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Impact of Rubber Farming on the Socio-Economic Status of Households of Smallholders: A Descriptive Analysis

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ABSTRACT

Rubber farming in Moneragala District has been introduced to enhance the socio-economic status of households of smallholders. Four focus group discussions and six qualitative case studies were conducted to assess the impact of rubber farming on their household level in 2020. Rubber smallholders were selected for the focus group discussions, using stratified random sampling technique and each discussion was comprised of twelve rubber smallholders. Data was collected using interview criteria which was developed and evaluated prior to its use with the expert team. The rubber smallholders were asked a series of semi-structured questions according to the interview guide by the researcher until theoretical saturation is obtained. Then a set of codes and categories were developed according to the grounded theory approach. Qualitative case studies were carried out with six rubber smallholders who were randomly selected from different land categories. A structured direct interview schedule was used in gathering data from rubber smallholders according to eleven criteria which were developed in collaboration with the expert team. It was highlighted that continuous household income from rubber farming has contributed to meet the expenses of education of children, medicine, food, purchasing agricultural and non-agricultural vehicles and renovation of living house with sustainable household income and regional development in Moneragala. In addition, it has generated new employment opportunities and new source of income for other labourers. Hence, expansion of rubber farming into non-traditional rubber growing areas in the country can be recommended in order to improve the socio-economic status of smallholders.

1. Introduction

The Government of Sri Lanka has introduced and expanded Rubber Farming (RF) into the Agro-ecological regions of IL 1c, IL 2 and IM 2b among the eight Divisional Secretariat (DS) divisions in *Moneragala* District. It was aimed to transform the existing system of shifting cultivation and cash crop farming to more ecologically and economically stable farming system to uplift the socio-economic status of smallholders. At present, the total extent of rubber smallholdings in *Moneragala* is about 4,402 ha, out of which economically productive harvesting extent is only 689 ha which accounts for 20%, and around two thousand RSs have adopted RF in the study area. With this background, there is a great necessity to study the socio-economic impact on Rubber Smallholders' Households (RSHs) due to the expanding smallholder rubber farming into non-traditional rubber growing areas in *Moneragala* District. Also this study will help policy makers to expand rubber farming into non-traditional areas in the country.

In Sri Lanka, most of the studies have focused on traditional rubber growing areas in Wet Zone (RRISL, 2020), while few studies have focused on expansion of RF in *Moneragala*. Smallholder rubber sector in *Moneragala* was reviewed by Dissanayake *et al.* (2005a). Wijesuriya *et al*. (2005b) studied the status of rubber smallholdings in *Moneragala*. Wijesuriya *et al*., (2005b) and Wijesuriya *et al*., (2011) focused on the effect of technology transfer of recommended agronomic practices in immature and mature rubber smallholdings in *Moneragala*. Priorities for technology transfer in *Moneragala* and smallholders' level of awareness in agronomic, tapping and processing of RF were studied by Wijesuriya *et al*., 2005c and Wijesuriya *et al*., 2010. Wijesuriya *et al*., 2012 analyzed the land productivity and profitability of rubber smallholdings in *Moneragala*. Some studies focused on marketing aspects and issues of RF in *Moneragala*. RSs' expectations and constraints faced by RSs in *Moneragala,* possible solutions for sustainable RF were also studied by several authors (Dissanayake *et al.,* 2005b; Wijesuriya *et al*., 2008; Wijesuriya *et al*., 2011). Few studies have focused on availability of labour in RF system (Thennakoon, 2002; Thennakoon, 2017) and the effect of smallholding related factors on smallholder RF system (Thennakoon, 2002; Thennakoon, 2018) in *Moneragala*. The most of studies carried out on RF in *Moneragala* have focused only on the aspects of extension, marketing, labour management and technical matters. Therefore, there is a research gap in the studies of socio-economic impact of RF on RSs.

Natural rubber is one of the important primary products in the global economy and demand for it is expected to be high in the long run. At present, Sri Lanka holds the 10th position in terms of production and export in the world, and hence is a price taker in the world market (IRSG, 2021). Therefore, rubber industry is expected to show a positive growth rate in the future at the world and local level. The RSs immensely contribute to national rubber production in Sri Lanka, ever since rubber has been a popular cash crop among smallholders in the country as the main economic objective of RSs is to maximize their family income. Considering the above, it is clear that smallholder rubber sector can play an important role in development process in the national economy. Therefore, any intervention in smallholder rubber sector in Sri Lanka holds an immense importance in refinement of national economy.

