

# Enhancing Capabilities through Small Scale Contract Farming:

## A Study on the Tea Plantation Sector of Sri Lanka

(小規模契約農業を通じたケイパビリティ強化：スリランカの  
茶プランテーション部門に関する研究)

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## SUMMARY

The tea industry of Sri Lanka consists of two main sectors namely, tea plantation/estate sector and tea smallholdings sector. This industry has gained the attention of various stakeholders due to its contribution to the economy of Sri Lanka in terms of employment generation and foreign exchange earnings. Different varieties of teas produced in the country have attracted the international communities around the world due to various attributes such as taste, freshness, and aroma associated with it. In 1995, the government of Sri Lanka privatized its plantations by clustering those into 23 Regional Plantation Companies (RPCs) due to the inefficiencies prevailed in production and labour management. However even after this privatization, tea plantation sector did not show any significant improvement and their contribution to the annual national tea output has started to decrease. The main reason for this decrease has been the low productivity associated with its labour.

The labour force of the tea plantation sector of Sri Lanka mainly consists of Tamil immigrants from South India and this immigration occurred in the colonial era of the British who initiated tea plantations in Sri Lanka. According to recent socio-economic indicators (such as household income, quality of housing, level of education, health and nutrition, etc.) of the Sri Lankan economy, estate community is far behind in the level of socio-economic well-being when compared with non-estate rural and urban communities. Moreover, the low social status associated with the estate community has discouraged the younger generation to participate in the tea estate labour force and resulted in out-migration pushing the tea plantation sector towards a risky condition. According to many economists and social scientists, lack of adequate access to socio-economic necessities (quality housing, proper education and health facilities, sufficient nutrition, and higher social status) has adversely affected estate workers level of well-being and it has reflected

in their lower work performance. In light of this condition, the researcher's intention was conceptualized to conduct an in-depth study to reveal the intrinsic and implicit issues of this socio-economically deprived community. Further, this condition motivated the researcher to adopt a normative approach to identify a possible solution which would be applicable and sustainable.

Hence in the first chapter of this thesis provides an explanation to this chronic labour problem which is related to the deprived level of socio-economic well-being of tea estate workers. In order to elaborate these problems, socio-economic well-being and labour productivity related evidence from the tea plantation sector of Sri Lanka have been identified and discussed. Based on the identification of these labour problems, the researcher developed the hypotheses of the study to be tested. The first objective was to evaluate the effectiveness of labour policies (duties and responsibilities of employer and their relationship with employees) and practices (work norms and, other pay and benefits to employees to enhance their performance) of RPCs in developing a solution for the prevailing labour productivity problem in the tea plantation sector. Further, it was intended to investigate the initiatives taken by them in uplifting the socio-economic condition (quality housing, proper education and health facilities, sufficient nutrition, and higher social status) of resident workers who reside and work in tea estates. The second objective was to explain the significance of enhancing the freedom of tea estate workers to do and be what they value (capabilities), as a solution for the labour problem which probably would become a solution for the labour productivity problem, eventually. Finally, the objective of the study was to explain the significance of adopting small scale contract farming (CF) system into the tea plantation sector of Sri Lanka in order to enhance the capabilities of its resident workers. Providing freedom and opportunity for estate workers to decide their own achievements would ultimately create a positive

impact on labour productivity. Based on these objectives the study was designed, focusing on a sample of RPCs and tea estate communities in tea estates (tea growing estates in high lands above 1200 m) located in Nuwara Eliya, Badulla and Ratnapura districts of Sri Lanka.

In the second chapter, we evaluated the initiatives taken by the selected RPCs to increase the estate workers' income and other sustenance needs to achieve a high level of well-being. These initiatives include providing short term incentives such as additional payments when exceeding the plucking targets and informal labour contacts for harvesting. Further, to enhance the plucking productivity, estate management was replacing labour with machines in plucking activity. However, all these initiatives were taken by the management only in high crop periods. It was identified that these initiatives taken by the management to increase the workers' income and labour productivity are inadequate and ad-hoc without any sustainability. The reason for that is, these practices provide cost benefits to the company by reducing the cost of labour and give workers an additional income only in high crop periods. Although RPCs have taken initiatives to uplift the level of well-being of estate workers by rehabilitating housing facilities, providing free education, health and nutrition; those have not been reflected in their level of living and performance as RPCs could not properly identify what workers actually want to do and be in their life. Therefore, the chapter was concluded by proposing feasible small scale contract farming solution which is attributed with human development essentials such as efficiency, equity and empowerment in order to be sustainable.

According to the identification of the real problem of the tea plantation sector; in chapter three, the researcher has analyzed the reasons for the failure of RPCs in providing a sustainable solution for the poor well-being level of tea estate community. We have

grounded this analysis on the theoretical foundations of Amartya Sen's capability approach. The capability approach is a broad normative framework for the evaluation and assessment of individual well-being and social essentials. According to this approach, well-being of an individual is determined on that individual's freedom to do and be what he/she values. Based on the analytical results and fieldwork findings, we identified that this freedom of tea estate community has been severely affected and restricted by personal inabilities known as personal conversion factors (such as low level of education, low income, gender disparity, and age) and social restrictions known as social conversion factors (such as male dominant estate culture, male biased work norms, social discrimination of estate community, politicized trade union influence). These factors have adversely affected the abilities of achieving what estate workers actually want to do and be in their lives. Further, these factors have especially affected the estate youth and women who are the major determinants of present and future productivity of the tea plantation sector. Moreover, it was emphasized that RPCs should focus on providing not only the basic capabilities (housing, education, health and nutrition) but also complex/ social capabilities such as social status and empowerment. Accordingly, this chapter is concluded with implying the importance of introducing an alternative system which enhances tea estate community's capabilities.

In chapter four, the researcher stressed the significance of shift of tea plantations in Sri Lanka into the small scale contract farming system with their estate workers. For this requirement, the researcher identified and surveyed an instrumental case which is a tea estate of a RPC in Ratnapura district of Sri Lanka. According to the survey findings, this system is sufficiently attributed with equity, efficiency and empowerment components which have enhanced required capabilities those are lacking in the existing labour management plantation system of RPCs. Since, estate families in Sri Lanka consist

of more members than non-estate families; they can reduce the labour cost through this system and thereby increase the net income. As estate families can participate in contract farming as small farm business owners, it empowers them with more freedom and provides them with higher social status. Our survey findings revealed that, higher income and social status benefits of this system discontinue the labour out-migration and attract back the estate workers who have already migrated. Moreover, the researcher could identify that this system has empowered estate women by providing them with required freedom. Accordingly, it was stressed that this system improves the level of well-being of tea estate workers and their families and, such well-being improvement will reflect in labour productivity improvement.

## Chapter One

### INTRODUCTION

#### 1.1. Background of the study

Since tea plantation/estate sector in Sri Lanka was initially developed by the British in the 19<sup>th</sup> century during the colonial period, it has been in operation and evolved to be an important sector economically and socially. Economically, this sector makes a significant contribution to the economy in terms of output, employment and foreign exchange earnings. Socially, this sector is important because the resident workers of this sector known as ‘estate population’ are categorized as a separate social entity, characterized with a unique set of attributes based on their socio-economic conditions. Geographically, socially, economically and politically the resident workers have been isolated from other areas of Sri Lanka over a hundred and fifty years (Shunsuke, 2011; Jayawardena, 1984). Socio-economic indicators depict that the households of this sector are in a lower position when compared with the urban and rural sectors of the country<sup>1</sup>.

Hence, this study was principally designed and conducted to address the problems of the prevailing unwholesome labour condition and the low human development of estate population as well as its impact on the performance and future potential of this sector.

##### 1.1.1. Tea industry of Sri Lanka

The first commercial tea plantation was established in Kandy district of the central province in 1867 under the British and subsequently expanded to Nuwara Eliya and Badulla districts. These British-initiated large tea plantations continued under the private ownership and management until the introduction of land reform in 1972 which brought these plantations under the public ownership and management. In this change, 61.1% of the ownership and management of total tea lands of the country was held by People’s Estate

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<sup>1</sup> Estate population is not included in the rural sector.

Development Board and 34.4% by the State Plantations Corporation<sup>2</sup>. However, the performance of the tea plantations was gradually declining due to the following managerial issues.

*1. Lack of skilled plantation managers*

Some experienced managers left the plantations due to low benefits they receive from the government. Further, some managers were asked or compelled to leave by the government.

*2. Decrease in the quality of management*

In appointing managers, political affiliation was considered mainly rather than the qualifications and experience.

*3. Lack of decision-making freedom for managers*

This resulted in undue delays in machine repairs and incurring expenditure to maintain production at a high level.

*4. Lack of productivity incentives in wages*

Under the new government ownership, the wages of tea estate workers were increased without linking it to their performance. Eventually, this resulted in an increased wage bill for the government without productivity returns, leading the tea plantations toward financial losses.

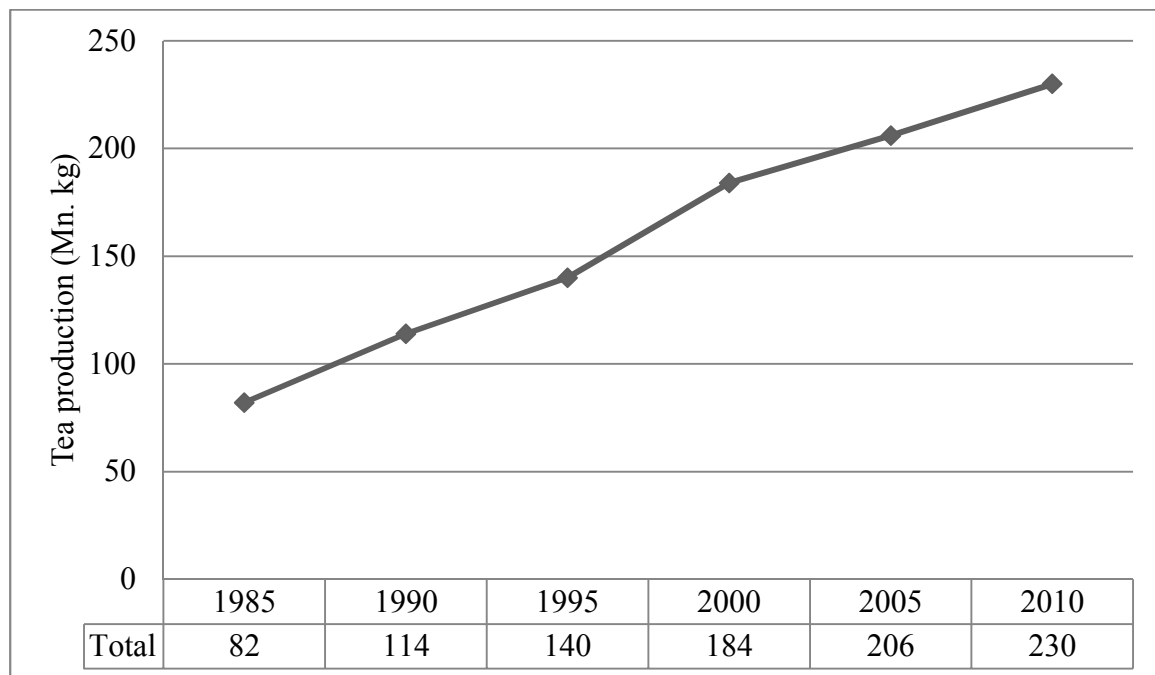
In order to address these negative issues in production and management, the government decided to handover the management of tea plantations to private organizations in 1992 by clustering 286 tea estates into twenty three public limited companies called Regional Plantation Companies (RPCs). After this change, 13 RPCs managed to make profits. However, the short-term management contract did not provide the RPCs an incentive

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<sup>2</sup> The other 4.5% was held under the ownership and management of Tea Research Institute, Upcountry Cooperative Estate Development Board and divisional land reform authorities.

for long-term investment as they did not have a long-term stake in the company. Therefore, in 1995, the government stepped further by fully privatizing the ownership of RPCs by selling its ownership shares to the private sector with an expectation of more efficient operational and marketing performance. However, the ownership of tea lands was held under the government by transferring it to the RPCs on a 50 years renewable lease agreement.

On the other hand, smallholding sector showed a significant improvement as shown in figure 1.1. With this upsurge of tea smallholdings sector in terms of both land extent and contribution to the output, the importance of tea estate sector managed by the RPC's began to sink.



**Figure 1.1** Tea production trend in tea smallholdings

Source: *Tea Smallholdings Development Authority, Sri Lanka*

While, tea industry occupies 5% of the cultivated land area of the country by 2011, it is economically significant as it created around one million direct and indirect employment and accounts for 16 percent of Sri Lankan foreign exchange earnings (see Table 1.1).

**Table 1.1** Contribution of tea to the economy of Sri Lanka - 2011

Economic indicator	Contribution (%)
Cultivated land area	5
Labour force participation	13
Value addition to the Gross Domestic Product (GDP)	2.1
Foreign exchange earnings	16

Source: *Central Bank of Sri Lanka*

Table 1.2 shows the different categories of tea cultivated in Sri Lanka by elevation and the land extent by the year 2011. Tea production by elevation is important for the country for two main reasons. First, these elevations represent climatic divisions where tea is cultivated in the country. Based on the climatic division, the taste and the quality of teas produced are different. Second, the high-grown tea production is contributed by tea estates managed by RPCs, mid-grown areas mainly by RPCs and, low-grown areas are mainly managed by tea smallholders.

