activities, it has led farmers to diversify from the agricultural base alternative economic schemes under the sustainable development paradigm (Rickard, 1983; Fleischer and Pizam, 1997; McGehee and Kyungmi, 2004). Agro-tourism has four forms of development aspects; can be developed as alternate industry to agriculture which has failed to evolve despite constant focus, can be developed to preserve the viability and durability of rural localities and can be developed as an activity to rejuvenate non-profitable agricultural activity (Khanal and Shrestha, 2019). It can be used to persuade and inspire farming communities to raise their crops in an eco-friendly behaviour and to conserve the biodiversity of farms (Dangol and Ranabhat, 2007). It allows tourists to come in close contact with the dwellers of small, rural villages and to be engaged in traditional ways of agriculture still prevailing in this age. Tourists can get a chance to know about different indigenous agricultural practices, such as how crops are planted, harvested, production of value added products and marketing (Pandey and Pandey, 2011). It provides appropriate paths to protect natural habitats and resources and naturally beautiful scenic areas (Singh and Mishra, 2016). One of the prime rationales of agro-tourism is to create the opportunity to contribute to one's community, develop the hospitality tradition of the people, build-up morals and cultural discipline and combine agriculture with recreation (Putzel, 1984; Maude and van Rest, 1985; Weaver and Fennell, 1997; Getz and Carlsen, 2000).

Sri Lanka is endowed with the agro-biodiversity and embellished with the geographical tranquil sight and landscape. Being, Sri Lanka is the oldest rubber (*Hevea brasiliensis*) producing country in the world with commercial production having commenced more than 125 years ago and there is an unlimited scope of the agro-tourism. Rubber is one of the major plantation crops in Sri Lanka in terms of export earnings and employment generation. Rubber sector contributed 0.3% to the Gross Domestic Production in 2020 (CBSL, 2019) yet far behind the expected target, due to various reasons (Gunarathne et al., 2020). Rubber has been a popular cash crop among smallholders in the island and there are nearly 200,000 smallholders operating in14 rubber growing districts in the country (MPI, 2017) with different rubber landscapes.

The rubber cultivation is expanded to the agro-ecological regions of IL1c, IL2 and IM2b among the eight Divisional Secretariat (DS) divisions of Moneragala which aims to transform the existing system of shifting cultivation and cash crop farming to more ecologically stable cultivation systems with proper land management by villagers and individuals. Rubber Farming (RF) was originally expanded to Moneragala with two major objectives in Millennium Development Goals namely, poverty alleviation and livelihood sustainability (Wijesuriya et al., 2011). Ever since natural rubber cultivation was started by smallholders in late 1990s in Moneragala the most of farmers adopted to RF under the subsidy scheme developed by the Rubber Development Department of Sri Lanka. However, smallholder rubber in Moneragala is a more recent phenomenon after 1996. Since then, the rubber area in Moneragala has increased moderately, but at a more rapid pace since 2005 as many smallholders have been introduced via smallholder rubber development project by the government.

Although, rubber cultivation has more than 20 years of economic lifespan, profitability of RF is becoming low in last decade due to various reasons. Therefore, agro-tourism is an important alternative source of income for rural small-scale rubber farmers and sustainability of the RF in Moneragala. But, it is still the infant stage in Sri Lanka as well as other RF countries in the world. Although, the rubber industry proclaims an ancient history around 125 years in Sri Lanka, still it has not been used to promote tourism in rubber smallholder sector. Therefore, the main objective of the study is to figure out the possible avenues of smallholder RF in the agro-tourism sector and identification of the strategies to promote the Rubber Farming based Agro-Tourism (RFAT) sector with the aiming of rubber land productivity in Moneragala.

2. Methodology

The study was carried out in rubber growing DS divisions in Moneragala District in 2019. Data collected through a household questionnaire survey, focus group discussions, observations and secondary data. Stratified random sampling technique was applied for the rubber smallholder survey. The point scheme was developed (Anon, 2002) with the assistance of the experts of the tourism and rubber industries for resource evaluation (Table 01) to develop the Rubber Agro-tourism Potential Index (RAPI). It referred to 17 critical areas of rubber smallholdings which are of much importance in developing the RFAT industry. The total points were calculated for each smallholding with the use of which, the RAPI for each smallholding was calculated using equation 1. The sum of the RAPI of each DS division was calculated and average was measured. Accordingly, the each rubber cultivated DS division was ranked using the average value of the RAPI.