Analysis of the impact of RF on socio-economic status of household will help to develop strategies to improve the socio-economic status and sustainability of RF in *Moneragala*. The policy makers and practitioners in relevant organizations in the country who are interested in poverty reduction at household level can use the findings obtained from this study either to improve the existing policy or to establish

new policy that will be useful to address the problem of poverty of smallholders.

It is also a steppingstone for other researchers to conduct research on execution of development plans and strategies that bear fruitful outcomes.

2. Materials and Methods

2.1 Assessment of the impact of rubber farming on the socio-economic status of households of smallholders through focus group discussions

Rubber smallholders (RSs) were selected for the four Focus Group Discussions (FGDs) using stratified random sampling technique to assess the impact of the RF on the socio-economic status of households in *Moneragala*. Table 1 shows the selected sample of RSs in detail for FGDs of this study. Each focus group discussion was comprised of twelve RSs.

Table 1. Selected sample of rubber smallholders for the study in detail

Divisional secretariat division	Rubber smallholders participated in focus group discussions 1,2,3 and 4
Bibila	1
Madulla	2
Madagama	1
Siyabalanduwa	1
Moneragala	2
Badalkumbura	3
Wellawaya	1
Buttala	1
Total	12

Table 2. Interview guideline of focus group discussions with rubber smallholders.

Major theme	Sub themes
Impact on household income	Agricultural income (Rubber farming and non-rubber farming), Non-agricultural income
Impact on assets of households	Durable assets, Non-durable assets, Vehicles
Generating new employment opportunities	Rubber tapping, Rubber sheet manufacturing, Latex transportation, Tapping panel marking, Manuaring, Weeding, Rubber planting
Improving the level of education of children	Expenditure on primary, Secondary and higher education
Food consumption pattern	Expenditure on foods and beverages, Dietary diversity
Personal health	Private consultation, Expenditure

Data were collected through the four FGDs using interview criteria (Table 2) developed with the collaboration of key personnel who have more than five-year experience in

development sectors, representing *Thurusaviya* Rubber Societies (TRSs), Rubber Development Department (RDD) and Rubber Research Institute of Sri Lanka (RRISL). Also, current literature on the impact of RF on the socio-economic status of households of smallholders was used. Ten experts (two from each organizations) from the rubber sector under different organizations and disciplines, namely, the RRISL, the RDD, TRSs, the Department of agriculture and private sector evaluated the interview criteria prior to its use.

The moderator began each session by introducing the FGDs and describing the purpose of the research. The participants (RSs) were then asked to introduce themselves and were then asked a series of semi-structured questions according to the interview guide regarding the impact of RF on the socio-economic status of households of smallholders more broadly. Open-ended questions/prompts were used and discussions were not led along pre-determined lines. Researcher conducted the one-on-one in-depth interviews with four focus groups (RSs).

2.

All of the focus groups were asked the same series of questions. The FGDs were held in the local language and were audio-recorded in addition to taking notes by two note-takers. All study material and discussions were in Sinhala language, which were subsequently translated to English language.

The researcher employed FGDs according to the information of preliminary discussion with RSs, state field officers and key official of TRSs and RDD. The FGDs were completed in August 2020. Data collection was concluded through theoretical saturation (Bryman, 2021). Then, a set of codes and categories were developed according to the grounded theory approach.

2.2 Assessment of the impact of rubber farming on the socio-economic status of households of smallholders through qualitative case studies

Qualitative case studies were carried out in six RSHs representing each rubber cultivated land category (0.75 ac., 1 ac., 1.5 ac., 2.5 ac., 3 ac. and 5 ac.) selected by simple random sampling technique to review the impact of RF at household level. Interview, observation and RSHs' records were used to collect data for the case studies (Bryman, 2012). A structured direct interview schedule was used in gathering data from the RSHs with regard to eleven criteria (rubber farming extent, socio-economic characteristics of the smallholders' household, positive impact of rubber farming, negative impact of rubber farming, impact on household income, impact on assets of households, generating new employment opportunities, improving the level of education of children, food consumption pattern, personal health and other special aspects). The discussion was developed with the collaboration of RDD, TRSs, RRISL and the key personnel who have more than five-year experience in input-supplying of RF in private sector.