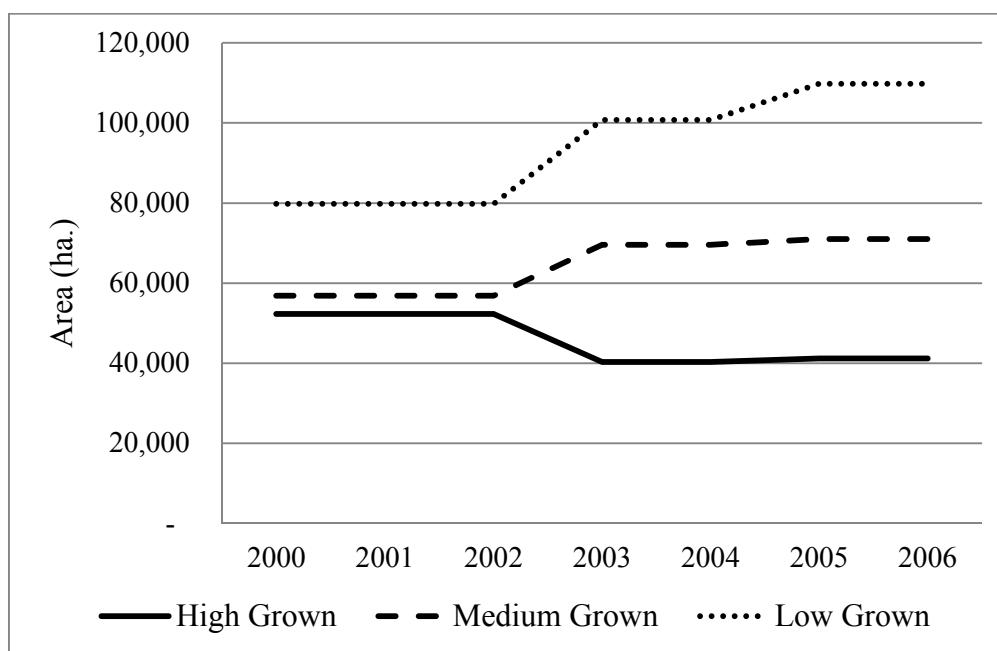
**Table 1.2** Registered tea area by elevation - 2011

Category	Height above sea level (meters)	Regions	Area (ha.)	% of the total extent
High-grown	Above 1,200	Nuwara Eliya, Badulla	41,137	18.5
Medium-grown	600 - 1,200	Kandy, Matale	71,018	32
Low-grown	Up to 600	Ratnapura, Galle, Matara	109,814	49.5

Source: *Statistical Bulletin – 2011, Sri Lanka Tea Board*

Figure 1.2 illustrates the elevation-wise changes in tea land extent from 2000 to 2006. According to this figure, there was a sharp decline in high-grown tea lands between 2002 and 2003. This is mainly due to the abandonment and diversification of unproductive tea lands by RPCs. This land abandonment and diversification occurred mainly due to two reasons. First

is low land productivity and rapidly aging tea bushes have resulted low tea output. The second is lack of workforce due to high absenteeism and out-migration.



**Figure 1.2** Registered tea area by elevation (2000 – 2006)

Note:

1. Figures with (\*) are based on the Census of Agriculture 2002.
2. 2005 extent is estimated from Agriculture Profile – 2003 (TRI) & Census of Small Holdings in Sri Lanka (TSHDA). No updated records for years 2006 – 2011.

On the other hand, medium-grown and low-grown tea lands were increased in the same years with the increased participation of tea smallholders in the mid-grown and low-grown areas of the country (see Table 1.3).

**Table 1.3** Expansion of tea smallholdings

	1980	1994	2005
No. of smallholdings	159,865	206,652	350,982
Tea land extent (Ha)	75,769	82,918	116,492

Source: *Tea Smallholdings Development Authority, Sri Lanka*

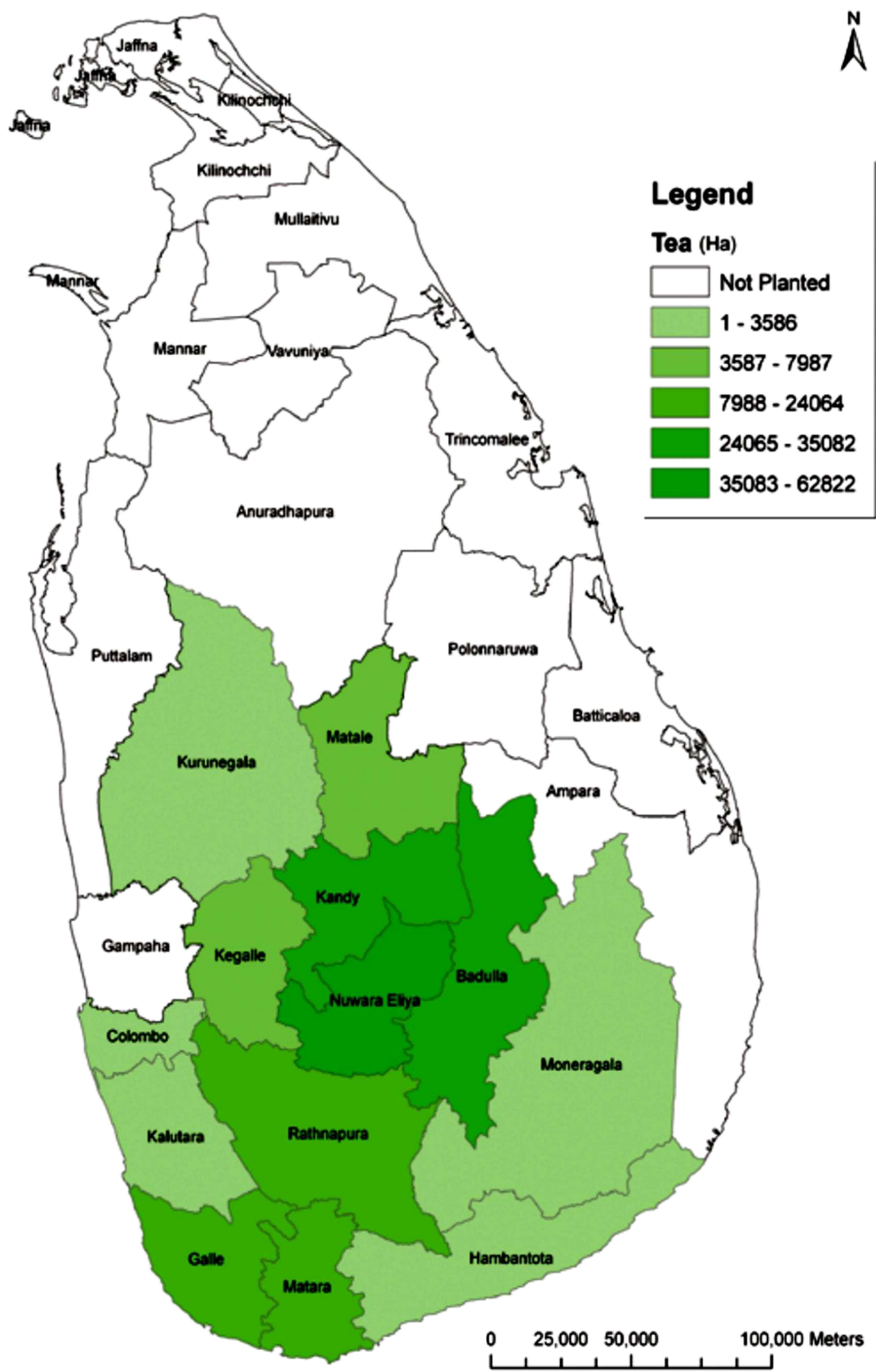


Figure 1.3 Extent of tea plantation by district

Source: Ministry of Plantation Industries, Sri Lanka

### 1.1.2 Performance of tea industry of Sri Lanka

Table 1.4 shows the performance of all players of the tea industry in Sri Lanka in 2011 and 2012. Smallholding sector accounts for about 70% while RPCs account for slightly less than 30%. In addition to these major players, there are state-owned plantations but they accounted for only 1% of the annual tea output. Therefore these two firms were dropped in the analysis of this study.

**Table 1.4** Total tea production of Sri Lanka 2011/2012

	2011		2012	
	Production (Mn.kg)	%	Production (Mn.kg)	%
Smallholdings	229.0	69.92	233.1	71.46
RPCs	94.4	28.82	89.2	27.34
State plantations	3.6	1.10	3.5	1.07
Other	0.5	0.15	0.4	0.12
Total	327.5		326.2	

Source: *Sri Lanka Tea Board*

Note: 'Other' includes *Tea Shakthi Fund, Tea Research Institute, Elkaduwa Plantations, Kalubowitiyana Tea Factories Ltd., and Tea Smallholders Factories Ltd.*

### 1.2 Tea plantation labour

Generally plantations are highly land and labour-intensive, and they require large tracts of cultivable land and large labour force. However, the areas most suited for plantation were sparsely populated and local labour was not easily available. Therefore plantations faced the problem of acute labour shortage from the beginning. They had to depend on migrant labour. Migration was induced by the plantations (Sarkar and Bhowmik, 1998). In the case of tea plantations in Sri Lanka, immigration started in the 19<sup>th</sup> century when the plantations were managed by the British. The immigrants were ethnic Tamil from South India. They have been maintaining their own cultural beliefs and norms since they migrated to Sri Lanka. They are

called ‘resident estate workers’ as they reside in the estate where they work. However, these immigrants remained stateless without citizenship of Sri Lanka for a long period restricting their work and life to the plantations. After a series of debate between the governments of India and Sri Lanka with the mediation of estate workers’ trade unions, these plantation workers were granted the Sri Lankan citizenship in 1988.

According to the theory of Labour Economics, when there is a labour shortage, wage rate increases until the equilibrium is reached. However, as there was a colonial society in Sri Lanka before the independence in 1948, planters were able to fill the labour shortage without any wage hike.<sup>5</sup> This situation contributed to the economic and social exclusion of the plantation labour. Coercion and super-exploitation have always been the characteristics of the plantation economies (Lahiri, 2000). This attribute still remains in the tea plantation sector of Sri Lanka, which leads this sector toward an unwholesome condition.

According to the available statistics, there is a total of 259,149 tea estate labour force and 867,084 resident population in the plantations under the management of RPCs<sup>6</sup>. The estate sector population is specific to the country not only due to their inherent cultural attributes, but also the poor socio-economic conditions such as low income, low education, poor housing condition and poor health and nutrition. These poor conditions clearly illustrate the socio-economic deprivation of the resident population, which in turn creates adverse impacts on their personal well-being as well as productive capacity in their work.

### **1.3 Problem statement**

When the government started privatization by the handover of the management of tea plantations to private organizations in 1992, the main reason of the privatization was the

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<sup>5</sup> This was the situation in cotton plantations in North America, sugar plantations in British Guyana, Fiji and Cuba, rubber plantations in Malaysia and tea plantations in India and Sri Lanka.

<sup>6</sup> Central Bank of Sri Lanka, 2011

inefficiency prevailed under the government ownership. Privatization was expected to increase investment in land development and replanting of tea bushes. However, the performance of this sector did not show significant improvement. Rather than that, the contribution of the tea plantation sector in terms of output declined whilst that of the private/smallholdings sector rose. Many estates owned by RPCs showed poor performance in terms of productivity as shown in Table 1.5. This table mainly indicates the gradual decline in number of workers which would probably affect the future productivity of tea estates managed by RPCs. Even well performed estates faced the threat of labour force decline and thereby a potential future risk as the productivity is partly determined by labour.

**Table 1.5** Land/labour ratio and productivity

Year	Well-performed estates				Poor-performed estates			
	Land Productivity (kg/ha)	Land Extent (ha)	No. of workers	Land/labour ratio	Land Productivity (kg/ha)	Land Extent (ha)	No. of workers	Land/labour ratio
2000	2,254	230.75	685	2.97	1,269	244.88	785	3.21
2001	2,261	234.00	664	2.84	1,255	245.17	757	3.09
2002	2,010	242.25	607	2.51	1,288	228.17	730	3.20
2003	2,145	248.50	549	2.21	1,181	227.33	763	3.36
2004	1,581	248.50	530	2.13	1,242	226.83	727	3.21
2005	1,868	229.00	522	2.28	1,351	225.83	742	3.29
2006	2,036	229.00	567	2.48	998	230.36	714	3.10
2007	2,117	229.00	560	2.45	1,151	235.16	729	3.10
2008	2,228	229.00	546	2.38	1,107	226.74	659	2.91
2009	2,287	229.00	521	2.28	1,189	227.33	645	2.84
2010	2,386	228.00	516	2.26	1,264	227.58	615	2.70
2011	2,281	228.00	489	2.14	1,311	227.58	615	2.70

Source: *Tea Research Institute, Sri Lanka*

Note: “Well-performed” tea estates are identified in terms of productivity measured by harvest of green leaves (kilograms) per hectare of cultivated tea land.

Due to this reason, RPCs's share in Sri Lankan tea output has been declining. This situation adversely affected the competitive position of Sri Lankan tea in the world market. Further, labour-related socio-economic and political problems, which are intrinsic to this sector, also affected its performance destructively. Uncertainty in future labour supply discourages the RPCs in investing in land development and replanting.

It was revealed that the main reasons for low labour productivity and labour shortage are<sup>7</sup>;

1. Out migration of workers to urban areas and overseas
2. Chronic absenteeism
3. Higher attainments in education avoids traditional estate employment
4. General aversion to plantation work due to various socio-economic issues

Due to poor socio-economic conditions of tea estate workers, they are socio-economically deprived compared to other sectors in Sri Lanka. Accordingly, it is timely and important for RPCs to find a sustainable solution, which encourages the estate workers to remain in the estate and to achieve higher performance, and thereby both RPCs and estate workers will be able to achieve their expected targets.

### **1.3.1 Objectives of the study**

The following objectives are to be achieved through empirical field surveys and observations which will be conducted in selected RPCs and its tea estates.

1. To evaluate the effectiveness of RPCs' labour policy and practices related to pay and other employment benefits in;
  - a) addressing the labour productivity problem in the tea plantation sector of Sri Lanka and,
  - b) uplifting socio-economic condition of tea estate workforce

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<sup>7</sup> Tea Research Institute of Sri Lanka

2. To examine the importance of enhancing complex capabilities of estate workers to solve the prevailing labour problems in the tea plantation sector of Sri Lanka  
These complex capabilities include social status and independence these workers can enjoy in their work-life in tea estates.
3. To explain the impact of small-scale contract farming on enhancing capabilities and performance of tea estate workers in Sri Lanka

### **1.3.2 Research propositions**

Based on the literature survey and theoretical explanations related to the problem area, following research propositions were developed which will be converted in to research hypothesis in subsequent chapters.

1. Estate workers' well-being-oriented provisions such as adequate income, good housing conditions, better education and better health and nutrition in labour policies and practices of RPCs will enhance the motivation of the estate workers and thereby positive employer-employee relationship can be developed to form a loyal and committed work environment.
2. RPCs' orientation towards enhancing complex capabilities of estate workers such as social status, recognition and participation will retain them in the estate work and thereby minimize the future risk of investment and profitability.
3. Enhancing the freedom of choice of estate workers by customizing unproductive traditional work norms and by introducing alternative mechanisms will provide the estate workers an opportunity to achieve what they value to be and do.