Table 01. The point scheme developed for resource evaluation to develop RAPI

Type of resource	**Criteria and points**
Access road grade of the home	Well maintained tarred road (3), Gravel road partly tarred (2), Gravel road (1), No road facilities (0)
Access road grade of the immature rubber cultivation	Well maintained tarred road (3), Gravel road partly tarred (2), Gravel road (1), No road facilities (0)
Access road grade of the mature rubber cultivation	Well maintained tarred road (3), Gravel road partly tarred (2), Gravel road (1), No road facilities (0)
Accommodation facilities of living home	Very satisfactory (3), Moderate satisfactory (2), Satisfactory (1), Unsatisfactory (0)
Communication facilities in the rubber land	Mobile phone coverage and internet (3), Mobile phone coverage (2), Lack of proper telephone facilities (0)
Language skills of rubber farmer	Able to speak and understand English (3), English can be understood (2), English neither be understood nor spoken(0)
Distance from the home to rubber cultivation	Both situated in the same vicinity (3), <1 km (2), 1-2 km (1), >2 km (0)

Availability of immature extent	Yes (1), No (0)
Availability of intercrops in the immature rubber lands	Yes (1), No (0)
Availability of multi-crops in the mature rubber lands	Yes (1), No (0)
Availability of rolling facilities	Yes (1), No (0)
Availability of smokehouse	Yes (1), No (0)
Availability of other viewpoints close (<1km) to the rubber plantation	Yes (1), No (0)
Availability of natural forests close (<1km) to the rubber plantation	Yes (1), No (0)
Availability of waterbodies close (<1km) to the rubber plantation	Yes (1), No (0)
Availability of fauna in the rubber plantation	Ability to observe large mammals and rich in bird life (3), Absence of large mammals but rich in birdlife (2), Scarcity of wildlife within the rubber plantation (0)
Availability of other cultivated crops without rubber	Yes (1), No (0)

RAPI (eq.1) was developed using the cumulative value of the points of each rubber smallholding.

$$\text{Rubber Agro-tourism Potential Index (RAPI)} = \frac{\text{Score obtained by the smallholding} \times 100}{\text{Maximum possible score}} \quad (1)$$

According to the RAPI variation, potential level of smallholdings for rubber based agro-tourism was categorized as very low (<25%), low (26-50%) medium (51-75%) and high (76%). The level of attitude of farmers was measured with five response options (5=extremely good idea, 4=good idea, 3=moderate, 2=poor idea, and 1=very poor idea). The possible impacts and constraints of RF were listed out by discussing with the smallholders prior to the questionnaire survey and the list was then administrated to Rubber Smallholders (RSs) for response. Possible impacts and constraints of RFAT were also measured and constraints were ranked.

3. Results and Discussion

3.1. Key socio-economic profile of the rubber smallholders

Socio-economic status is the position that individual farmer occupies regarding the prevailing average standards, material possession, social participation and other factors (Kromkratoke and Suwanmaneepon, 2017). Shankaraiah and Swamy (2012) reported that attitude is related to the socio-economic status of the farmers. Therefore, key Socio-economic characteristics of RSs were used to identify the relationships (Table 02). The age of the RSs varied from 21-78 years, and the majority was young and were 40 years or below. The half of sample of the RSs had studied up to O/L while about 9% of RSs had studied up to grade 5 and 21%, up to advanced level. Around 30% of RSs had less than 15 years of experience in farming, while 36% reported to have more than 36 years of experience. The mean land size was 1.5 ac. The largest smallholdings were about 1-1.9 ac. About 50% of the lands were less than 3 ac. in size. Most of RSs (82%) had 4-6 memberships in village-level societies.

Table 02. Distribution of key socio-economic characteristics of rubber smallholders

Key socio-economic characteristics and their categories	**%**
Age (Years)	
<40	42
41-60	38
>61	20
Range	21-78
Education level	
Up to grade 5	9
Up to grade 8	19
Up to Ordinary Level	51
Up to Advanced Level	21
Experience in farming (Years)	
<15	31
16–25	15
26-35	18
>36	36
Range	5-55
Land size (ac.)	
< 1	7.5
1-1.9	38
2- 2.9	7
3-3.9	22.5
4-4.9	21
>=5	4
Mean	1.5
Range	0.75-10.5
Number of memberships in non-rubber societies	
<3	16
4-6	82
>6	2

3.2 The potential of agro-based tourism in Moneragala

Moneragala (6.7563° N and 81.2519° E) was a district in Uva Province in Sri Lanka where people of multiple cultural and ethnic groups can be found. It was located in the Southeastern quadrant of Sri Lanka, bordering the districts, namely, Ampara from the North and East, Badulla from the West and North, Hambantota from the South, and Ratnapura from the South West. The total land area was 565,930 ha, representing approximately 13% of the country's total land area. The population of the district was predominantly distributed in rural areas, approximately 83%. Moneragala was the district of which the highest percentage (52.3%) of the population was employed in agriculture in Sri Lanka. The majority was adopted subsistence agriculture (65%) as the mainstay of their livelihood. There were 95,718 farmers within 21,817 households where the agricultural household population was 343,037. The rural agriculture entered on artificial irrigation tanks and complex irrigation canal systems with smiling tracks of paddy fields, especially during the great season that coincides with the tourist season of the country. It also consisted of fruit and vegetable gardens, mixed home gardens, shifting cultivations, and many other closely and distantly related activities. The harvesting period of most of these crops, vegetables, and fruits also falls during the tourist season, making the sector more attractive to tourists (Silva and Wimalaratana, 2012).