3. Results and discussion

3.1 Impact of rubber farming on the socio-economic status of households of smallholders through focus group discussions

Data were collected through two FGDs, with two focus groups of RSs. The participants (RSs) were asked a series of semi-structured questions according to the interview guide regarding the impact of RF on the socio-economic status of households of smallholders. Data collection was concluded through theoretical saturation. One of the objectives of the FGDs was to find out how RSs feel about the impact of RF on their socioeconomic status under the theme of household income. Smallholders in *Moneragala* mainly depend on agricultural livelihood strategies. Among them, RF plays a key role in household income. Generally,

when they engage in other farming systems, they face risk and uncertainty due to drought and price fluctuations. Both full-time and part-time RSs highlighted that RF was considered as a continuous income source. The following quote is from one of the RSs who had three acres of RF.

(*"During the last cropping season, I planted sea mays. Unfortunately, all plants died due to the drought, but rubber trees survived. Rubber plants give rubber even in the drought period. Because of that, money borrowed for sea mays farming was recovered by selling rubber sheets"* (P4D4)).

Some of the RSs earn a considerable income from rubber intercropping and bee-keeping. Especially, in mature rubber smallholdings, cocoa intercropping provides a good income. Some of the RSs have cultivated pepper in the fence of rubber smallholdings, especially in *Badalkumbura* area resulted in relatively higher income from a unit land area.

("*I previously have cultivated sugarcane in my land. It was a huge loss to me, and cultural practices of sugarcane were difficult due to animal attacks. So that, we cultivate rubber, instead of sugarcane. Now, I earn a good income. Maintaining of rubber farming is quite easier than sugarcane with my experience*" (P3D4)).

("*I cultivate cocoa plants among rubber trees. Although, it gives us a good additional income, protecting yield from birds and monkeys is somewhat difficult*" (P6D4)).

Even during the periods of low rubber prices, RSs can earn their daily living expenses by selling rubber. ("*Normally, I produce two rubber sheets daily and I can buy the daily requirement of my home by selling the rubber sheets"* (P5D3)).

Most of the smallholders moved to cultivate rubber in their lands where other crops were cultivated previously. Most of RSs participated in FGDs stated that they could earn more from RF from a unit land area. And also the cost of production is very low. Most of RSs use their family labour to make RSS. And more than 70% of people use females in the family for rubber tapping.

("*We have one acre of rubber farming, where my wife engages in rubber tapping which is started around 5.30 am. And is completed around 7.00am. Therefore, we also can manage other day to day activities at home*" (P7D3)).

("*At 5.00 am, I tap my rubber trees and then I go to other farming activities, while my wife collects latex from rubber trees and in the afternoon both of us engage in rubber sheet manufacturing. I have two acres of rubber farming*" (P3D3)).

RF has created many employment opportunities at household level, group processing centers of TRSs and in rubber holdings in relation to rubber tapping, rubber sheet manufacturing, selling sheet rubber and collecting latex. TRSs have developed rubber group processing (manufacturing) centers at village level. Several job opportunities have been created in relation to TRSs' group processing centers, including sheet making and smoking.

("*Usually, two people have been employed at each centre in rotational basis and each earns around SLR 10,000.00-15,000.00 per month. Some of them do not own a rubber farm either*" (P9D2)).

The RRISL and the RDD have conducted tapper training schools at village level. Especially, village youth and females were selected for these programmes. Trainees who don't have RF were also trained in order to give them the opportunity to find jobs in the village as tappers or sheet makers.

("*I have given one job opportunity as a rubber tapper and sheet maker who trained in the training programme conducted by the RRISL. She can earn SLR 8,500.00 per month in my*

land by tapping, even though she has not got a rubber plantation" (P10D3)).

("*Usually, hired women tappers earn around SLR 8,000.00-12,000.00 per month where, it is mainly used for family education requirements and for the durable items of living home*" (P7D4)).