#### **1.4 Research methods and materials**

Due to the intrinsic attributes of this particular research in the field of social science, it was required to adopt multiple research methods and materials to achieve the objectives. Hence, both the positive and normative approaches were used with related research methods and materials. As the final target of this study is to provide implications to improve the prevailing condition of the tea estate sector in Sri Lanka based on value judgments, normative approach was used. However, to arrive at such judgments, it was required to learn from past experiences by analyzing existing data, and the positive approach was also used appropriately.

In this study the main focus was on the RPCs and their tea estates in the high-grown tea areas located in Nuwara Eliya, Badulla and Ratnapura districts. These three districts were selected for the study due to following reasons.

1. These are the leading tea growing areas of the estate sector which hold the highest tea land extent and output contribution.
2. Tea estate resident workers in these areas consist of Tamil immigrants from South India under the British colony.
3. Socio-economic statistics shows that the people in these areas (Especially, Nuwara Eliya and Badulla) record the worst condition among the estate communities in the country.

Field work of the study was carried out mainly in four phases, all of which were carried out in Sri Lanka. In achieving the third objective of this study, it was required to survey successful alternatives practices for comparison. Therefore, alternative labour deployment model was surveyed in a tea estate in Ratnapura district of Sri Lanka. In addition to these, both published and unpublished printed materials with secondary supportive data were obtained from different sources.

**Table 1.6** Details of field work

Phase	Target audience	Area	Data collection methods	Time span
1	• RPC and estate management	• Sri Lanka - Colombo,	• Questionnaire based structured interviews	09.03.2012 -
	• Tea estate workers	Nuwara Eliya, Badulla	• Questionnaire based unstructured interviews • Direct observation	02.04.2012
2	• Officers of statutory bodies of the tea industry	• Sri Lanka – Colombo	• Unstructured interviews	20.07.2012 –
				28.08.2012
3	• Tea estate workers	• Sri Lanka – Nuwara Eliya, Badulla	• Questionnaire based unstructured interviews	04.11.2013 -
				21.12.2013
4	• Tea estate contract farmers	• Sri Lanka – Ratnapura	• Questionnaire based survey • Direct observation	01.04.2015 -
				30.09.2016

Source: *Author construction*

## 1.5 Structure of the thesis

This thesis is composed of five chapters. The subsequent chapters were structured in the following manner.

- Chapter Two

Based on the initial field work carried out in the tea estate sector of Sri Lanka during March 2012 to April 2012, this chapter provides a deep understanding of the chronic labour problems in this sector and identifies causes and effects, which are conceptualized into a model. Further, labour policy and practices of RPCs related to pay and other employment benefits are explained and evaluated to examine their adequacy in addressing the problems. Opinions of both RPC management and estate workers were used.

- Chapter Three

The prevailing labour problem in the tea estate sector is critically examined based on Amartya Sen's Capability Approach. Enhancing individual capabilities through freedom of choice is identified as the main solution for the labour problem of this sector. Out-migration of estate workers and gender and cultural issues, which obstruct the estate sector performance, are mainly addressed. Finally, the chapter is concluded with implications to customize the existing system in a way to enhance capabilities of estate workers and thereby improving the performance of the tea estate sector of Sri Lanka.

- Chapter Four

The purpose of this chapter is to evaluate the suitability and sustainability of small-scale contract farming as a solution for the prevailing socio-economic and labour problems in the estate sector in Sri Lanka. This evaluation is mainly based on equity and efficiency perspectives. The field work for this analysis was conducted in a selected tea estate where the contract farming is already adopted. Moreover, theoretical models and global practices of small scale contract farming through a survey of existing literature were used as supportive evidence.

- Chapter Five

This is the concluding chapter of this thesis, which consists of a major findings and recommendations and policy implications for practitioners and policy makers. Further, this chapter includes limitations encountered throughout the study, which could have affected the validity and reliability of the study.

## **Chapter Two**

### **SOCIAL DEVELOPMENT AND LABOUR PRODUCTIVITY IN LABOUR MANAGEMENT SYSTEM OF REGIONAL PLANTATION COMPANIES**

#### **2.1 Introduction**

Tea plantation sector of Sri Lanka has been in stakeholder dialogues in the recent past due to its economic and social importance. Economically, this sector makes a significant contribution to Sri Lankan economy in terms of employment generation and foreign exchange earnings. This sector is also socially important as these resident workers have been geographically and socially isolated from the other sectors of the economy for over a hundred and fifty years (Jayawardena, 1984). They emigrated from South India in the late nineteenth century and have been categorized as a separate social entity known as ‘estate population’ characterized by a unique set of attributes based on their culture and socio-economic conditions. According to Lahiri (2000), migrant nature of the labour and social divisions resulted in the economic and social exclusion of the plantation labour.

The government of Sri Lanka privatized the management of state owned plantations in 1992 by clustering the estates into twenty-three Regional Plantation Companies (RPCs) in order to overcome the prevailing inefficiencies in production and labour management. Although the RPCs were fully privatized in 1995, the labour problem of the sector remained unsolved (Wickramasinghe and Cameron, 2003). The labour problem has been mainly due to the poor condition related to the social well-being of resident estate workers. Apparently they were not sufficiently addressed in the labour policies and practices of RPCs. Wickramasinghe and Cameron (2003) argued that the profitability of tea plantations can be raised by improved labour-productivity through appropriate management policies and practices. However, the management of RPCs repeatedly stressed the high labour cost and low labour productivity in

their tea plantations and did nothing to solve the problems, which seems to be destructive to the future of the Sri Lankan tea industry. This situation indicates the need for immediate compromise of RPCs to uplift the social well-being of tea estate workers and to improve their performance. Low labour productivity is an important determinant of poverty, and therefore the solution also has the potential to lift a large number of individuals out of poverty (Irz et al, 2001).

Since the early 1990s the contribution of the tea smallholdings sector in the national tea output has been increasing while that of the plantation sector has been fluctuating downward. Comparative performance indicators of each sector (see Table 2.1) clearly show that the productivity of the plantation sector is worse than that of the smallholdings sector. According to Table 2.1, there is a variation of the performance of the tea industry from 2004 to 2012. This data undoubtedly indicate the poor performance of RPCs in the past few years with 30 per cent average contribution to the total made tea production.

**Table 2.1** Tea Industry Performance (2004 – 2012)

	2004	2005	2006	2007	2008	2009	2010	2011	2012
RPC production	110 32%	117 33%	103 30%	104 31%	108 31%	93 29%	107 29%	104 29%	99 28%
RPCs land extent	91 50%	95 45%	98 45%	91 43%	92 43%	89 42%	84 41%	85 41%	82 40%
Land productivity of RPCs	1,093	1,112	960	1,037	1,067	956	1,152	1,105	1,099
Smallholders' production	224 66%	227 65%	234 68%	227 68%	237 67%	223 69%	254 69%	252 70%	258 71%
Smallholdings land extent	92 50%	116 55%	118 55%	119 57%	120 57%	120 58%	121 59%	121 59%	121 60%
Land productivity of smallholdings	2,215	1,767	1,800	1,721	1,793	1,682	1,910	1,898	1,936

Source: *Statistical Information on Plantation Crops – 2012, Ministry of Plantation Industries, Sri Lanka.*

Notes:

- 1) *Remaining contribution to the output is by state-owned plantations which is 1% - 2%*
- 2) *Measurements: Made tea production - thousand metric tons; land extent – hectares; land productivity – made tea production (kg) per hectare*

There were several reasons for the poor performance in production of RPCs in this period such as adverse weather, though it caused only minor damages. The main reasons were the low land and labour productivity, which are highly considerable in output determination. The reason for the low land productivity was that RPCs were reluctant to invest on replanting. Replanting is highly important as output potential of aged tea bushes is considerably low. On the other hand, there were two reasons for low labour productivity. First was the prevailing labour cost and second was out-migration of estate workers, which caused low labour participation. Hence, the present and future labour productivity issue of RPCs is of foremost importance. Unless RPCs or state authorities take an immediate and effective action for this problem, there will be an economic loss for Sri Lanka, since tea industry accounts for 16 per cent of the foreign exchange earnings.

Moreover, the collapse of the tea plantation sector will adversely affect the estate population who depends on the income earned from the estate. Table 2.2 shows that the living conditions of the estate population were below that of the rural population. Further, the estate population achieved only lower level of education, health and nutrition, and housing, which in turn affect the workers' productivity adversely.

**Table 2.2** Selected socio-economic indicators of Sri Lanka, 2012/2013

	Sri Lanka	Estate	Rural <sup>2</sup>	Urban
Population (Mn)	19.9	0.9	15.4	3.6
Household size(Persons)	3.9	4.3	3.8	4.0
No. of income receivers per household	1.8	2.1	1.7	1.8
Mean household income / month (USD) <sup>1</sup>	358.4	236.1	324.0	545.9
Education (No schooling, %)	3.7	12.2	3.5	2.2
Educational level of household head (less than Grade 5, %)	23.2	47.8	24.1	12.9
Housing (Floor area less than 250 sq. ft., %)	11.1	33.0	10.7	7.8
Gini coefficient	0.48	0.39	0.45	0.51
Poverty (Head Count Index)	6.7%	10.9%	7.6%	2.1%

Source: *Household Income and Expenditure Survey – 2012/2013, Department of Census and Statistics, Sri Lanka.*

Notes: 1) *Average exchange rate for 2012, USD 1 = LKR 128*

2) *“Rural” excludes “Estate”*

Estate sector is the worst in terms of all socio-economic indicators in Table 2.2 except for income inequality which is represented by the Gini coefficient<sup>8</sup>. Equal income distribution does not necessarily indicate good living standards in other aspects of life. Economic development and improvement of living conditions often accompany inequalizaion of income (Ikemoto, 1992). In spite of the fact that more persons are working as income receivers (2.1 per household) than other sectors, their household income is still lower while larger household size increases the living cost, which becomes an obstacle for estate population to access quality education, health and nutrition, and housing facilities. For example, 47.8% of heads of estate households have less than five years of school education and 12.2% of the

<sup>8</sup> Gini coefficient is used to indicate income inequality within a social group. It takes a value between 0 and 1. When the value gets close to 0, it indicates relatively an equal distribution of income within the society. When the value gets close to 1, it indicates relatively unequal income distribution.

estate population had 'no education'. Low quality housing with inadequate space is another indicator of worse living condition of the estate community, resulting in health problems and social and psychological unrest, which also affect level of participation and performance adversely.

In this scenario, the estate sector is required a solution which is capable of uplifting the socio-economic condition of estate sector, considerably. Therefore, this sector needs a socio-economic transformation which is quite unrealistic within the existing labour management system. Accordingly, the objective of this study is to show that small-scale contract farming (CF) system can be a sustainable solution for promoting social development and improving labour productivity in Sri Lankan tea plantation sector. In achieving this objective, we firstly identify the problems of the existing management system of the tea plantation sector based on empirical investigation. The findings of this investigation provided us with the justification of adopting CF as a solution.

This chapter begins with literature review to compare the recent performance of RPCs with that of the smallholding sector and the prevailing socio-economic condition of resident estate workers of RPCs with those of other sectors. Section 2.3 explains the methods used in this study. Section 2.4 is the findings of the study and a discussion to explain theoretically why the contract farming (CF) system can be a viable and sustainable solution to the problems in the tea plantation sector.

## **2.2 Literature review**

According to ILO (2002), labour management in tea plantations are crucial in determining output per worker per day, cost of production, profitability, quality of tea, and volume of production. Sharpe (2004) argued that innovation and investment in new technology alone do not fully explain the difference in the level of productivity and that social

factors such as education, health and social divergence are more important in determining productivity. The ability of getting higher education and better health and overcoming social divergence would probably motivate workers to work and thus improve their productive capacity (Khan et. al., 1991; Gopaldas and Gujral, 2002). Therefore, the firms' investment in developing workers' skills and welfare is essential as it enhances their abilities and satisfaction to make them more productive (Koch and McGrath, 1996; Patterson et al., 2004).

During the last three decades, Sri Lankan tea sector has changed from vertically integrated plantation system to the one where independent processors purchased green leaf tea from independent small growers to make black tea. The increasing entry of small farmers in tea sector can be explained by changes in transaction, production and management costs. This has enabled plantations to buy green leaves harvest from small farmers at a low transaction cost, thereby reducing their green leaves production cost and other administrative expenses. The entry of small farmers has motivated the large scale planters to adopt out-grower system to minimize their involvement in growing activities (Herath and Weersink, 2009).

Contract farming is one of the most debated institutional arrangement of out-grower systems for production and marketing of agricultural commodities in developing countries (Oya, 2012). Contract farming refers here to a system for the processing firms to purchase the harvests of individual farmers where the terms of purchase are pre-arranged by contracts. The exact nature of these terms varies considerably from case to case (Glover, 1984). In this system, local farmers supply the harvest while the firms retain responsibility for technical assistance and marketing. According to FAO (2001), the intensity of the contractual arrangement varies according to the depth and complexity of the provisions in three areas;

- (i) Market provision (grower and buyer agree on terms and conditions for the future sale and purchase of the harvest),

- (ii) Resource provision (in conjunction with the marketing arrangements, the buyer agrees to supply farmers with selected inputs, including on occasional land preparation and technical advice) and ,
- (iii) Production management specifications (grower agrees to follow the recommended production methods, input requirements, and cultivating and harvesting specifications).

Contract farming has been a component of most successful income-generating projects for smallholders (Glover, 1987; Kirsten and Sartorius, 2002; Singh, 2002; Barrett et al., 2012; Bellemare, 2012). Based on their study on contract farming in Senegal, Warning and Key (2002) concluded that this system significantly increases the incomes of contract farmers. They found that the higher income not only raised the standard of living of growers but also created positive effects for employment, infrastructure, and economic growth in the region. Miyata et al. (2009) concluded in their study on China that, three quarters of contract farmers perceived increase in their income after they began contract farming. Glover (1984) reported a successful case in Kenya that small-scale tea growers achieved incomes higher than national average by contract farming. Morrison et al. (2006) identified in their study on contract farming in Malaysia that the productivity of the contract farmers, on average, is improving each year. Moreover, Glover and Kusterer (1990) find that contract farming is likely to prevent social differentiation rather than to promote it. Importantly, it can contribute to the empowerment of smallholders and collective action (Baumann, 2000). However, it must be mentioned that smallholders does not necessarily perceive that the contract is fair. It merely implies that the smallholders expect to be better off with the contract (Barrett et al., 2012).