Moneragala was mainly located in the dry zone but it had both intermediate and dry climatic conditions. Combination of three agro-ecological regions, has made the region rich in bio diversity, gorgeous natural forests, greenish paddy fields, beautiful mountain ranges and conspicuous sanctuaries, sacred places of deities, heterogeneous climate and landscapes, talented and skilful village communities with courteous disposition. Silva and Wimalaratana (2012) highlighted that there were potentials for tourism with the Nature-Based, Cultural, Heritage, and Spiritual, Health, Sports, Agro and Adventure tourism in Moneragala. Moneragala was also loaded with ancient structures with a great appeal for local and international tourists. Such historical sites as old monasteries, fortresses, pagodas, and statues were some of the sites with sentimental attraction for the local tourists. Also, this was a place surrounded by scattered ruins, artificial irrigation tanks and canal systems, rich fauna and flora, and village communities with numerous talents and skills. They were the people with traditional knowledge and practices of traditional healing methods, folk music, and dances handed down from generation to generation. Kataragama and Yala are extremely popular tourist destinations among local and foreign travelers. There are other places in the district with great local tourist attractions, such as Yudaganawa, Maligawila, Buduruwagala, and Dembatamala Viharaya. It was an obvious fact that Moneragala was one of the resourceful Districts in Sri Lanka with huge potentials for the promotion of tourism in local as well as international contexts.

*3.3. The potential of rubber-based agro-tourism in Moneragal*a

At present, RF is prominent in Moneragala, which comprises the agro-ecological zones, namely, DL1b, IL1C, and IM2b, among the perennials. There are about 5,087 hectares of rubber lands and 9,514 RSs (MPI, 2019) in Moneragala. The distribution of the rubber lands and RSs in the DS divisions and agro-ecological regions in Moneragala is listed in Table 03.

Table 03. Distribution of rubber lands in DS divisions of Moneragala District

DS Division	Agro-ecological region	Number of smallholders	Rubber extent (ha)
Badalkumbura	IM2b, IL1c	3607	1877
Moneragala	IM2b, IL1c	1421	869
Medagama	IM2b, IL1c	1517	695
Bibila	IL2, IL1c	919	469
Madulla	IL2	831	427
Buttala	IL1c	658	421
Wellawaya	IM2b, IL1c	405	221
Siyambalanduwa	IL2	156	109
	Total	**9,514**	**5,087**

Source: MPI, 2019

Rubber was a plantation crop, of which its mature period was suitable for harvesting after reaching the harvestable girth and was preceded by an immature period (RRISL, 2001). According to the RF system, two basic potential RFAT phases could be identified, which had the qualities and abilities that may develop and lead to success in the trade namely; 1. Immature stage RF with intercropping and 2. Mature stage RF with rubber processing/sheet making. The potential activities of RF can be utilized for RFAT, and the seasonal calendar of the RF is shown in Table 04.

Table 04. The potential elements which can be offered to a tourist in agro-based smallholder rubber farming in Moneragala

Activity	Time period (month of the year)											
	J	F	M	A	M	J	J	A	S	O	N	D
Immature stage of rubber farming												
Rubber planting										■	■	■
Watering	■	■	■	■	■	■	■	■	■	■	■	■
Weeding			■							■		
Manuaring			■							■		
Branching induction	■	■	■	■	■	■	■	■	■	■	■	■
Soil conservation	■	■	■	■	■	■	■	■	■	■	■	■
Intercropping of rubber farming												
Planting										■	■	■
Weeding	■	■	■	■	■	■	■	■	■	■	■	■
Manuaring	■	■	■	■	■	■	■	■	■	■	■	■
Harvesting	■	■	■	■	■	■	■	■	■	■	■	■
Processing	■	■	■	■	■	■	■	■	■	■	■	■
Bee-keeping	■	■	■	■	■	■	■	■	■	■	■	■
Mature stage of rubber farming												
Tapping	■	■	■	■	■	■	■	■	■	■	■	■
Weeding				■	■	■						
Manuring				■	■	■						
Sheet making	■	■	■	■	■	■	■	■	■	■	■	■
Sheet smoking	■	■	■	■	■	■	■	■	■	■	■	■
Bee-keeping	■	■	■	■	■	■	■	■	■	■	■	■

In the immature stage of RF, agronomic practices of watering, weeding, branching, and soil conservation could be practiced throughout the year, while planting and manuring were seasonal practices. Most of RSs (97%) practiced intercropping during the immature stage, and prominently cultivated crops are Banana (*Musa acuminate*) (51 %), Maize (*Zea mays*) (19 %), Cowpea (*Vigna unguiculata*) (8%), Passionfruit (*Passiflora edulis*) (1%), Groundnut (*Arachis hypogaea*) (12%) and vegetables (9%). Thus, two percent of RSs adopted Cocoa (*Theobroma cacao*) as mix cropping with mature rubber plantations. Therefore, basic agronomic practices of intercropping such as planting, watering, weeding, manuring, harvesting and processing were identified as potential agro-tourism activities during the whole year (Table 03). Bee-keeping was practiced by 2% of RSs both in immature and mature rubber plantations, and it was a huge potential activity provider in agro-tourism.