The village youth have been trained in rubber planting, fertilizing and annual panel marking of rubber trees by the RRISL and the RDD. Still, only a few number of programmes were conducted in *Moneragala* (2 programmes during the last three years) (RRISL, 2020). Most of the respondents mentioned that many of RSs are willing to get this training with the aim of improving their RF activities.

("*A training programme was arranged for a group of young people including my son on how to plant rubber trees and how to mark rubber trees. After this training, they are able to earn a good income within Moneragala District as well as in other provinces (Sabaragamuwa and Southern). Still, there are difficulties in finding opportunities of planting and annual tapping marking of rubber trees, due to lack of proper communication among RDOs and the trained group*" (P11D4)).

A network has been developed with the aim of transporting rubber sheets and latex within *Moneragala* District and other rubber growing areas. Also, latex collecting centers are being setup at village level with the support of the private sector rubber manufacturers in Industrial Zones (*Awissawella*, *Koggala* and *Biyagama*). Collected latex at village level was transported to above manufacturers on daily basis. Still, only a few number of villages are included in this transport network. A respondent mentioned that;

("*One of my friends who has not got a rubber cultivation started to collect latex in association with a private company, where he earns around SLR 35,000.00 per month. He has bought a mini truck with leasing facility for collecting latex*" (P9D3)).

One of the objectives of the FGSs was to find out how RSs feel about the impact of RF on their socioeconomic status with regard to children's education. This theme was discussed with the participants (RSs). Although at present there is a free education system in Sri Lanka, parents have to spend a lot of money for their children's education (e.g. for equipment, transport, fees for boarding and extra classes). RSs spend relatively large amount of money per month for their children. All the respondents of FGDs have highlighted that, such education cost can be tolerated as they receive a good income from RF. The major categories of expenditure for their children's education are as follows; 1. To attend extra classes in town area or nearby district, 2. To send their children to a popular school located in the nearby district or in *Moneragala* town, 3. To provide opportunities to follow external degree programmes and, 4. To provide opportunities to follow types of vocational courses (Beauty salon, computer courses, etc. by investing required funds). The evidence stated below highlights the impact of RF on their children's education;

(*"I have three acres of rubber farming. Both of my children go to school in Monaragala town. Daily, I take them by our own three-wheeler, bought with the money from rubber farming. It costs nearly an additional SLR. 5,000.00. But this additional cost comes from my rubber farming. I send my children to Matara for extra tuition classes on weekends, where they are boarded there during the weekend. It also costs around SLR 6,000.00. This cost is also covered by the income from my three acres of rubber farming"* (P12D3)).

(*"I have 3.5 acres of rubber farming. Although my elder son passed the grade five scholarship examination, I couldn't facilitate him to enter Bandarawela National School. With the enhancement of my family income from rubber farming, my younger son could enter this*

school at grade five. And also he has been boarded at Bandarawela with a cost of SLR 15,000.00 per month" (P12D4)).

("*I have 1.75 acres of rubber farming and I do self-tapping in my rubber holding. The university expense of my daughter is about SLR 10,000.00 per month which is earned from tapping in another rubber smallholding. Tapping is a good extra income for me."* (P10D4)).

Although the government health sector is free in Sri Lanka, the private health sector has also developed in parallel in *Moneragala*. RSs have a tendency to seek private health facility as they have a fixed source of income from RF.

("*In the past we used to go to government hospitals. Now we have the ability to get medicine from channeling centers in the town*. *We can buy medicine from private pharmacies at a convenient time, which is easy for us in carrying out our day to day activities*" (P6D3)).

All the RSs stated that they use part of their income from RF, for household food and beverages. There is a trend, especially to buy expensive items of food and beverages like cheese, sausages and milk powder. Followings are the highlights provided by two participants in FGDs.

("*Earlier, we didn't consume milk powder in the morning, now we are able to afford it with the income from rubber farming*" (P4D3)).

("*I sell rubber sheets once a month. On that day, we buy a special dinner for the whole family from the town*" (P6D4)).