### 2.3 Methods

To achieve the objective of the chapter, primary data were collected through interviews and observation in the fieldwork carried out in six RPCs and ten selected tea estates from high-grown tea areas in Nuwara Eliya and Badulla districts during March - April and July - August in 2012. Key interviews were conducted with managers at different levels of the RPC management hierarchy, which included two General Managers, four Human Resource Managers, two Financial Managers and five estate managers. Supplementary interviews were conducted with a stratified random sample of 105 tea estate workers (see Table 2.3).

**Table 2.3** Structure of the sample of estate workers

	Married	Unmarried	Total
Male	21	35	56
Female	27	22	49
Total	48	57	105

The rationales for the selection of strata of estate workers are a) the male dominant culture in the estate community, b) female workers as the major determinant of labour productivity, and c) unmarried estate youth population as the source of future labour supply and productivity in tea plantations.

Intending to secure the value of the study, interview responses and observational findings of the fieldwork were discussed interpretatively. Managers' and workers' responses were embedded in the findings. The latter stage of the discussion focused on linking a conceptual solution to the problems identified in the empirical study.

### 2.4 Findings and discussion

The level of motivation, skills, knowledge, training and health are the main contributory factors in determining the level of efficiency of the workforce. Therefore, it is firmly believed that labour policies and practices of organizations do matter and are important

in improving labour productivity of those organizations (Dishanka and Amaratunge, 2011; Koch and McGrath, 1996). Moreover, these policies and practices should be designed, focusing on the organizational objectives such as employee satisfaction and motivation, cost efficiency and profitability.

Accordingly, this section reveals the major findings of this study related to the level of social development of tea estate workers and, responsive labour practices of RPCs in addressing such issues in order to improve the living conditions and labour productivity of the tea plantation sector in Sri Lanka.

#### ***2.4.1 Low level of income of tea estate workers has limited their access to a wider range of economic choices which in turn adversely impacts on workers' performance.***

Since 1996, changes to the wage structure of tea estate workers in Sri Lanka are determined by a CA which is revised in every two years through negotiations between trade unions of estate workers and Employers' Federation of Ceylon (EFC) which represents RPCs. The current wage income of tea estate workers from estate employment is not sufficient for them to achieve a higher consumption level which enhances their production possibility through an improved level of living. However, the management of RPCs still believes that the collective agreement (CA) to revise (generally, increase) wages in every two years is a burden for them as such increases in the past have not been reflected in workers performance. RPCs and their representatives repeatedly stressed that there is no further requirement of revising the wages introduced in 2009 since workers gain LKR 10,000 to LKR 12,000 per month and the poverty level of the estate sector had declined to the national average. Further, they claimed that there is a negative productivity impact from the new wage revision as the wage-productivity link had been removed in the new scheme. Nevertheless, estate workers' trade unions demanded a wage revision on the grounds of rising cost of living and RPCs had to accept it due to the strong bargaining power of estate workers' unions with relatively high

political affiliations. Although, the minimum wage was revised, seemingly there is no considerable improvement in estate workers' living conditions and the level of poverty. Devereux (2005) has emphasized that the minimum wages should have poverty-reducing effects among a highly vulnerable group of workers and it should be with limited negative consequences in the form of dis-employment or displacement of retrenched workers into the informal sector.

#### ***2.4.2 Poor human development indicators of the tea estate community have caused a negative impact on their productivity.***

High human development factors such as quality education and training, proper health and nutrition, safety and security, and quality housing, are considered to be the elements of a high living condition. However, socio-economic statistics on estate sector and empirical findings of the study evidence that the prevailing living conditions of the tea estate community are not up to standard. Low quality houses with poor sanitary facilities and insufficient space have created adverse health effects on estate workers. Low income level of workers prevents them getting the daily required nutritional intake. Although, the Plantation Human Development Trust (PHDT - the RPCs body for estate workers' human development) has initiated and implemented various programmes to satisfy these human development requirements, the success rate is very low. Especially, PHDT has introduced new model houses for estate workers which can be acquired on monthly installment basis. But, the estate workers response rate is around 12 per cent and they stressed that their income is not sufficient for them to meet these monthly installments.

#### ***2.4.3 Future labour supply of tea plantations is at risk due to low worker income and low recognition of the job.***

Almost all the activities up to the harvesting such as land preparation, holing,

planting, weeding, pruning in the tea production are done manually. In the last few decades, labour resource in estates was in abundance for all those activities. However, the younger generations now in tea estate worker families are very reluctant to follow their predecessors. The two main identified reasons for this are; existing wages are not sufficient for them to enjoy a life similar to their counterparts in other sectors and the other is, the poor job recognition given to the estate workers by society. As they realize that more income opportunities and better livelihoods are available in urban areas and overseas, the migration occurs. Hence, unless the RPCs refine their existing practices and, tea growing and processing systems in order to give the workers an opportunity to earn a better income with a proper recognition; probably the future of tea plantations would be worse than the present situation.

#### ***2.4.4 Traditional work norms in tea estates have created inefficiency in utilization of labour resource.***

RPCs have been unable to customize traditional work norms for male and female workers and continue with what evolved from the British colonial period. Out of the total estate workforce in the Sri Lankan tea plantation sector, 52.4 per cent are female workers and 95 per cent of whom provide labour as tea pluckers. Since, the processing productivity in factories mainly depends on the plucking productivity (plucking productivity mainly covers the quantity of quality green leaves harvested per work day); female workers role is the core determinant of labour productivity. Female workers provide their labour throughout the working day whilst male workers engage in work only in the morning session. Although, male workers provide less contribution, both categories are paid equally. This proves that RPCs continue to practice traditional work norms due to several uncontrollable endogenous factors which lead to inefficient labour utilization. Philips (2003) stressed that women's workload and working hours have increased in recent years, due to the profit-maximizing

goals of RPCs. Apart from the full day work in tea estates, female workers hold the burden of household chores as a requirement of the male dominant socio-cultural system of the immigrant Tamil estate community. Samarasinghe (1993) explains this as estate women's double burden. This practice adversely affects the major labour productivity component (plucking productivity) and is inevitably a root cause for the adverse total factor productivity situation in tea plantations. Further, this traditional work norm is apparently against the United Nations' Millennium Development Goal of promoting gender equity and empowering women. Consequently, RPCs have been unsuccessful in maintaining equity in the process of manpower planning due to their inability to transform the embedded socio-cultural practices within the estate community.

#### ***2.4.5 RPCs responsibility towards stockholders hinders the worker orientation in its labour policy.***

With the privatization of state owned plantations, stockholders' profit maximization has become the prime responsibility of the RPC management. Therefore, any management decision related to workers' welfare has to be taken after considering its impact on the profitability of the firm. Although the RPC management admits that the prevailing socio-economic conditions of estate workers are well below the social norms, they firmly express their inability to address those issues on profit grounds as they do not have the bargaining power to influence the price mechanism in the tea market. Further, these RPCs do not solely depend on producing and marketing tea. In addition to that they engage in some other agricultural crops such as rubber and oil palm. Therefore, the management is focusing on the profitability of those crops in order to settle the loss from tea as they are responsible for stockholders' returns. But, this practice necessarily does not solve the labour problem in the tea estate sector though it provides a solution to the RPC profitability and stockholders interest problems.

***2.4.6 Absence of RPC top management in estate level labour related issues proves ineffectiveness in labour-management relations and nature of high power distance in the organizational culture.***

Twenty RPCs which are in operation are managing around 82,000 hectares of tea land and this extent has been grouped into 286 estates. Each estate that belongs to an RPC is headed by an estate manager who is in charge of every operational aspect of that estate. The estate manager is responsible and accountable to the top management for production and labour related functions. The estate manager is usually supported by an assistant manager and an office staff. According to the RPC top management, the smooth functioning of the estate operations largely depends on the interpersonal skills of the estate manager. The close relationship maintained by the estate manager with estate workers creates a conducive operational atmosphere and the level of rigor of the manager determines the labour problems and disputes. Estate workers also hold the same belief and state that some estate managers regularly look after their personal matters when there is a crisis situation. Hence, lack of top management intervention in labour-management relations at estate level proves the power distance maintained by top managers and results in creating a negative impression in workers' attitudes. Consequently, this has enlarged the span of control of the estate manager and it has made his job in labor management rather difficult and distasteful.

***2.4.7 Informal labour contracts solution with workers at estate level to utilize the idle time of male workers is an effective practice of improving labour productivity.***

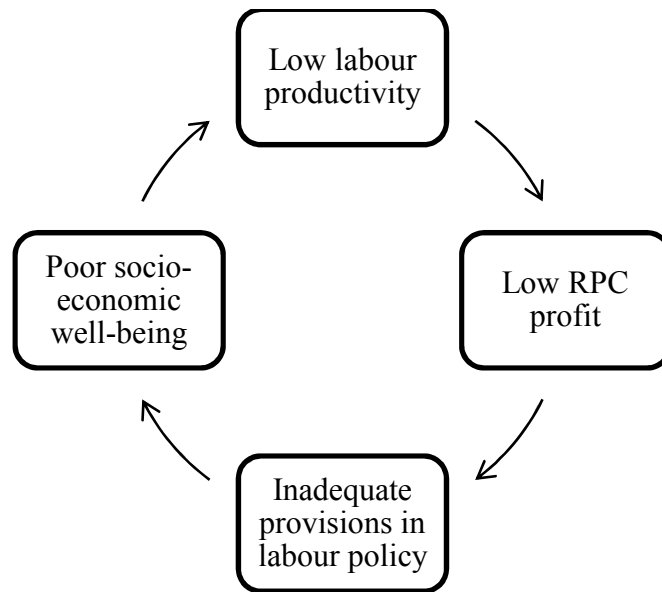
This seems to be an effective practice maintained by RPCs since it motivates the pluckers to earn an additional income and in turn improves productivity. Further, this practice allocates a responsibility to the contracted and he/ she has to satisfy the contractual requirement by employing a set of workers. Through this process, the idle labour of male workers can successfully be brought back into the production process. Further, this

mechanism is practiced as a labour deployment model in tea estates where labour supply does not meet the demand requirement. However, this practice appears to be entrepreneurial in nature and successful in many aspects as it inevitably promotes empowerment and participation by underprivileged tea estate workers.

## **2.5 Towards a sustainable solution**

According to above findings, a vicious cycle (see Figure 2.1) has been formed with direct causal relationships between RPC labour policy and practices, socio-economic well-being of estate workers, labour productivity and company profit. This particular vicious cycle explicates that lack of tea estate workers' social development oriented provisions in RPC labour policy and practices has resulted in low labour productivity and as a consequence RPCs are experiencing low profits. In turn, this low profitability of RPCs has obstructed them from providing more benefits for the social development of tea estate workers.

The first three findings of this study explained the problem prevailing in tea plantations and evidencing that the estate workers are considerably adversely affected regarding the socio-economic aspect of life. More precisely, the living condition problem has been caused by low income and the social status problem. Those findings imply that these labour problems affect not only current productivity but also the output and productivity of the tea plantation sector in the foreseeable future. The second three findings discussed the practices of RPCs that inevitably obstruct the improvements in workforce conditions.

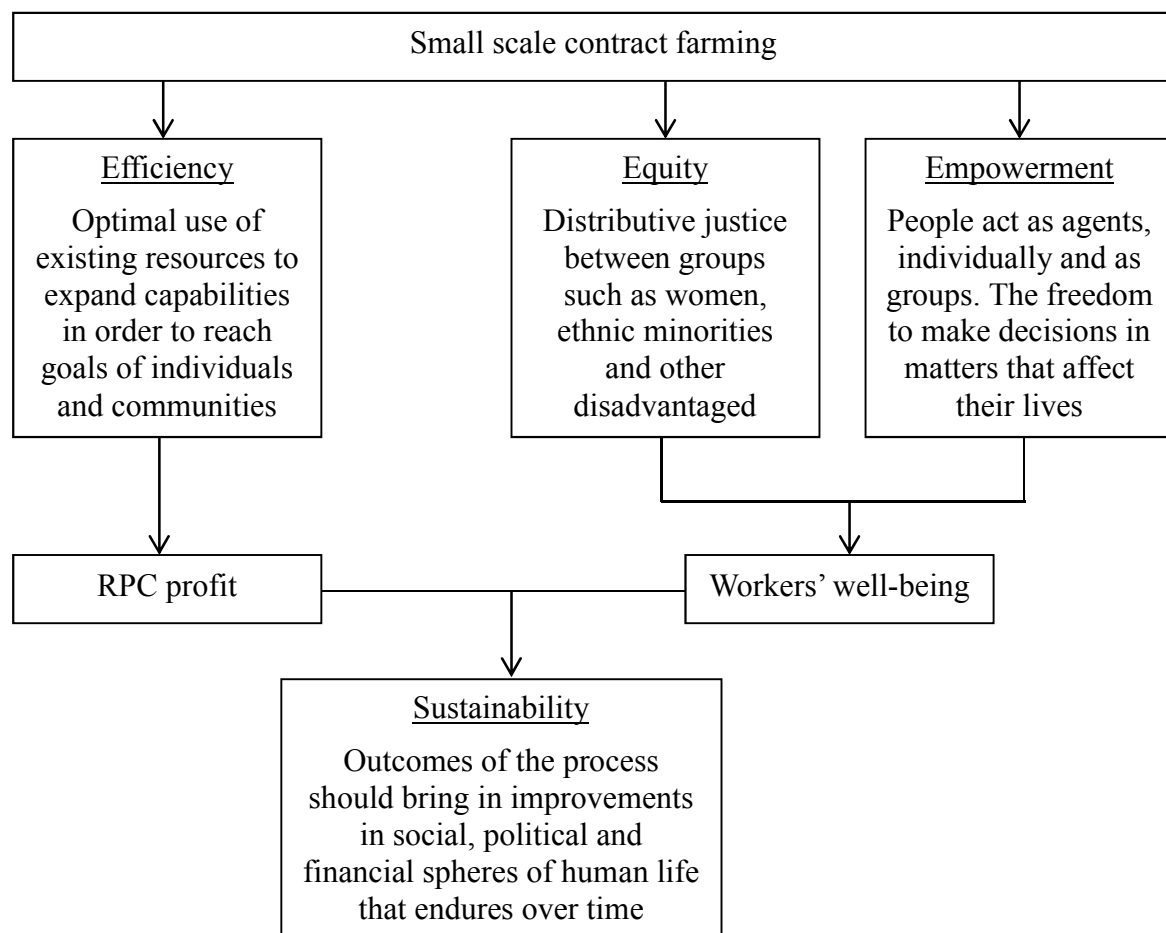


**Figure 2.1** Vicious cycle of labour productivity

The last finding related to the remedial action taken by RPCs as a solution to the labour productivity problem. Although, this scheme of informal labour contracts has been successful to a greater extent as far as the cost reduction objective of RPCs is concerned, the overall effectiveness is quite low since this practice so far has been unable to address the fundamental problem of human and social development of estate workers. However, this practice has provided a positive indication for Sri Lankan tea estate sector and its social development. Therefore, based on the above findings, the latter part of this discussion is centered on the suitability and applicability of formal contract farming system to the tea plantation sector of Sri Lanka. The major motive of evaluating this practice as a viable solution to the labour problem of this sector is twofold. First, the tea estate and its workers' community have attributes which are significant for the adoption of contract farming practice. Second, formal contract farming practice is characterized with many positive socio-economic outcomes which are absent (or omitted) in the present practice.