Basic agronomic practices of mature rubber smallholdings such as weeding and manuring, were identified as potential RFAT activities which could be practiced throughout the whole year from April to July. Activities such as tapping, sheet rubber making and smoking were identified as potential activities of the mature stage RF which could be practiced throughout the year. In general, tapping was started early in the morning around 5.30 a.m. which aroused the necessity of provision of accommodation facilities for tourists. Only 45% of rubber smallholders had processing and smoking facilities for making sheet rubber. Both diamond and smooth rollers and smokehouse were required to produce sheet rubber. But, nearly 40% of the sample had rolling facilities to make RSS and 65% of the sample used their own smokehouses for drying of sheets.

3.3 Awareness level of the rubber smallholders on rubber farming based agro-tourism

Most of the rubber smallholders (68%) were aware of RFAT. Figure 01 shows the age structure of the RSs and the awareness level of RFAT. The group of RSs who were between 21 to 40 years of age was more aware of the RFAT than the other RSs where, the awareness level of age group of 71-80 years was zero. RSs who have less than 1 acre showed zero awareness level while, RSs who have more than 3 acres showed a high level of awareness (Figure 02). It is concluded that RSs owned more rubber land extent were more aware of agro-tourism.

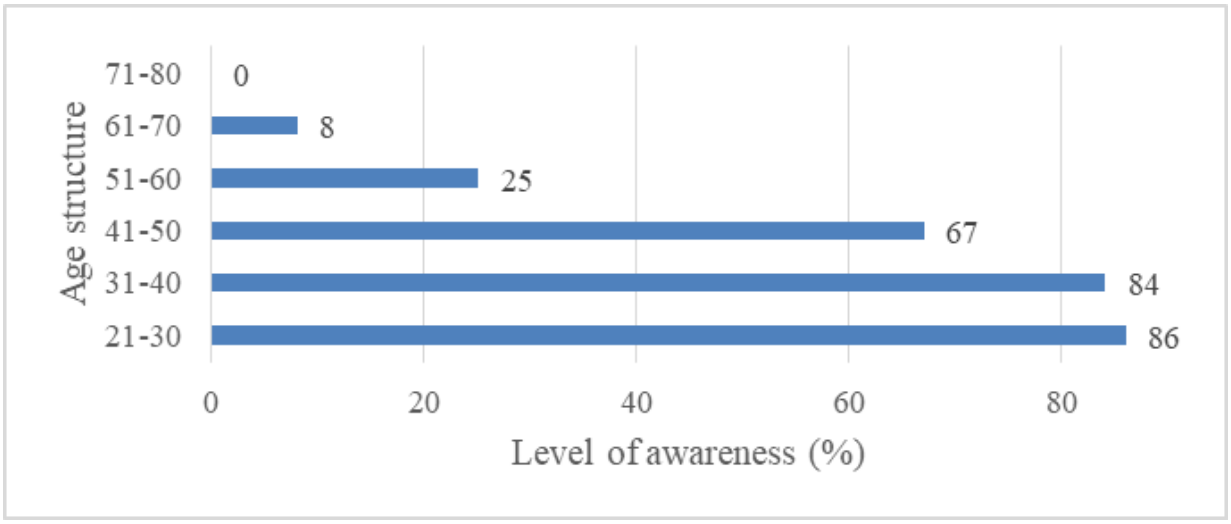

Figure 01. Age structure of the rubber smallholders and awareness level of rubber farming based agro-tourism

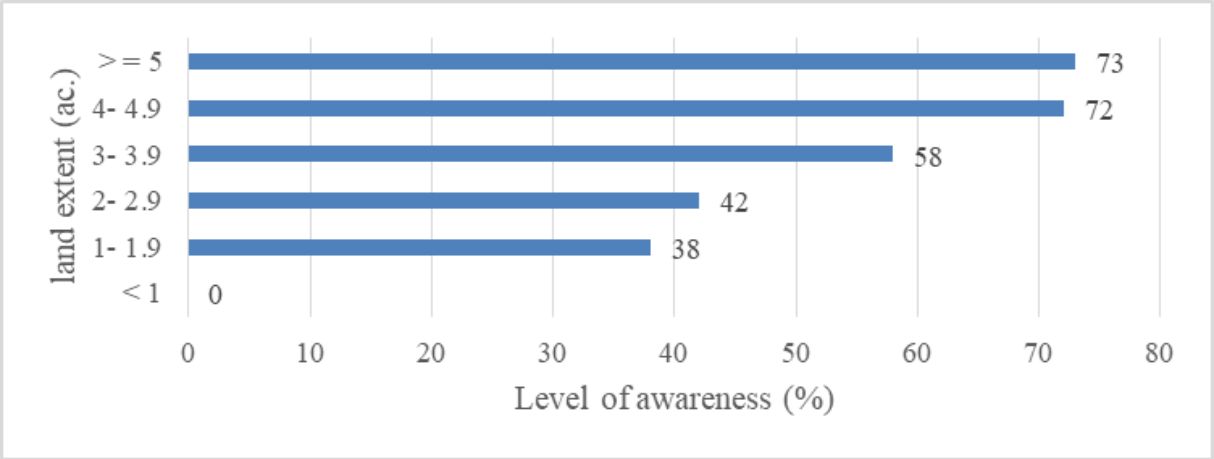

Figure 02. Land extent of the rubber smallholders and awareness level of rubber farming based agro-tourism