Especially, the income from the non-agricultural livelihood strategies is one of the important socioeconomic factors that influence smallholders to adopt on new farming systems, in order to improve the financial assets of smallholders, which also encourages investment in new farming practices (Beyene, 2018). However, RSs in *Moneragala* tend to invest their earnings from RF in non-agricultural earning strategies as letting of agricultural machinery, family business (e.g. shop, boutique) and provision of transport by three wheelers/vehicles. Thus, RSHs are able to buy agricultural and non-agricultural vehicles from the income of RF. Following results of FGDs were evidence for the improvement in household physical assets and vehicles of RSHs in the study area.

RF gives a continuous income throughout the year. Therefore, RSHs have credibility to recover their credit schemes such as housing loans and vehicle leasing. ("*I bought a smart TV and cassette recorder via a credit scheme. At the end of the month, I can pay the installment easily with money from rubber farming. I can remember that, I couldn't pay the installment of a vehicle loan obtained for a motorcycle, before I started rubber farming and because of that, it had to be returned. I have three acres of rubber land at the tapping stage*" (P1D3)).

Some RSs highlighted that the income from RF has been invested to buy motor bicycles, three wheelers and other vehicles related to agriculture (canters, lorries, tractors, paddy harvesters). Also, they have started small business like small retailing shops at village level. It was described by many respondents where, one rubber smallholder stated that;

"(*I have three acres of rubber farming and bought a mini paddy harvester. The leasing installment was paid with the income from RF. This is a good income source for my family"* (P2D4)).

A network of vendors who sell electrical equipment and other furniture is targeting rubber growers in this area as it is really convenient to collect relevant installments from them as they receive a fixed monthly income. Also the leasing companies promote their vehicle leasing plans for three wheelers, motor bicycles and mini lorries via TRSs.

"*All the electrical appliances in our house were bought through an easy payment method. At the end of the month, installment is paid with the money we receive from rubber farming*" (P5D4)).

"*I bought a three wheeler with leasing facilities and engage in hires in the village. I pay the leasing installment from the income I receive from rubber farming. It's the best investment I have ever made. It's an extra income for me*" (P8D4)).

The aim of the above four FGDs was to explore various aspects of impact of RF on the socio-economic status of households of RSs. The following areas can be highlighted by FGDs; Continuous household income throughout the year, creation of job opportunities, income of RF directly contributes to meet the expenses of children's education, medicine, food items, purchase of agricultural and non-agricultural vehicles and renovation of living houses

3.2 Impact of rubber farming on the socio-economic status of households of smallholders through qualitative case studies

Qualitative case studies were carried out in six RSHs which were selected randomly to represent different categories of smallholdings in order to review the impact of RF. The following case studies further reflect the impact of RF on socio-economic development in various ways. Case study 1 shows the impact of income from the RF with following highlights; 1. RF provides income throughout the year, 2. The monthly profit is high due to the low maintenance cost of RF, 3. Income from the RF is used to buy vehicles which help to earn additional income, 4. Income from RF helps to pay off the installments of the vehicle, and 5. They adopted on early tapping, therefore they have more time for other activities.

Case study 1: Income received throughout the year due to income from rubber farming

"I am a 48-year-old farmer, with an experience of 25 years in farming. I'm married with three children. Many times, I have experienced low profits from farming, where I had to pay debts due to low profits during these past 25 years. Meanwhile, rubber farming was introduced to me by one of my friends. At present, I have got two and half acres of mature rubber farming which is being tapped. I usually start tapping at 5.00 a.m. in the morning and my wife also joins me, after completing house work. Both of us engage in making sheets. We use our RSS manufacturing center and smoke house, built by us. Rubber farming provides us with income throughout the year. It provides a fixed income, so that it has created a situation, similar to be engaged in an employment with a monthly salary. This crop has no major diseases and no any considerable maintenance cost. Even though the cost of acid is slightly high, the overall cost of a rubber sheet is not high. The rubber sheets can be sold without any difficulty when they are taken to the town ourselves. It is really important to mention that the convenience we experience to engage in other farming activities also, after finishing the daily tapping task early in the morning. I also bought a three-wheeler for the purpose of family transportation, still it helps in earning some extra income by undertaking hires, etc. It also helps to pay off the installments of the vehicle. I also bought a canter for the transportation of vegetables from village to *Bandarawela*. It is a good source of monthly income for my family. The leasing installments are paid with the income from RF".