In developing a solution for the socio-economic and performance problems in the estate sector, it is very important to take the human development aspect into consideration.

This section of the study focuses on the process aspect of improving the socio-economic condition and discusses the mechanism through which well-being of estate workers can be improved for better performance in their personal and work life. The evaluation of small scale contract farming for tea estate sector is done on the four key principles: equity, empowerment, efficiency and sustainability advocated by Mahbub Ul Haq (as cited by Alkire and Deneulin in 2009) which should be satisfied in any process of human development (see Figure 2.2). He claims that the purpose of development is to enlarge all human choices, not just income. Hence, development must put people at the centre of its concerns.



**Figure 2.2** Conceptual model of the solution

## **2.6 Small-scale contract farming for tea estate community in Sri Lanka**

In the informal practice of contract farming adopted by RPCs (as detailed in the findings), few tea bushes are assigned to one person to maintain and provide the harvest at a verbally agreed rate. In order to complete the assignment, this particular worker employs his family labour or other co-workers in this practice. However, this practice is applied by RPCs only in high crop periods and the main purpose of this practice is to reduce the cost of labour. As a positive attribute of this practice, it provides an additional income for estate workers and brings the underutilized male labour back into the production process. This has reduce worker absenteeism considerably which was out of the control of estate management. Hence, improvement in the productivity level of estate workers is an apparent positive marginal effect of contract farming.

In order to improve productivity more hard qualities of labour such as flexibility, physical and mental capacity, and willingness to learn new technological skills are more important, and comparative advantage of younger workers lies primarily in their hard qualities (Van Dalen et al. 2010). Unfortunately, the migration of young productive labour from tea estates in Sri Lanka has resulted in low labour productivity due to high dependence on aged population in estate work. Mostly, younger generation is reluctant to become merely farmers on someone else's land but, prefers to become independent farmers (White, 2012). However, Ikemoto (1992) explained that the migrants can be attracted back to their origins through pulling factors, such as the recovery of agriculture. The entrepreneurial nature of contract farming system appears to be an effective mechanism which satisfies the expectations of youth and retains them within the farming community. Therefore, CF system probably could be a back-to-the-land scheme for the already migrated youth. Given these characteristics, the CF system has the potential to resolve the risk of future labour supply shortage in the plantation sector as it retains the prospective youth to a greater extent.

Among the five types of contract farming systems (Centralized model, Nucleus Estate model, Multipartite model, Informal model, and Intermediary model), the Nucleus estate model is a specifically designed model which is highly suitable for tea plantations in Sri Lanka due to its intrinsic attributes. In the nucleus estate model the plant owner has an estate plantation, which is usually close to the processing plant or factory. Farmers in the surrounding area of the estate produce crops on estate land and sell their crops to the estate for further processing. Beneficial aspects of CF for farmers are that the estate is providing inputs, training, transport and social and medical benefits (FAO, 2001). Accordingly, the estate management can easily assign a certain extent from the tea land to each estate household living in the same estate based on their resourcefulness. They can manage it independently as their own business based on the provisions of the pre-arranged contract. The workers, who are not willing to be contract farmers under this system, can either provide their labour to contract farmers or remain with the existing employment under the RPC management.

Many of the major labour disputes occurring in tea plantations in Sri Lanka in the recent past have been grounded in wage related issues. However, in the recent past adverse after effects resulted due to the lack of cooperation between the two parties in the collective agreement. High bargaining power of one party dominated the conditions of the agreement and hence, the other party got adversely affected as a result. Therefore, an adequate involvement of the government through well-defined policies is highly important to ensure the proper functioning of any agreement between employees and private sector. Especially, as small-scale estate farmers are involved in this contract farming system, public policy should support the establishment and maintenance of this system (Miyata et al, 2009). It will work as a shield which protects contract farmers from ill-effects of contracting (Singh, 2002). Specially, the government should attend to this matter since; the estate community in Sri

Lanka is socially and economically deprived. Absence of such policies might result in transferring the total risk of contract farming system to small-scale farmers and manipulating the system solely as a tool for reducing the cost of production of the private firm. Porter and Howard (1997) in their study of CF in Africa have specifically emphasized the power relationship between big business and small growers (including women) and the need to strengthen the position of small growers and labourers. Moreover, these contracts should stimulate women's participation to empower women. It is a common practice in contract farming that men sign the contracts, but rely on the labour of their female partners in fulfilling contract obligations (Glover and Kusterer, 1990; Raynolds, 2002). To overcome this situation and maintain gender equity, it is apt to sign the contract with both men and women. Probably, this would be an important condition as the estate community in Sri Lanka is characterized by male domination with lack of female empowerment and participation.

## **2.7 Conclusion**

The overall effort of this paper was to explain the causes behind the low labour productivity in the tea plantation sector of Sri Lanka and to evaluate the appropriateness of small-scale contract farming in improving such conditions. In this process, we clearly identified that the main cause behind this low labour productivity is lower level of social development of the tea estate community which apparently impacted on their abilities and, eventually created negative effects on their productivity. Conversely, RPCs claim that low labour productivity has resulted in considerable financial constraints. This proves the bi-directional causality between social development and labour productivity has created a vicious cycle. In order to address this situation, the estate workers should be motivated for higher performance by satisfying their physical human requirements and, provided social status and recognition. It is evident that the existing labour management system essentially does not have an endogenous variable which is capable of counteracting this cyclical effect.

Absence of such has necessitated the incorporation of an external intervention.

Therefore, in this study we discuss the importance of converting tea estate workers and their families into tea small-farmers and adopting small-scale farming practice within the plantation sector through the contract farming system. The literature and responses from estate workers suggests it will be a successful and sustainable solution to the socio-economic problems faced by the estate community. Further, it reduces the burden of labour and production management of RPCs to a great extent as contract farmers employ their own labour. Importantly, with the introduction of this new system, estate workers will have the freedom of choice either to get engaged in contract farming or to remain in regular RPC employment.

## Chapter Three

# SOCIAL CAPABILITY IN LABOUR MANAGEMENT SYSTEM OF REGIONAL PLANTATION COMPANIES

### 3.1 Introduction

The concept of human development has emerged in 1990 as an alternative development paradigm which embraced emphasis on advancing the richness of human life rather than the richness of the economy which is more materialistic (Edewor, 2014). Although Sri Lanka has reported significant economic improvements in the recent past as a developing nation, the regional human development aspect has not been satisfactory as far as the livelihood of the tea estate community is concerned. Many scholars and stakeholders had repeatedly addressed the poor basic capabilities (low income, poor health, insufficient nutrition, low quality housing) and poor work performance (low labour productivity) of this communal workforce. However, none of them were able to discuss their poor complex capabilities (poor social condition characterized with lower social status and independence) and its impact on their work performance. In the last couple of decades stakeholder activists such as employers and their representatives, and the national government have launched many development oriented programmes to provide them with basic capabilities. However, the success of those attempts had not been adequately reflected in their work performance as the focus of those programmes were community-wide and, some of those have been partial in which the target group has not been directly benefited (Dishanka and Ikemoto, 2013). The main reason for this failure is that, the activists have been unable to identify and address the tea estate workers' complex capabilities and freedom to achieve what they really value. According to Sen (2003), this has done injustice to this community as valued capabilities vary from basic freedoms such as being free from hunger and undernourishment to complex

capabilities such as achieving self-respect and social participation. This unwholesome scenario has apparently headed the tea plantation sector of Sri Lanka toward a risky condition necessitating a sustainable solution to assure steadiness in future labour supply and performance.

In this paper we firmly stress the importance of a significant improvement in the social condition of the tea estate community which enables them to enjoy freedom as a core and pre-requisite of their human development, which eventually would reflect in enhanced work performance and encouraged participation in estate workforce. According to the major findings of our previous study (Dishanka and Ikemoto, 2013), the labour problem of the tea estate community in Sri Lanka can be synthesized into a capability problem due to lack of freedom. Apparently, absence of independence in existing employment practices and culture-bound traditions have become social barriers (social conversion factors), while gender, age, education and income variations are being personal factors (personal conversion factors) in achieving valued functionings of this community, which has eventually resulted in poor work performance, and low labourforce participation due to migration.

Accordingly, we could categorize the following problem areas in our study.

- (a) Although recent improvement in estate education and income has given better opportunities for new generations, such development has not considerably reflected in their social lives in estates. Therefore, labour out-migration has become very widespread especially among the youth in the labour force. Thus, future labour supply of the tea estate sector is at high risk due to the lack of participation of the younger generation in the labour force.
- (b) Estate community in Sri Lanka has a diverse set of cultural attributes which have evolved from generations. Major component of the total factor productivity of the tea estates is handled by women workers as tea pluckers in the estate. As far as tea

estate sector in Sri Lanka is concerned, women are responsible for all kind of household activities in addition to their full-day work in the tea estate whilst the male workers are working half a day. This evidences the gender discrimination in tea estate work norms which are determined and controlled by their traditional culture.

- (c) In the process of human development, it is essential for an individual to be his/her agent in making decisions related to his/her well-being. Individuals should be identified as independent agents, who have their own goals, make their own choices, and not mere receptacles for resource-inputs and satisfaction (Gapser, 2007). Valued freedom of individuals should not be severely violated as a result of this collective effort. In this perspective, the opportunity and process freedom of this community is thus questionable if their socio-economic decisions are exogenously controlled.

Hence, we firmly believe that, providing this community with required and expected freedoms in achieving complex capabilities would eventually minimize the prevailing labour problem. In order to achieve this objective we have concentrated our survey findings on the theoretical foundations and explanations of Amartya Sen's freedom-based capability approach. We have identified freedom as the major requisite of justice and the freedom is operationalized using appropriate indicators which were questioned during our survey. The succeeding sections of this paper elaborate the related literature survey conducted, followed by the research methods adopted. Subsequent section provides an analysis of survey data and qualitative findings upon which the discussion and the conclusion were grounded.

## **3.2 Literature survey**

### ***3.2.1 Capabilities and human development***

Perhaps the most important thematic deficiency of classical development economics is its concentration on national product, aggregate income and expenditure, national saving and investment rather than on ‘entitlements’ of people and the ‘capabilities’ that these entitlements generate (Sen, 1983). After the first Human Development Report (HDR) of the United Nations Development Programme (UNDP) in 1990, there was a considerable shift in defining ‘development’ from economy aspect to people aspect (more precisely, the human development aspect). With this paradigm shift, the assessment of development changed from economic indicators (such as growth rate, per capita income, trade surplus, unemployment rate, etc.) to what people can do and be in their lives. The human development paradigm is concerned both with building up human capabilities through investment in people and with using those human capabilities fully through an enabling framework for growth and employment (as cited by Fukuda-Parr and Shiva Kuma in 2003). According to Sen’s capability approach, the ability and freedom of a person to achieve what he/she values, determines that person’s development as it reveals his/her socio-economic well-being. However, gaining the freedom to do the things that we have reason to value is rarely something we can accomplish as individuals (Evans, 2002). Seen from this viewpoint, development is about removing the obstacles such as illiteracy, ill health, lack of access to resources, or lack of civil and political freedoms to what a person can do in life (Fukuda-Parr, 2003).

The two important aspects associated with human capabilities are process and opportunity aspects of freedom. Violation of process aspect is being forced to do something even though it is an action an individual would have freely chosen also. Violation of substantive opportunity freedom is forcing an individual to do what an individual does not

like to do when that person has any plausible alternative (Sen, 2005). It is important to recognize that, both processes and opportunities can figure powerfully in the content of human rights. Although, human rights and human capabilities share the same motivation seemingly, these two are distinctive in socio-political spheres. Therefore, it is required to formulate the norms as a set of capabilities for fully human functioning while maintaining the cross-cultural diversity (Nussbaum, 1999).

### ***3.2.2 Culture, gender and capabilities***

In real life, ideas of the good life are profoundly influenced by family, tribal, religion, community or cultural ties and background (Robeyns, 2005). Culture is community based phenomenon which specifies a set of traditions and norms to shape the behaviour of individuals in that community group. Sen and other feminist scholars have paid much attention to the social norms and traditions that form women's preferences, and that influence their aspirations and effective choices in social groups. Many feminist researchers have addressed the lower status and heavy burden of estate women within the household and working environment (Nussbaum, 2000; Raynolds, 2002; Philips, 2003; Iversen, 2003). This has been defined as the 'double burden' of tea estate women in an extremely male dominant estate community culture (Samarasinghe, 1993). In many traditional societies in the world, women are lacking both the freedoms of voice and choice. In making a decision whether to participate in labour market, they have to concern about cultural factors, social attitudes, gender role patterns and many other demographic factors (Eberharter, 2001). Chua, Bhavani and Foran (2000) stated that women in the third world are lacking agency and their roles played in both private and public domains are not adequately discussed. According to Nussbaum (2000), women in much of the world, lack support for fundamental functions of a human life. They are less well-nourished than men, less healthy, and more vulnerable to physical violence and sexual abuse. Physical or psychological spousal abuse seriously

undermines women's capability to function and to live the lives they value (Panda and Agarwal, 2005). They are much less likely than men to be literate, and still less likely to have pre-professional or technical education. However, despite these comparatively negative attributes of women in the third world, they have become the key determinant of technical efficiency in many production systems. Apparently, they are the core factor in determining the productive efficiency of tea manufacturing in Sri Lanka's estate sector as it is based on the tea plucking efficiency of female workers. Although there was a significant improvement in tea estate female workers' income in the past, it has not necessarily reflected in their capabilities in the form of empowerment (Samarasinghe, 1993).