3.4 Attitude level of the rubber smallholders on rubber farming based agro-tourism

The level of attitude of RSs on RFAT is shown in Figure 03. The majority of the RSs answered it as an extremely good idea (62.5%), whereas an extremely poor idea was highlighted by the least number of RSs (4%). The following responses, namely, good idea, moderate and poor idea, were indicated by 18%, 10.5%, and 5% of RSs, respectively.

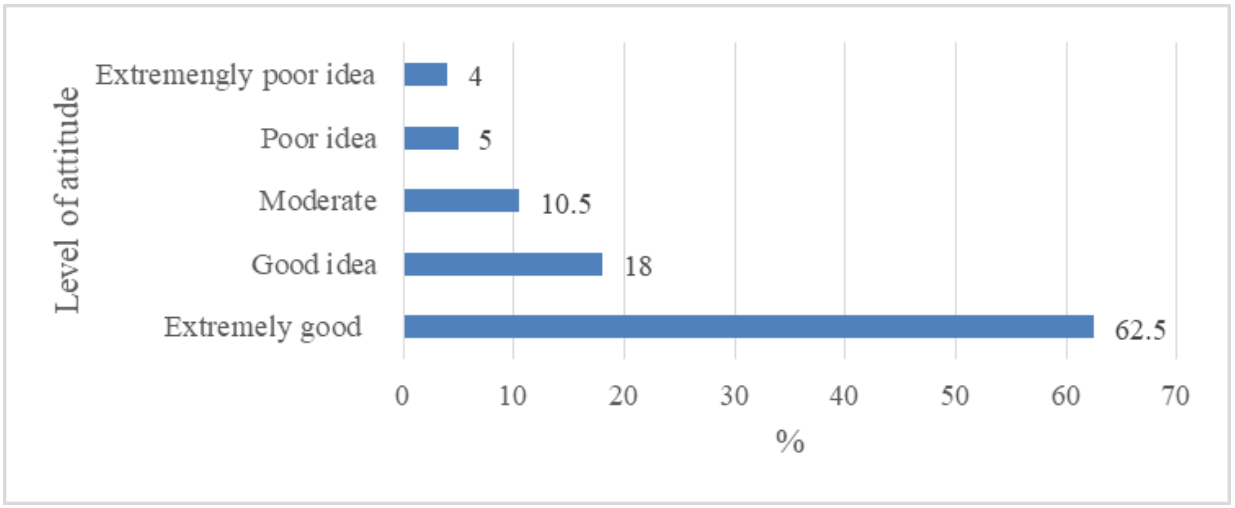

Figure 03. Farmer's level of attitude on rubber farming based agro-tourism

3.5 Relationship between personal characteristics of the rubber smallholders and their attitude towards rubber farming based agro-tourism

The findings of Table 05 revealed that variables such as RSs' education level and farming experience had a positive and significant relationship with the attitude of RSs at a five per cent level of significance. As far as age was concerned, it showed a negative and significant relationship with the attitude of RSs at a five percent level of significance. However, other variables, namely rubber extent and memberships of societies, were found to have a non-significant relationship with the attitude of RSs towards RFAT. It is concluded that younger RSs, with more farming experience and RSs with more education level were interested in RFAT in Moneragala.

Table 05. Relationship between personal characteristics of the rubber smallholders and their attitude towards rubber farming-based agro-tourism

Variable	**Correlation coefficient (r)**
Education level	0.6011 *
Age	-0.7578*
Farming experience	0.7370*
Rubber extent	-0.0631^{NS}
Memberships of the societies	0.0359^{NS}

* Significant at the 0.05 level NS=Not-Significant

3.6 Possible impacts of rubber based agro-tourism

When the willingness of the RSs in taking part in the advancement of the RFAT in Moneragala was considered, 52% of the RSs showed interest in joining agro-tourism full-time, 31% showed readiness in part-time participation where only 11% were not interested, and 5% of the RSs were found yet to be decided. RFAT could give rise to numerous repercussions in various aspects of society and the RSs themselves. Therefore, the awareness of the community on some identified impacts of the RFAT was discussed with them, and those impacts are shown in Figure 04. All of the RSs agreed upon the fact that by the implementation of an agro-tourism project, there was a great possibility of earning an extra income and a high number of extra job opportunities (95%) for the community. Around 65% of RSs agreed upon the fact that there was a higher possibility to sell village products and improve the infrastructure facilities of the village, while 75% of RSs agreed to have an increased chance of improving their linguistic skills. Apart from this, some community members had skills in sewing and making handicrafts using various materials which were abundant in the neighborhood. These small-scale industries could be integrated with RFAT to enhance their trades with the help of tourists. Therefore, the members of the surrounding rubber community could be selected and trained in different skills related to agro-tourism for the betterment of household income.