Case study 2: Reduction of dependency on children due to income from rubber farming

"I own a mature rubber farming of 0.75 acres with 125 rubber trees, which was cultivated

with the subsidy scheme provided by the rubber project. Previously, the land was occupied by shrubs and small trees which was converted to a rubber farm according to instructions received from the Rubber Development Officer. I usually start tapping at 5.00 a.m. in the morning. I make rubber sheets, which are dried in the hearth and under the sun. I used to exchange my rubber sheets to daily essentials of the household with the vendor of the village boutique, which helps to pay for my daily household expenditure. As I engage in other farming i.e. paddy, it is really convenient to have an additional income from rubber, as I live with my wife separate from my children, without being a burden to them. I'm 71 years of age while my wife is 69. My children don't have to spend on our needs even in this old age, as we are capable of earning for our daily needs, similar to be paid a pension allowance. We obtain our income every other day, even though it is reduced slightly during the rainy season. I used to manage to cultivate few pepper plants and cocoa plants, which generates an additional income. With all of these tasks, I also work as a hired tapper in another rubber holding from which I earn SLR 450.00 per day. So that, rubber farming is a very good source of income to us irrespective of our old age".

Case study 2 shows the reduction of dependency on children due to income from the RF. The following deductions can be drawn pertaining to case study 2; 1. This is an elderly family and they can survive with the income from rubber farming, 2.

They can earn some additional income by working as a hired tapper, 3. The cost of production of sheet rubber is low due to the usage of family labour, 4. Reduction of dependency on children due to income from rubber farming. This case study figures out a powerful contribution to the caring of elderly families without being a burden to their children.

Case study 3: Creation of new employment opportunities

"I own a mature rubber land of five acres and immature rubber cultivation of two acres. I was introduced to the rubber sector initially via another farmer known to me. Previously, I used to cultivate maize, fruits and other vegetables in my land, where a high cost and a lot of labour was needed to protect them from wild animal attacks. i.e. - The cultivation of maize should be protected during the night time from wild animal attacks. There was a porcupine attack during the initial stages of rubber farming, which was not persistent. Presently, I have employed three other latex harvesters with a daily salary of SLR 650.00 with provision of daily food and other monetary needs. As I sell the number one sheets directly to the company without involvement of any middlemen, I have got the ability to obtain a considerably high profit, thereby a high income through rubber farming. So that, I bought a combined harvester and a canter from which, I was able to earn a considerable amount of income. I pay off their leasing installments with the income from the rubber farming. The mature rubber farming helps the land to maintain the water content in soil, while providing a natural environment to various types of birds, snakes and insects, including bees from which there is no any harassment to us at the time of tapping. I also have got a one-day drying system and a pair of rollers, which I could lend some other farmers of the village, free of charge, to make rubber sheets".

Case study 3 explains that the RF was the way for creating jobs for villagers/low income neighbours leading to regional development. Case study 4 has paved the way to high family income and it is directly used for the expenditure on education.

Case study 4: Impact of rubber farming on household expenditure for children's education

"I am a 58-year-old farmer, with an experience of 35 years in farming. I'm married with three children. At present, I have got two and half acres of mature rubber farming which is being tapped and one land of immature rubber field. My elder son studies at a government university, while the other son is currently studying at *Bandarawela* where he was boarded. Other son follows a degree in a private university. Therefore, education cost of my family is very high and around 60, 000.00 SLR per month. I have obtained a bank loan to pay the term installment of the private university of my son. Also, the *Thurusaviya* rubber society provides us with credit facilities and it helps with my sons' education purposes whenever we are in need. If I have not engaged in RF, this amount cannot be afforded monthly. It provides a fixed income on monthly basis and also it helps to pay off the loan installments of the banks. Earlier, it was very difficult to find funds to buy seeds, fertilizer and pesticides for other crops, which are necessary in cultivating crops for household consumption. But, at present it does not happen due to income from RF".

The following case study (5) further explains the impact of RF on their socio-economic development through building a new living house through the adoption on RF. The conclusion of this case study is that RF directly helps the households who engage in other jobs in *Moneragala* for their better living. Case study 6 has explained high household income from RF and it is directly used for improvement of household assets and purchasing vehicles.