Changing the culture in order to inculcate gender equity and a conducive work atmosphere cannot be done from outside. Although it is challenging, this change should be introduced by the systems and programmes initiated within that same society in concern (Philips, 2003). However, introducing such change into a society with deeply rooted cultural norms and beliefs are rather challenging unless the leaders from that society participate in the change process.

### ***3.2.3 Migration and well-being***

Migration from agriculture occurs when there is a departure of individuals or households for more than a week or so, from the small, primarily agricultural community in which they live (Lipton, 1980). He further stated that, migration takes away the young with more capabilities aged 15 – 25 years who are often most significant agricultural innovators. Migration and its impact on socio-economic development of sending and receiving communities have been extensively discussed by both functionalists and structuralists. These two paradigms advocate for two opposing views on this phenomenon as explained by De Haas (2010). Functionalist paradigm grasps the neo-classical view which is more optimistic on migration and development, whereas structuralist paradigm represents the neo-Marxist

view which is highly pessimistic. Representing the neo-classical migration theories, Harris and Todaro (1970) depicted a dualistic model of migration and development. In their argument they have specifically stated that rural-urban labour migration not only continues to exist, but indeed, appears to be accelerating, despite the existence of positive marginal products in agriculture and significant levels of urban unemployment.

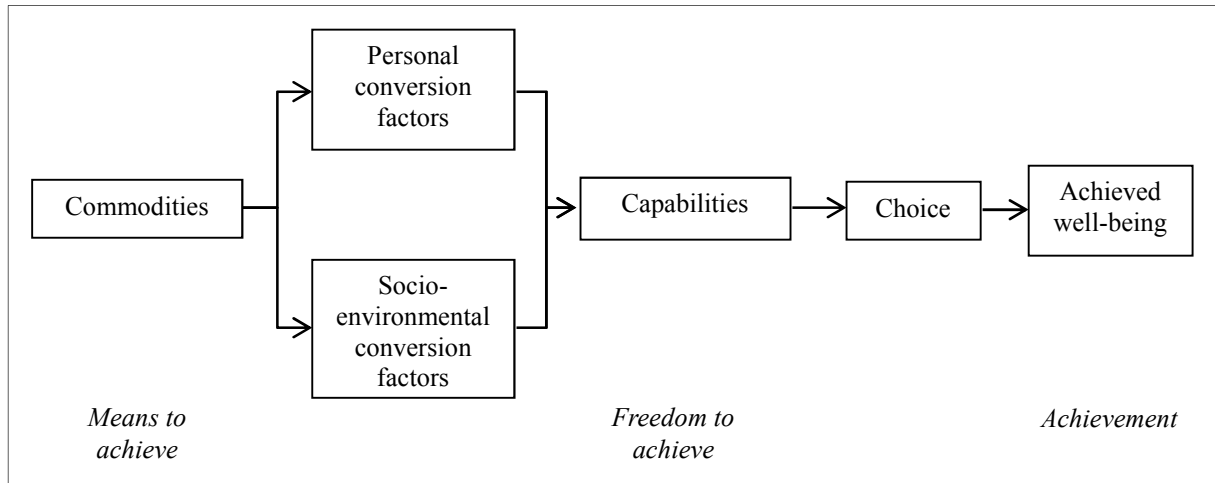
The incentive to migrate is not a function of income levels but rather, and exclusively so, of income differentials (Stark & Yitzhaki, 1988). Harris and Todaro (1970) have explained that migration occurred on an expected wage, will locate the migrant himself on a lower well-being utility curve. However, with emergence of new economic theories and models on labour migration, more motives for migration were identified. With this emergence, the migration has been identified as a part of the risk-sharing behaviour of families or households (De Hass, 2010). This migration has a second round effect as the feedback of migrants induces the non-migrants who are relatively deprived (Stark, 1991). The main negative impact of such migration on the development of the sending community is through an increase in inequality (De Hass, 2010). However, due to this migration sometimes the migrant enjoys their freedom of choice even though their achieved material well-being diminishes (Alkire, 2005).

### **3.3 Research Methods**

#### ***3.3.1 Theoretical framework***

In this paper, we have grounded our arguments and discussion on Sen's Freedom-based Capability Approach for achievable/achieved well-being. The concepts, variables, and its interrelationships are illustrated in the theoretical framework in figure 3.1. The capability approach conceptually explains, achieving what a person value depends on his/her abilities of converting the goods and services available into achievable functionings known as that

person's capability set. However, the ability of this conversion mainly depends on his/her personal factors (e.g. physical condition, sex, skills, intelligence, etc.) and socio-environmental factors (e.g. public policies, social norms, gender roles, societal hierarchies, power relation, geographical context, etc.) of the social group and the environment that individual belongs to.



**Figure 3.1** Freedom-based capability approach for achieved well-being

Based on the influence of these factors, the capability set with achievable functionings will be formed. Ultimately, the freedom of choice of that individual determines what he/she should achieve and thereby the individual himself reach a certain well-being level which is valued. More precisely, Sen's claim is that well-being achievements should be measured in functionings, whereas well-being freedom is reflected by an individual's capability set (Robeyns, 2005). Availability or simply the possession of commodities does not explain an individual's well-being and the achievements if that individual does not necessarily experience a freedom.

### 3.3.2 Operationalization

As per the main objective and theoretical model in figure 3.1, the freedom of the tea estate community was operationalized in three (03) nominal indicators. Specifically, those are; (i) future migration intention, (ii) preference for a change in traditional work norms, and

(iii) preference to be independent farmers. In order to regress these three variables; gender, age, educational attainment, monthly estate income were used as predictor variables (personal conversion factors) which are either nominal or ordinal. However, in the above causality we have identified estate workers' satisfaction on estate management as a mediator variable which may hold controlling power.

### **3.3.3 *Sampling and Data collection***

Primary data were gathered through questionnaire based interviews conducted with a stratified sample of 105 tea estate workers from different working families belong to RPCs in high-elevation tea estates in Nuwara Eliya and Badulla districts in Sri Lanka. The interviews were conducted as mutual discussions due to the ethnographic nature of the study as the respondents were attributed with specific socio-cultural characteristics. Moreover, livelihood of those workers and their families were directly observed in order to secure validity and reliability of responses received. Thus, the discussion of the quantitative survey results was accompanied with the ethnographic interview findings and observations.

In selecting the sample of 105 workers, gender and age were mainly considered as these personal factors have a high impact on individual capabilities and valued achievements in the tea estate sector of Sri Lanka. Accordingly, 56 male workers of whom 24 were within the age category of 16 - 25 years and 32 were above 25 years of age. The female strata of 49 consist of 15 workers from the 16 – 25 years of age category and 34 workers are 26 years of age or more. The reason for such focus is mainly driven by the future labour supply problem of the tea estate sector.

### **3.3.4 *Method of analysis***

The researchers' attempt in this study is to explore a conceptual social phenomenon with respect to a social context. Thus, the study turned out to be intrinsically interpretive.

However, the researchers' normative explanations required to be sufficiently evidenced and supported by positivistic findings. Hence, the analysis was quantified using dichotomous logistic regression (DLR) analysis of which the results were critically assessed and discussed with the findings of the qualitative inquiry. Thus, mix method was adopted as the key research methodology as merely the positivistic study itself does not do justice to the social phenomenon under study as the reality was quite subjective in this social context. A data description using descriptive analysis was preoccupied in order to identify and measure the variables used in the DLR analysis.

### **3.4 Results, findings and discussion**

The first Human Development Report in 1990 declared, human development is not merely improving the access to basic capabilities; it is the process which widens people's choices and the level of their achieved well-being. Many scholars and stakeholders have addressed that the basic needs of the tea estate community such as housing, education, health and nutrition are well-below the expected standard requirements. Based on this, employers and their representing organizations launched different projects to uplift those conditions. However, our fieldwork observations revealed that those initiatives were just restoration of the aforementioned basic requirements. Redistribution to the poor in the form of improving their health, education and nutrition is not only intrinsically important in enhancing capabilities to lead more fulfilling lives (Anand & Sen, 2000).

Complex capabilities of an individual include social recognition, self-esteem, participation in decisions, etc. Every individual has his/her own needs hierarchy ranging from physical needs to self-actualization needs. If an individual sees his/her future path of this ultimate achievement, it would probably be a motivation factor for him/her to achieve such level through the work performance. Being a lower level field worker throughout the working tenure (without appreciations, rewards and promotions) has hindered the estate workers'

ability of achieving a higher social status. Further, their education level has not been sufficient for them to access complex capabilities with higher social status and independence. Hence, most of them had to confine their lives to tea estates without adequate interaction with outer communities. More precisely, social exclusion phenomenon is highly attributed with this socially deprived community. Lack of social status and job recognition has predominantly influenced many youth in the tea estate community to keep them out of the tea estate sector labour force.

### 3.4.1 Data description

**Table 3.1** Frequency distribution

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Female	49	46.7	46.7	46.7
	Male	56	53.3	53.3	100.0
Age	16-25	39	37.1	37.1	37.1
	26-35	31	29.5	29.5	66.7
	36-45	12	11.4	11.4	78.1
	46-55	12	11.4	11.4	89.5
	56-65	6	5.7	5.7	95.2
	Over 66	5	4.8	4.8	100.0
Education	No schooling	24	22.9	22.9	22.9
	Grade 5	32	30.5	30.5	53.3
	Grade 6-10	49	46.7	46.7	100.0
Income	10,000-15,000	55	52.4	52.4	52.4
	15,000-20,000	45	42.9	42.9	95.2
	20,000-25,000	5	4.8	4.8	100.0
Future migration	No	61	58.1	58.1	58.1
	Yes	44	41.9	41.9	100.0
Change work norms	No	55	52.4	52.4	52.4
	Yes	50	47.6	47.6	100.0
Independent farmer	No	55	52.4	52.4	52.4
	Yes	50	47.6	47.6	100.0

As the dependent variables (freedom indicators) of the DLR analysis are binary variables and the explanatory variables (personal conversion factors) are categorical variables data are presented in the form of frequency distribution (see Table 3.1).

As far as the personal conversion factors are concerned, the selected sample is representative in gender-wise and education-wise. However, the elder category (above 56 years of age) was not representative due to the difficulties in accessing them. The main reason for that is socio-cultural obstacle such as language and social phobia. Further, the higher income category representation is quite low evidencing the lower income levels of tea estate workers. However, sample units with respect to freedom indicators are fairly represented.

### 3.4.2 Dichotomous Logistic Regression (DLR) Analysis

The DLR analysis was accompanied with a view of identifying the relationship of aforementioned three indicators of freedom (future migration intention, preference for a change in traditional work norms, and preference to be independent farmers) with estate workers' personal characteristics in the tea estate community in Sri Lanka. However, level of satisfaction on the estate management was excluded from the DLR analysis as it did not convince any significant relationship with any of the personal conversion factors and freedom indicators. It infers, that tea estate workers' relationship with the estate management is fairly neutral. Nevertheless, this was discussed in our qualitative inquiry as it provided significant inference toward the freedom indicators of this community.

**Table 3.2** Cross-tabulation (Gender and future migration intention)

Future migration	Gender		Total
	1 (Female)	2 (Male)	
0 (No)	30 (61.2%)	31 (55.4%)	61 (58.1%)
1 (Yes)	19 (38.8%)	25 (44.6%)	44 (41.9%)
Total	49 (46.7%)	56 (53.3%)	105 (100.0%)
Chi-Square	Value	Df	Sig
Pearson	.370 <sup>a</sup>	1	.543
Likelihood Ratio	.370	1	.543

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 20.53

The cross-tabulation result in table 3.2 confirms that gender variation within the estate community and workers' migration intention are statistically independent. Although it is not significant, it was included in the DLR analysis and the result in table 3.3 was obtained. Although, the outcome appeared to be rather passive with lack of significant variables, the model reflects the reality as confirmed by the chi-square statistic which is being highly significant at 1 percent level of significance. The model explains that the workers with the highest educational attainment in the sample are having an intention to migrate from estates.

**Table 3.3** Dichotomous logistic regression for future migration intention

	B	S.E.	Exp (B)
Constant	-.762	.806	.467
Gender (Female) <i>base</i>			
<i>Male</i>	.251	.464	1.285
Age (16 - 25) <i>base</i>			
26 – 35	-.014	.524	.986
36 - 45	-.354	.773	.702
46 – 55	-.388	.833	.678
56 & above	-.394	.871	.689
Education (No schooling) <i>base</i>			
Up to Grade 5	.762	.739	2.144
Grade 6 - 10	1.424**	.723	4.155
Income (10,000 - 15,000) <i>base</i>			
15,000 - 20,000	-.614	.332	.501
-2 log likelihood	113.380		
Model chi-square	29.417***		
Nagelkerke pseudo R <sup>2</sup>	0.329		
Hosmer and Lemeshow test	0.604		

**Note:** N=105; \*  $p < .1$ ; \*\*  $p < .05$ ; \*\*\*  $p < .01$

Even in the preference to change the traditional work norms as a social conversion factor of tea estate community's capabilities, gender has been independent as depicted in table 3.4. In capability expansion through changes in traditional work norms, 26-35 middle age category and 46-55 upper age category have significantly disclosed discontentment (see Table 3.5).