Most of RSs contemplate that the culture of the community might be changed due to the effects of RFAT (55%) and the younger generation may absorb and imitate the visitors' behavior, clothing, and other cultural attributes as well. They also envisage that the environment may also be affected by tourism (5%) due to the accumulation of litter on the land and in the waters resulting in environmental and water pollution. In a comparison of the responses given to both negative and positive impacts, the negative responses seem to have the least importance. On the contrary, effects of social diseases, increase in alcoholism and change in religion were highlighted by a significantly high number of farmers as 5%, 35% and 20%, respectively.

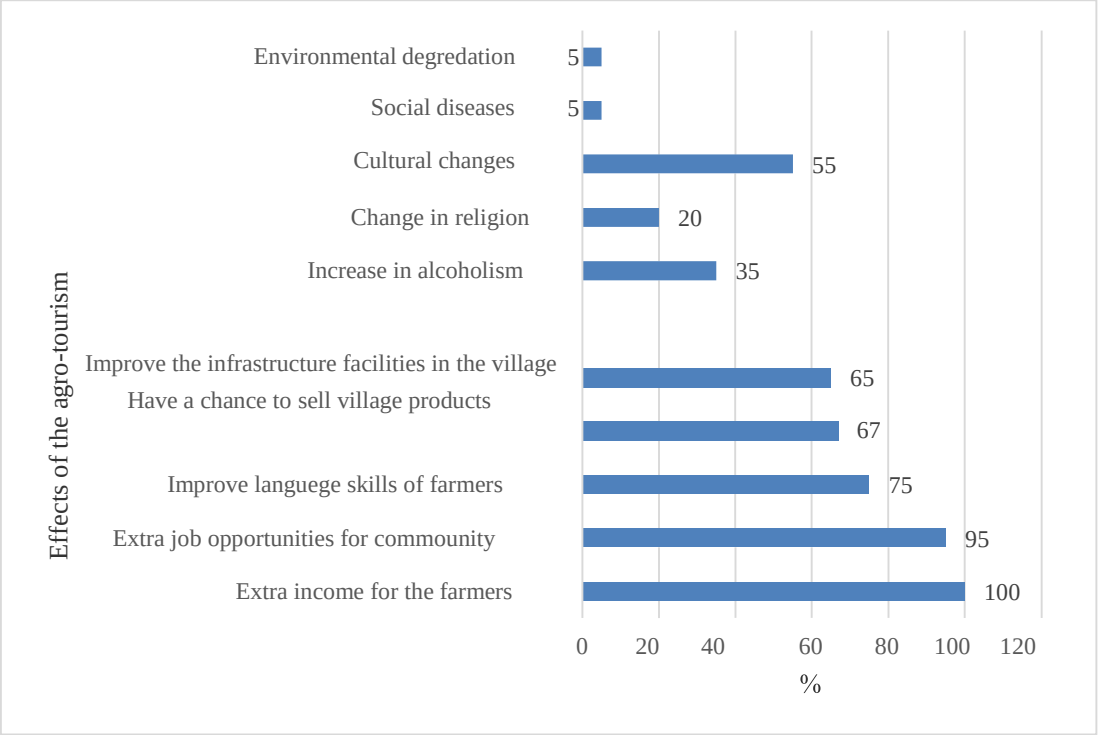

Figure 04. Effects on the rubber smallholders and community due to rubber farming based agro-tourism

3.7 Resource availability in the rubber growing DS divisions

Resources in each smallholding for the potential development of RFAT were assessed using the RAPI in each DS division. The percentage of RSs of each category in each DS division is illustrated in Figure 5. With the consideration of overall capacity with regard to the available resources to develop Moneragala RFAT, it was clear that 27% of rubber cultivations were in a high potential category of the RAPI. However, each DS division showed a different level of capacity to develop RFAT. The highest percentage of RSs in the high level category of RAPI was received by Badalkumbura DS division, followed by other DS divisions, while the lowest was Siyambalanduwa. The reason for the above result may be due to Badalkumbura and Siyambalanduwa being the highest and lowest rubber density areas in Moneragala, respectively.