Case study 5: Building a new living house

"I am Nissanka, a 35-year-old farmer, from *Badalkumbura*. I'm married with two children. I studied up to Ordinary Level and I presently work as a plumber in *Pradeshiya Sabha*. Most of the villagers engage in rubber farming. So that, I also cultivated rubber in one acre under the subsidy scheme of RDD with Cocoa as the intercrop. I started tapping after seven years. As I was less skilled in tapping at the beginning, I participated in a training programme conducted by the RRISL, following which I have gained a considerable skill in tapping. I usually start tapping at 4.30 a.m. and finish around 6.00 a.m. I used to hang the torch by myself for lighting purposes. My wife collects the latex at around 9.00.a.m. and makes 2-3 sheets per day. There is a smoke-house which is constructed with a very low cost, so that the final quality of the rubber sheets was at poor standards. One pair of rollers was obtained under the subsidy scheme from TRSs. It is better to receive subsidy scheme to build a smokehouse. We get a good income from RF as well as from Cocoa, so that we started to build a new living house, which is yet to be finished. Rubber is one of the most suitable cash crops in our living area, which provides more advantages than a good income. We are always supervised and advised by the RDOs. I have no ability to expand my RF, as I do not have more land to cultivate. I invite others to cultivate rubber and receive a good income, while entertaining more advantages such as conservation of water fountains".

Case study 6: Improvement of households' assets through the adoption on rubber farming

"I am a 58-year-old farmer, with an experience of 35 years in farming. I'm married with three children. Many times, I have experienced low profits from farming, where I had to pay debts due to low profits during these past 35 years. Meanwhile, rubber farming was introduced to me by one of my friends and then one of the rubber development officers. At present, I have got three acres of mature rubber farming which is being tapped, and one land of immature rubber field. I usually start tapping at 5.00 a.m. and my wife joins me, after sending the children to school. Both of us involve in making sheets without using a pair of rollers. We usually use group RSS manufacturing center, built by TRSs to dry the sheets as we haven't got a smoke house yet. My elder son

studies at a government university, while the other son is currently studying at *Bandarawela* where he was boarded. Rubber farming provides us with income throughout the year, even though it is highly difficult during rainy season. It provides a fixed income, so that it has created a situation similar to be engaged in an employment with a monthly salary.

It was quite difficult at the initial stages of the cultivation, but at present the situation has changed with the time of maturation. This crop has no major diseases and no any considerable maintenance cost. Even though the cost of acid is slightly high, the overall cost of a sheet is not high. The sheets can be sold without any difficulty when they are taken to the town ourselves. It is really important to mention that the convenience we experience to engage in other farming activities, after finishing the daily tapping task early in the morning. I also bought a three-wheeler for the purpose of family transportation, still it helps in earning some extra income by undertaking hires, etc. It also helps to pay off the installments of the vehicle.

Not only that, a flat television and a refrigerator were bought with payment through installments. We tiled our house with the help of a credit facility obtained from a bank. These installments were paid with the income from RF. Earlier, it was very difficult to find funds to buy seeds, fertilizer and pesticides for other crops, which are necessary in cultivating crops for household consumption. Rubber farming assists in soil conservation and helps in reducing the atmospheric temperature. After some time, I obtained the membership of TRSs, where they provide us with latex collecting cups, rollers and tapping knives under the subsidy scheme and also it provided a good training on tapping and sheet rubber manufacturing. The members are dedicated to the welfare of each and every member. Also, the society provides us with loans whenever we need."

It is evident in the reviews of these six qualitative case studies that RF plays a very important role in their household economy, hence in the regional economy. It has exerted an effect as a bridge to overcome the rural poverty through rural income generation, new employment creation for low income casual labours, sustainability of household income and finally, regional development in *Moneragala*. This will bring a new life to the rural economy in *Moneragala*.

4. Conclusion and Recommendation

According to the reviews of six qualitative case studies and outcome of the FGDs, it was evident that rubber farming has played a very important role in the household income, household expenditure and household wealth. It has worked as a vehicle for the enhancement of socio-economic status of rubber smallholders, especially through the new employment creation for villagers and sustainability of household income and finally, regional economic development in *Moneragala*. Rubber farming will bring a new life to the rural economy of *Moneragala*. Therefore, expansion of rubber farming into non-traditional rubber growing areas in the country can be recommended to improve the socio-economic status of smallholders.

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