**Table 3.4** Cross-tabulation (Gender and preference to change traditional work norms)

Change work norms	Gender		Total
	1 (Female)	2 (Male)	
0 (No)	26 (53.1%)	29 (51.8%)	55 (52.4%)
1 (Yes)	23 (46.9%)	27 (48.2%)	50 (47.6%)
Total	49 (46.7%)	56 (53.3%)	105 (100.0%)
Chi-Square	Value	Df	Sig
Pearson	.017 <sup>a</sup>	1	.896
Likelihood Ratio	.017	1	.896

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 23.33

**Table 3.5** Logistic Regression for preference to change traditional work norms

	B	S.E.	Exp (B)
Constant	1.307	.815	3.694
Gender (Female) <i>base</i>			
<i>Male</i>	-.437	.473	.646
Age (16 - 25) <i>base</i>			
26 – 35	-1.036*	.528	.355
36 - 45	-.451	.756	.637
46 – 55	-2.542**	.980	.079
56-65	-1.880	1.151	.153
66 & above	-21.625	1.782E4	.000
Education (No schooling) <i>base</i>			
Up to Grade 5	-.045	.707	1.046
Grade 6 - 10	-.407	.698	.665
Income (10,000 - 15,000) <i>base</i>			
15,000 - 20,000	-.580	.481	.560
20,000 - 25,000	2.046	1.302	7.737
-2 log likelihood	121.631		
Model chi-square	23.692***		
Nagelkerke pseudo R <sup>2</sup>	0.270		
Hosmer and Lemeshow test	0.700		

**Note:** N=105; \*  $p < .1$ ; \*\*  $p < .05$ ; \*\*\*  $p < .01$

This situation is much strong within the 46-55 age category due to two possible causes. First, these are the workers those who have considerable power both at estate level and household level. Second, elder workers are usually reluctant to change due to their risk-

averse behavior in social and organizational change processes. However, it is quite unusual to see the passive response of the youth for a social transformation confirming their social adherence. This outcome further emphasizes the inadequacy of estate workers' education to demand a radical change in unproductive social systems.

Despite the fact that gender is impartial in migration intention and traditional work norm change, it is materialized to be a significant predictor of being independent farmers (see Table 3.6). Notably, this preference to be an independent farmer has been contently expressed by male workers implying their social power within the community (see Table 3.7).

**Table 3.6** Cross-tabulation (Gender and preference to be an independent farmer)

Independence preference	Gender		Total
	1 (Female)	2 (Male)	
0 (No)	31 (63.3%)	24 (42.9%)	55 (52.4%)
1 (Yes)	18 (36.7%)	32 (57.1%)	50 (47.6%)
Total	49 (46.7%)	56 (53.3%)	105 (100.0%)
Chi-Square	Value	Df	Sig
Pearson	4.364 <sup>a</sup>	1	.037
Likelihood Ratio	4.399	1	.036

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 23.33

Conversely, elder community above 66 years of age has significantly voiced their discontent to be independent farmers as would have expected at such elderly age. Tea estate workers in the selected sample with the highest educational attainment (Grade 6-10) have significantly expressed their unwillingness to be independent farmers reconfirming their intention of migrating from tea estate sector.

**Table 3.7** Logistic Regression for preference to be an independent farmer

	B	S.E.	Exp (B)
Constant	.639	.786	1.894
Gender (Female) <i>base</i>			
<i>Male</i>	.891*	.464	2.437
Age (16 - 25) <i>base</i>			
26 – 35	.045	.526	1.046
36 - 45	-1.012	.825	.364
46 – 55	.028	.818	1.028
56-65	-1.565	1.128	.209
66 & above	-2.781**	1.325	.062
Education (No schooling) <i>base</i>			
<i>Up to Grade 5</i>	-1.124	.705	.325
<i>Grade 6 - 10</i>	-1.854**	.718	.157
Income (10,000 - 15,000) <i>base</i>			
15,000 - 20,000	.715	.485	2.045
20,000 - 25,000	.038	1.050	1.039
-2 log likelihood	127.363		
Model chi-square	17.960*		
Nagelkerke pseudo R <sup>2</sup>	0.210		
Hosmer and Lemeshow test	0.886		

**Note:**  $N=105$ ; \*  $p<.1$ ; \*\*  $p<.05$ ; \*\*\*  $p<.01$

Primarily, in light of the above analysis, the following are identified as the major and immediate areas of intervention by the stakeholders in order to ensure the productive functioning of the tea estate sector in Sri Lanka. These three (03) aspects were and discussed grounded on the three freedom indicators (migration intention, preference to change work norms and preference to be independent farmers) explained in above analysis. We have identified these areas of intervention based on the results of the above explanatory study and the findings of the exploratory study which was grounded on qualitative aspect of the inquiry.

### 3.4.3 *Less focus on the youth and their capabilities*

As far as the future production possibility and the productivity are concerned, the participation of the youth in the labourforce is a predominant factor in any economy. Thus,

the attraction and retention of such individuals would probably be a sustainable solution for the tea estate sector of Sri Lanka, which happened to be a dilemma at present. DLR analysis categorically signified the impact of educational attainment (Grade 6-10) as the major reason for migration of the present younger generation. Thus, the migration of the youth from the estate sector labourforce is apparent with the presence of relatively higher educational attainment and relatively lower income from estate employment (though the latter was not signified in the DLR analysis). This migration occurs mainly since they cannot enjoy the modern social life style they value by being in the estate sector and lack of career progression in estate employment. They are discouraged of continuing the same traditional estate work that was done by their previous generations. This is why they migrate although their achievable income of post-migration would be less than what they probably can earn from estate employment.

#### ***3.4.4 Social and traditional work norms as a key conversion factor***

According to the traditional work norm, female workers are required to work full day while males engage only half a day in tea estate employment, though both receive an equal daily wage. This has evidenced social and income inequality between gender groups in the estate sector. This proves that the tea estate women are extremely disadvantageous and underprivileged as their freedom is violated in both process and opportunity aspects. This has been the reason for significant disinterest of the adult male (46-55 years of age) workers in tea estates to customize the existing inequitable work norms as they might fail to retain their influential power within the community. Although the management of RPCs surveyed in our previous study (Dishanka & Ikemoto, 2013) attempted to change these capability restricting social and work norms, they were unsuccessful in many occasions due to the toughness of the adherence toward the traditions of this community.

Accordingly, a human development essential (maintaining gender equity and empowering women) has not been satisfied in this particular ethnic group by restricting the tea estate women workers' ability to expand their capability set. This nature has considerably and adversely impacted on their level of well-being. This needs special attention of employers and policy makers as estate women's capabilities are severely restricted by the traditions of their culture and traditional work norms. In our field survey also we identified that they do not bring out their independent voice due to this cultural impact on their lives. Employers as well have adopted this social norm without customizing it in accordance with the organizational requirements. Therefore, inability of the organizational culture to customize the behaviour of its employees has been injustice to the female workers.

#### ***3.4.5 Workers' inability to be their own agents***

This does not mean that an individual can perfectly be independent behavioural agents in a social setting. It is important for less privileged groups or ethnic minorities to attain this freedom as a collective effort. In this practice political parties and trade unions are holding a pivotal role in these societies. However, as per the human development paradigm, individuals should be able to decide what they need to do for their own satisfaction and development.

Although trade unions are important for individuals of the working class to represent them in the issues related to labour relations, overall control of the work and personal life of an individual by the trade union is not expected. In our sample, all the respondents were members of a trade union (we did not include this in our correlation and regression analysis as there is no variation in this variable) which are highly politicized and represent the national political system in light of the support of this working class. We could identify through our discussions with the sample respondents that despite of employees' personal intentions, they have to do what they are asked by trade union leaders. Although many workers including the

employers purposefully expect a change in the existing traditional work norms, they were unable to implement such a change at the opposition of these unions. Being engaged in any event without an individual's intention and consent even though the outcome of which is something that individual expected anyhow is a violation of that individual's process freedom (Sen, 2005). It was apparent that the trade unions within the estate community have become a critical social conversion factor in practicing workers' independence in their decisions. This condition has inferred that the opportunity freedom and process freedom of individuals of this community is affected to a greater extent at the absence of independence. The main cause of this dependent nature happened to be the low educational attainment of the community members. None of the respondents in the sample was able to reach above ten years of school education which is a major personal conversion factor eventually reflected adversely on being independent.

### **3.5 Conclusion and implications**

As the core requirement of the capability approach, individuals and social groups should have freedom in both their 'doings' and 'beings' in achieving what they value in their lives. Necessarily, the freedom of an individual should be grounded on that individual's own desire and decision, irrespective of the outcome. However, tea estate community in high grown areas in Sri Lanka is not in a better position to be the agents of their own goals and decisions. If they attempt to make their own decision, there is a high possibility of a decrease in their achieved well-being due to their high dependence and adherence to external influences. Social conversion factors such as politicized trade unions and culture-bound social norms have a considerable negative impact on their freedom. These reasons have become the major underlying barrier which avoids efficient utilization of the human resource in the tea estate sector. Therefore, employers and policy makers should focus on means of improving complex capabilities of this community to uplift their social status and

independence by maintaining equity and workers' participation in decisions and processes. This can be done by enabling the people to become their own agents in their own life and decisions. In order to succeed in this, it is highly and timely important to customize the social conversion factors such as traditional work norms and gender discrimination which, border individual capabilities. Decreasing participation of youth in the estate labour force is highly linked with their increasing level of education and low level of income. This migration scenario is further strengthened with their desire to achieve better life style even at a high explicit opportunity cost of living. This has proved that merely an increase in estate income is not adequate in retaining the potential future migrants and attracting the migrated back to the land. Accordingly, such an increase should be linked with enablers to convert such income into capabilities. This would probably enhance justice in the tea estate community and reflect that in their performance.

## Chapter Four

### EQUITY AND EFFICIENCY IN CONTRACT FARMING

#### 4.1 Introduction

Tea industry of Sri Lanka has attracted the social and economic importance due to its valued contribution to employment and export earnings of the economy. However, the estate sector of this remarkable industry got affected by many challenges due to its intrinsic constraints such as low productivity, high cost of production and labour scarcity. These constraints can be precisely categorized into broad aspects. The first is the land productivity problem and the other is labour productivity problem. As far as land productivity of tea sector in Sri Lanka is concerned, it is reported to be less than that of many other tea growing countries such as India, Kenya, Japan, etc (Shyamalie et. al, 2013). As for labour productivity, it has become a socially important issue in various discussions since the prevailing socio-economic condition of the estate sector workers is quite undesirable and destructive. This poor socio-economic condition within the estate community is characterized especially with low income, poor living conditions and lower social status and recognition. This has adversely affected the quality of labour and resulted in low productivity (Dishanka and Ikemoto, 2013).

In developing a solution for this socio-economic and performance problem in the estate sector, it is highly important to take the human development aspect into consideration. In previous studies, we have discussed the objective aspect of human development in tea estates though enhancing their capabilities (Dishanka & Ikemoto, 2017). Therefore, this particular study focuses on the process aspect of improving the socio-economic condition, and discusses the mechanism through which capabilities of estate workers can be improved for better performance in their personal and work life. Based on the lessons learnt from global

practices, we discuss and evaluate the application of small-scale contract farming in tea plantation sector in Sri Lanka as a sustainable solution to the above-mentioned fundamental socio-economic problem based on our own field survey.

#### ***4.1.1 The problem and the objective***

The human development paradigm of economic development is in enforcement since 1990 prioritizing the quality of human life rather than the materialistic improvement of the economy. According to human development initiatives, any economic activity to be sustainable should be predominantly incorporated with equity, efficiency and empowerment requisites. Mahbub Ul Haq (as cited by Alkire and Deneulin in 2009) conceptualized these human development essentials which should be satisfied in any process of economic activity as follows.

1. Equity - The consideration for distributive justice between groups such as women, children, ethnic minorities and other disadvantaged sections of the population.
2. Efficiency - The optimal use of existing resources to expand capabilities in order to reach goals of individuals and communities.
3. Empowerment - The processes in which people act as agents, individually and as groups. It is about the freedom to make decisions in matters that affect their lives.
4. Sustainability - The outcomes of the process should bring in improvements in social, political and financial spheres of human life, and endures over time.

These fundamentals of human development are being ill-treated in the existing employment practice in tea estate sector in Sri Lanka creating chaotic labour condition. Therefore, we have stressed and justified the importance of introducing small-scale contract farming (CF) system into tea estate sector in Sri Lanka in order to align its production system with human development essentials (Dishanka and Ikemoto, 2013). Thus, this study has been

designed and conducted to evaluate the satisfaction of human development essentials in CF practice in terms of equity and efficiency in tea estate sector in Sri Lanka. In achieving this objective, the researchers have identified an instrumental case where the CF system is enforced as a labour deployment practice.

#### ***4.1.2 Significance of the study***

According to the nature of the deep seated problem in the traditional labour management system of the tea estate sector in Sri Lanka, alternative mechanism has been required to be enforced. Although occasional remedies have been applied by different Regional Plantation Companies (RPCs) to improve labour productivity, a sustainable solution could not be developed since the fundamental socio-economic problem of estate workers was not adequately addressed in those previous initiatives. As one of the remedies, some of the RPCs apply an informal CF system has been at a minimum level. In this informal practice the tea estate management assigns few tea bushes to one person to maintain and provide the harvest at a verbally agreed rate. That particular worker employs his family labour or other co-workers in this practice. However, this practice is applied in high crop periods and it has been revealed that the main purpose of this practice is for the RPCs to reduce the cost of labour. However, as positive implications of this practice, it seems to provide an additional income for estate workers and to bring the underutilized male labour back to production. Morrison et al. (2006) have identified in their study on contract farming in Malaysia that the productivity of the contract farmers, on average, is in improvement each year. Moreover, participating farm households in contract farming system enjoy higher levels of welfare (Barrett et al, 2012). Therefore, it is interesting and important for policy implications to investigate the impact of the CF system on the socio-economic outcomes of workers in tea plantations in Sri Lanka.

## 4.2 Literature survey

### 4.2.1 *Global practice of contract farming (CF)*

Contract farming is one of the most debated institutional arrangements for production and marketing of agricultural commodities in developing countries (Oya, 2012). Contract farming refers to a system whereby processing firm purchases the harvest of individual farmers and the terms of purchase are pre-arranged through contracts. The exact nature of these terms varies considerably from case to case (Glover, 1984). In this system local farmers supply the harvest while the firm retains the responsibility for technical assistance and marketing (see Figure 4.1). The intensity of contractual arrangement varies according to the depth and complexity of the provisions in three areas known as market provision, resource provision and management specifications (FAO, 2001).

1. *Market provision* - The grower and buyer agree to terms and conditions for the future sale and purchase of a crop or livestock product;
2. *Resource provision* - In conjunction with the marketing arrangements, the buyer agrees to supply selected inputs, including on occasions land preparation and technical advice;
3. *Management specifications* - The grower agrees to follow recommended production methods, input regimes, and cultivation and harvesting specifications.