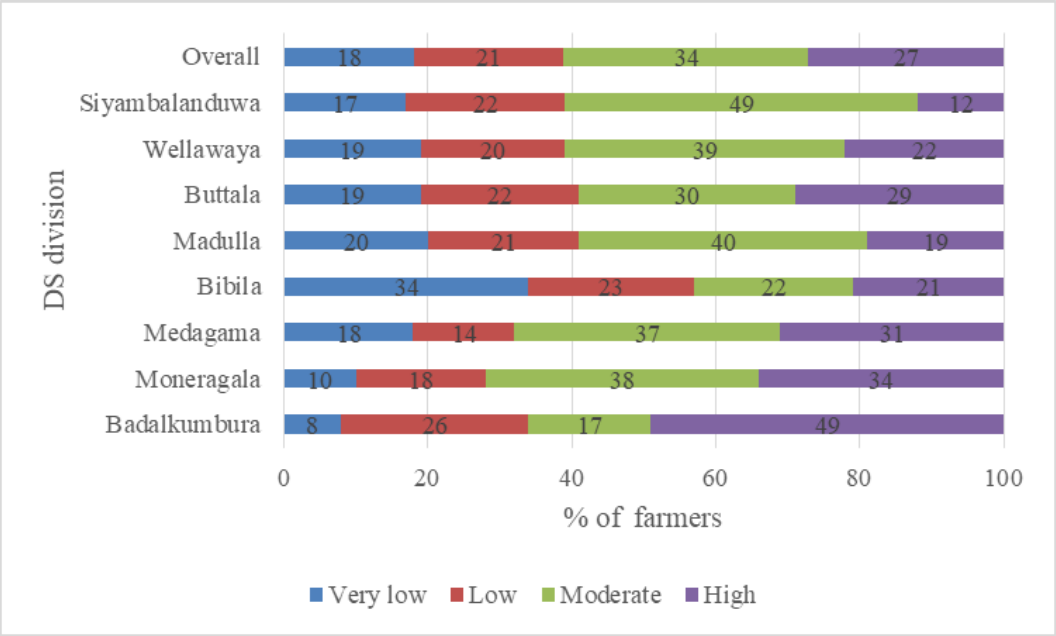

Figure 05. Resource availability in the rubber growing DS divisions for rubber farming based agro-tourism

3.8. Constraints noticed by rubber smallholders while implementing rubber farming based agro-tourism

The findings in Table 06 shows that, among all the constraints noticed by RSs when implementing RFAT, lack of practical exposure (Rank I) and low level of different language skills (Rank II) were the major constraints. Because this was the first experience of the rubber farmers in this trade, lack of accommodation facilities and cost involvement for construction of smokehouses and processing centers of rubber were also important issues. Therefore, policymakers should pay timely attention to establishing the proper material distribution (rollers and smokehouses) should be organized in a more efficient way.

Table 06: Constraints noticed by farmers while implementing rubber farming based agro-tourism

Constraints	**% of farmers**	**Rank**
Lack of practical exposure	99	I
Low level of different language skills	97	II
Lack of accommodation facilities	87	III
Cost involvement for construction smoke houses and processing centres of rubber	85	IV

4. Conclusion

This study had made an attempt to identify the potentials, possible impacts and issues of the RFAT in Moneragala. Moneragala District had an enormous potential for developing mass tourism as well as agro- tourism. Based on this study, following notions could be established. Sri Lanka, being an agricultural country and tourism being one of the major economic divisions, RFAT can be developed as one of the emerging mode of trades in smallholder rubber sector. The 18 potential elements in RF which could be offered to a tourist for a successful future of the RFAT were identified. Comparatively, positive impacts of RFAT were highlighted by all the RSs. It would provide farmers considerable revenue, offering an opportunity for an alternative approach to retail RSs' products and services. The RATI used in this study could be developed and applied further to identify and compare the potential sites, in order to identify the resource availability through which RFAT could be developed in the rubber plantation sector also.

The younger the RSs the more the awareness about the agro-tourism. Young, educated and experienced RSs had highly positive attitude for the RFAT. Therefore, it was a worthy indicator to implement a pilot project with them. The most of facts namely, lack of practical exposure to RFAT and low level of different language skills being identified as major constrains by the RSs and Badalkumura DS division was the most potential resourceful area for development of RFAT would have immense value for policy makers, researchers, extension planners to make the rubber industry a profitable, socially acceptable and an environmentally friendly approach for the betterment of the nation.

5. Recommendations

To form a coordinating frame with the public, private and community participation to promote the RFAT was paramount. Suggestions for enabling of these organizations to implement required practices for achieving objectives were; 1. Knowledge on Agro-tourism (Management, Operation and Maintenance), 2. Identification of other ecotourism sites in the area, 3. Provide financial assistance to local agencies for infrastructure development, 4. Giving publicity to promote selected sites and 5. Arrange new visitor packages for RFAT sites. Furthermore, Badalkumura DS division could be developed as RFAT site through a pilot project in collaboration with relevant authorities in public and private sector. This model could be utilized as a demonstration to promote RFAT in other potential DS divisions in Moneragala. It will be better income diversification option in the rubber smallholding sector in Sri Lanka.

References

Anon. 2002. *Ecotourism development strategy in Sri Lanka and Southern Region*. Sri Lanka Tourist Board, Colombo.

Barbieri, C. and Mshenga, P. M. 2008. The Role of the Firm and Owner Characteristics on the Performance of Agritourism Farms. *Socio~~lo~~gia Ruralis* 48:166-183.

Central Bank of Sri Lanka, 2019. *Central Bank Annual Report*, Central Bank of Sri Lanka, Colombo, Sri Lanka.

Dangol, R, D. and Ranabhat, B. 2007. *Developing agro-ecotourism in Nepal*. NTTR, 12-25.

Fleischer, A. and Pizam, A. 1997. *Rural tourism in israel. Tourism*, 18(6):367-37.

Getz, D. and Carlsen, J. 2000. Characteristics and goals of family and owner-operated business in the rural tourism industry and hospitality sectors. *Tourism Management*, 21(6):547–560.

Gunarathne P.K.K.S., Tennakoon T.M.S.P.K. and Edirisinghe J.C 2020. *Strategies for Improving Rubber Productivity in Smallholder Rubber Farming: A Case Study in Moneragala District of Sri Lanka. In Proceedings of the Seventh International Conference on Multidisciplinary Approaches*, University of Sri Jayawardenapura, Gangodawila, Sri Lanka: 68.

Haugen, M.S. and Vik, J. 2008. Farmers as entrepreneurs: the case of farm-based tourism. *International Journal of Entrepreneurship and Small Business*, 6(3):321-337.

Khanal, Saugat & Shrestha, M. 2019. Agro-tourism: Prospects, importance, destinations and challenges in Nepal. *Archives of Agriculture and Environmental Science*. 4:464-471.

Kromkratoke, K., & Suwanmaneepong, S. 2017. Socio-economic Characteristics of Rubber Farmer in the Drought Area in SaKaeo Province, Thailand. *International Journal of Agricultural Technology*, 13(7.2):1947-1957.

Maude, A. J. and van Rest, D. J. 1985. *The social and economic effects of farm tourism in the United Kingdom*. Agricultural Administration, 20: 85-98.

McGehee, N.G. and Kyungmi, K. 2004. Motivation for agri-tourism entrepreneurship. *Journal of Travel Research*: 161-170.

Ministry of Plantation Industries of Sri Lanka, 2017. *Plantation Sector Statistical Pocket Book*, Sri Lanka. Ministry of Plantation Industries of Sri Lanka, Colombo 2, Sri Lanka.

Kaldeen, M. 2019. Managing knowledge management: identifying and evaluating enablers and

hinders from the perspective of practicing managers from tourism sector in Sri Lanka, *International Journal of Recent Technology and Engineering*. 8:4167-4171.

Ogidi and Odiba 2014. Benchmarking as a tool of TQM in the delivery of quality services/products. *OSCSR Journal of Business and Entrepreneurship*, 1(3):52-63.

Oppermann, M. 1995. Holidays on the farm: A case study of German hosts and guests. *Journal of Travel Research*: 63-67.

Pandey, H. and Pandey, P.R. 2011. Socio-economic development through agro- tourism: a case study of Bhaktapur, Nepal. *The Journal of Agriculture and Environment*, 12:59-66.

Putzel, S. 1984. Farm holidays: Combining agriculture and recreation. Agrologist (Fall): 20-21

Rubber Research Institute of Sri Lanka (2001). *Hand book of rubber*, Rubber Research Institute of Sri Lanka. 15-32.

Rickard, R. C. 1983. *The role of farm tourism in the less favoured areas of England and Wales*. New York: Exeter: University of Exeter Agricultural Economics unit.

Shankaraiah, N & Swamy, B. 2012. Attitude of Farmers and Scientists towards Dissemination of Technologies through Mobile Message Service (MMS*). Tropical Agricultural Research*. 24(1):31-41.

Sharpley, R. and Vass, A. 2006. Tourism, farming and diversification: an attitudinal study. *Tourism Management*. 1040-1052.

Silva, D.D.,Wimalaratana,W. 2012. Community Based Sustainable Tourism Development in Sri Lanka: Special Reference to Moneragala District.

Singh, P. and Mishra, M.K. (2016). Identifying the potential of agri-tourism in India: overriding challenges and recommend strategies. *International Journal of Core Engineering & Management* (IJCEM), 3(3):7-14.

Sonnino, R. 2004. "For a 'piece of bread' interpreting sustainable development through agritourism in Southern Tuscany. *Sociologia Ruralis*, 44(3):285-300.

Sri Lanka Tourism Development Authority. (nd.). Retrieved from http://www.sltda. Lk Upadhyaya, R. 2006. *Agro-tourism outlook. Nepal Travel Trade Reporter*, 20(26):209.

Weaver, D. B. and Fennell, D. A. (1997). The vacation farm sector in Saskatchewan: a profile of operations. *Tourism Management*, 18(6):357–365.

Wijesuriya, Wasana, Dissanayake, D.M.A.P., Herath, Keminda., and Gunaratne, P.K.K.S., (2011) Constraints in Sustainable Smallholder Rubber Farming in Moneragala District. *Journal of Rubber Research Institute of Sri Lanka*. (91):61-73.

WTTC (World Travel and Tourism Council). 2019. Travel and tourism economic impact, 2019 London: WTTC.