Among the five models<sup>10</sup> of contract farming systems, the nucleus estate model is a specifically designed model which is highly suitable for large plantations in tea, coffee, tobacco and sugar industries due to its intrinsic attributes. In the nucleus estate model the plant owner has an estate plantation, which is usually close to the processing plant or factory. Farmers in the surrounding area of the estate produce crops on their own land and/or on the

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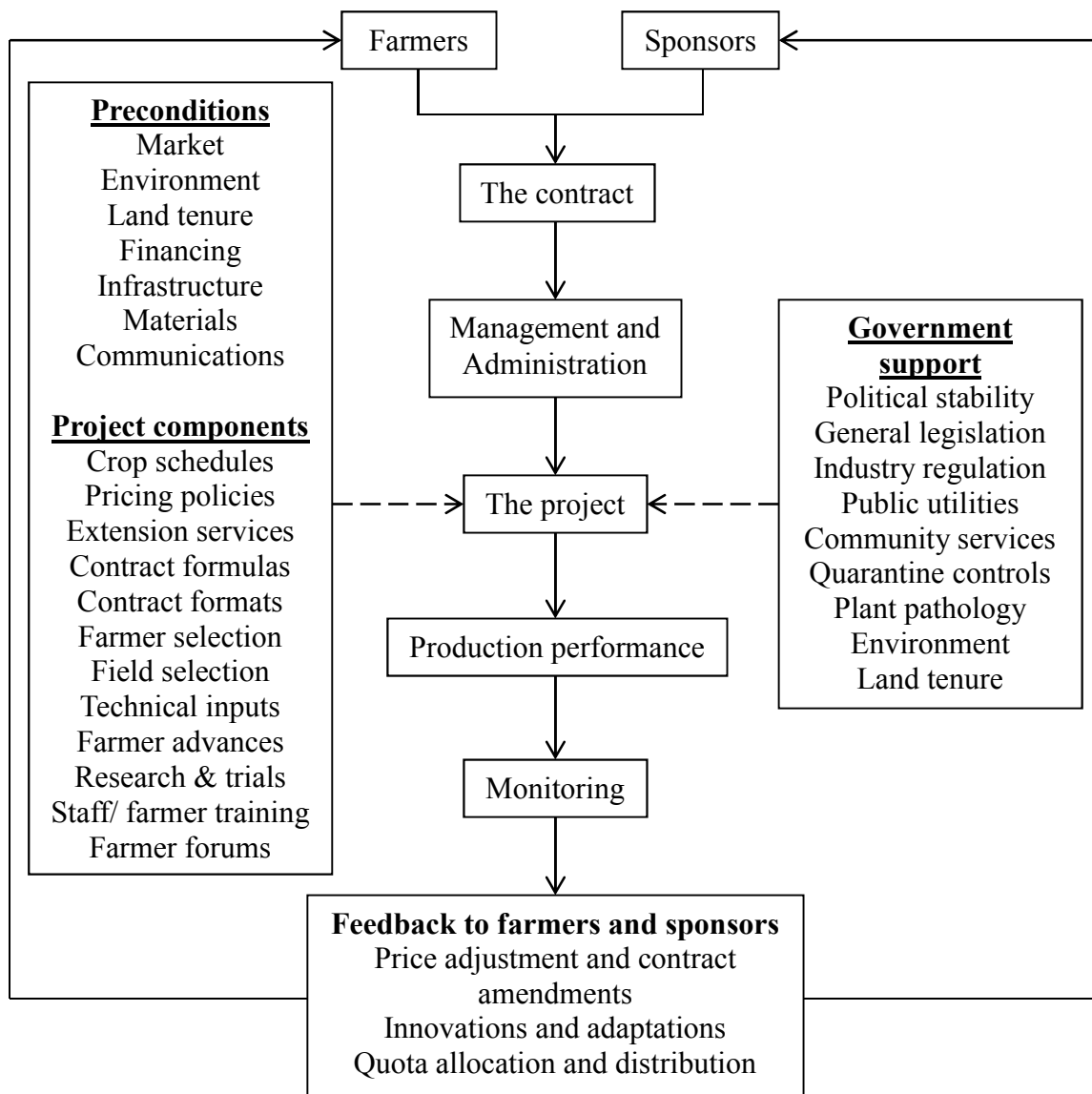
<sup>10</sup> The five models are centralized model, nucleus estate model, multipartite model, informal model, and intermediary model.

estate land and sell their crops to the estate for further processing. Beneficial aspects for farmers are that the estate is providing inputs, training, transport and social and medical benefits (FAO, 2001). Accordingly, the estate management can easily assign a certain extent from the plantation to each estate household living in the same estate. They can manage it independently as their own business based on the provisions of the pre-arranged contract.

The contract farming framework in figure 4.1 explains the players, functions and interrelationships of an effective small scale contract farming mechanism. According to this generally accepted model farmers, sponsors (plantation companies) and the government are the main players of the CF system. Sponsors are responsible for the administration and monitoring of the proper functioning of the system. Government is holding the responsibility of providing the required legal and legislative coverage to the contractual agreement between farmers and sponsors.

#### ***4.2.2 Contract farming and human development of farmers***

Contract farming has been a component of the most successful income-generating projects for smallholders (Glover, 1987; Kirsten and Sartorius, 2002; Singh, 2002). Warning and Key (2002) have concluded based on their study on contract farming in Senegal that, this system significantly increases the incomes of contract farmers. Further, they have found that this higher income not only raises the standard of living of growers, but may also create positive multiplier effects for employment, infrastructure, and economic growth in the region. Miyata et al. (2009) have concluded in their study in China that three-quarters of contract farmers have perceived an increase in their income since they began contract farming. As a successful case, small-scale tea growers in Kenya have achieved incomes above the Kenyan average through contract farming (Glover, 1984).



**Figure 4.1** A contract farming framework

Van Dalen et al. (2010) have found that in order to improve productivity more hard qualities of labour such as flexibility, physical and mental capacity, and willingness to learn new technological skills are more important, and comparative advantage of younger workers lies primarily in their hard qualities. According to White (2012), younger generation is reluctant to become merely farmers of someone else’s land but, expects to become independent farmers. Therefore, the entrepreneurial nature of contract farming system seems to be an effective mechanism which satisfies the expectations of youth productive population and retains them within the farming community. Further, Morrison et al. (2006) emphasized

that the state-administered contract scheme in poultry farming in Malaysia is a part of broader national goal to develop indigenous entrepreneurship, apart from eradicate poverty and raise rural incomes.

#### **4.3 Nature of the contract at ‘Alpha Tea Estate’ of ‘Beta RPC’**

This study takes Alpha Estate of Beta Regional Plantation Company as a case of contract farming since it is one of the two tea estates that have introduced a contract farming system to the Sri Lankan tea industry with utmost success. This model has been adopted by the estate management as a labour deployment model in response to the prevailing labour productivity problem in the tea estate due to inadequate labour supply. Average productivity of this estate was 1,057 kg per hectare a year with 764 residential workers whose ratio to land is 1.81 per hectare. The main reason for this low labour-land ratio is abundance of tea lands due to the lack of labour supply. Importantly, this CF system is considered to have brought back the abandoned tea lands due to labour scarcity problem because it improves labour productivity and reduces the cost of production significantly.

Currently, 57 percent of the total tea extent of this estate is maintained through this system. According to the management, about 600 to 2200 bushes are allocated to an estate employee through this system for a contract period of six months (January – June and July – December). Thereby the employee plucks 100 - 350 kg of green leaves a month allowing him or her to earn an additional monthly income of Rs. 4,300 – 15,000. Thus the management firmly believes that this solution is highly sustainable as it ensures the essential pillars of human development of tea estate community workers and their families while meeting the organizational objectives as well. The desired number of tea bushes to the contract employee is assigned by the estate management from the abandoned tea land. The following are the key uniform conditions necessitated by the contractual agreement between RPC and the contract farmer.

1. The contract farmer is required to engage in the usual estate work for at least fifteen days a month.
2. The estate management has the right and responsibility to monitor the activities related to the functions of contract farming system.
3. It is prohibited to sub-contract fully or partially the activities of CF by the farmer to a third party either directly or indirectly.
4. The agreement or the contract is valid for six month from the date entered into and with the lapse of this period the farmer is required to handover the properties belong to the RPC.
5. If a farmer obtains the harvest from any part of the estate which is not covered under this contract will result in an immediate termination of the contractual agreement.
6. The farmer is responsible for any damage done to the properties covered in the contract by the contracted or any other third party.
7. The harvesting is done under the supervision of the estate management and the minimum output requirement is determined based on the number of trees and the period. Further, the farmer agrees to maintain the minimum required quality standard of the output specified by the management.
8. The farmer is expected to commence plucking green leaves within the first two weeks of the contract and required to maintain at least five (05) tea plucking rounds a month.
9. Further, the farmer is expected and required to engage in development initiatives such as weeding, purchase and application of standard fertilizer recommended by the Tea Research Institute, planting and maintaining of shade trees, pruning and avoiding soil erosion in order to satisfy the output and quality requirements.
10. The farmer agrees not to do any temporary or permanent construction in the tea land leased under this contract.

11. The farmer is required to make all the statutory payments for workers employed in the leased tea plot and held liable for any such payment outstanding to a third party.
12. The farmer agrees not to engage in any illegal activity within the leased plot and held liable for any such activity.
13. The farmer is not entitled for any statutory employee rights such as contributions to employee provident fund (EPF), employee trust fund (ETF) and employee gratitude.
14. The payment for the harvest is subject to the satisfaction of the estate management on the above requirements.
15. The final payment for the harvest is 64 percent of the fair value received for the factory's teas decided by the tea commissioner. The RPC will retain 36 percent of the fair value as the land rent and initial capital expenditure, such as land preparation and, tools and equipments provided.

The distribution of the CF system in five estate divisions in the Alpha Estate is explained in Table 4.1.

**Table 4.1** Distribution of contract farmers

Division	No. of contract farmers
Division – 1	59
Division – 2	38
Division – 3	49
Division – 4	55
Division – 5	49
Total	250

Although the contract farmer has to bear the operational cost of production, the estate management has introduced a credit system in order to facilitate them in cash management. According to this system, cost of fertilizer, chemicals and hired labour are initially born by the estate management and deducted from the final payment to the farmer in three, two and

one installments, respectively. The final monthly payment will be directly done to the farmer who entered into the contract by direct debit to his/ her bank account.

#### 4.4 Research methods and materials

The main objective of this study is to evaluate the effectiveness of CF in tea plantation sector in improving the level of well-being of its communal workforce. This objective has necessitated us to operationalize and test the capabilities approach with respect to this tea estate workforce in order to establish generalizable results and findings. Thus, in satisfying this requirement, research methods and materials were adopted and applied in the following methodology.

##### 4.4.1 Sampling and data collection

Primary data were gathered through a questionnaire based survey administered within the selected study site (Alpha tea estate).

**Table 4.2** Population and sample distribution

Division	Population (No. of contract farmers)	Selected sample		
		Male	Female	Total
Division – 1	59	08	12	20
Division – 2	38	11	09	20
Division – 3	49	07	13	20
Division – 4	55	08	12	20
Division – 5	49	10	10	20
Total	250	44	56	100

##### 4.4.2 Data description and preliminary analysis

The variables used for the analytical purpose were categorized as performance indicators (dependent variables) and explanatory variables (independent variables). Contract farming output per week, Monthly net income of contract farming, number of tea bushes per

contract farmer, number of family workers and hired workers in contract farming were used as performance indicators. Contract farmers' characteristics (gender, age, family size, years of education, estate experience and contract farming experience) and farm characteristics (distance from home to contract farming land, and estate division dummies) were used as explanatory variables.

The statistical analysis is pre-occupied with descriptive statistics of variables which are used in subsequent analysis. Descriptive statistics of the variables used in analysis were presented for the total sample of 100 contract farmers, female contract farmers (sample of 44) and male contract farmers (sample of 56). As the preliminary analysis, this data description was followed by independent samples t-Test for the difference between group (male and female) means in order to assess the gender equity.

#### ***4.4.3 Two-way MANOVA with interactions***

The primary purpose of the two-way MANOVA is to understand if there is an interaction between the two independent (categorical) variables on the two or more dependent (continuous) variables. Accordingly, this study adopted this analytical tool to assess the variance of equity (in distribution of output and net income) among identified independent groups of respondents. In this exercise, weekly output of green leaves of tea harvested in contract farming and monthly net income of contract farming were used as indicators to measure the variance in equity of distribution. Although, the primary objective of this study is to identify the gender equity in distribution, equity of distribution was assessed with respect to the tea growing divisions in order to identify the impact of land on major performance indicators (CF output and net income of CF). Multivariate analysis was conducted and results were derived by satisfying the following assumptions in order to ensure validity and reliability.

(i) *Independence of observations*

For this purpose, two (02) gender groups (male and female contract farmers) were used as independent variables where data duplication is autonomously avoided.

(ii) *Multivariate normality*

Mahalanobis distance measurement and Shapiro-Wilk test of normality were used for this purpose.

(iii) *Linearity of dependent variables*

Moderate level linear relationship between all pairs of dependent variables is ensured from the multicollinearity analysis conducted prior to MANOVA. Further, scatterplot matrix for all combinations of group of two independent variables is illustrated.

(iv) *Homogeneity of variance and covariance*

Homogeneity of variance is contented as the sample size of each tea growing division is equal and that of gender groups is fairly equal. Box's M test of Equality of Covariance Matrices was conducted to ensure the homogeneity of covariance.

The equity in distribution was inquired through the following hypotheses in order to ensure the capacity of the CF system to do justice to the underprivileged of the tea estate community.

(i) Equity in distribution

$H_{0a}$ : There is no significant difference between the output of male and female contract farmers

$H_{1a}$ : There is a significant difference between the output of male and female contract farmers

$H_{0b}$ : There is no significant difference between the net income of male and female contract farmers

$H_{1b}$ : There is a significant difference between the net income of male and female contract farmers

#### 4.4.4 Multiple Regression Analysis

This analytical tool was occupied to evaluate gender equity and estimate the efficiency of production function (Cobb-Douglas production function) of the CF system of the selected case. The result of such analysis is used to identify the equity in distribution of output, net income, tea bushes and labour (household and hired) and, efficiency of the system in terms of productivity returns.

The independent variables for testing efficiency were incorporated in light of the correlation output result. Thus, three principle independent variables (amount of labour, number of tea bushes and CF experience of the farmer) were operationalized into the Cobb-Douglas production function as conceptualized in equation (1).

$$Q = AL^{\alpha}T^{\beta}E^{\gamma} \quad (1)$$

$Q$  – Weekly output of green leaves in kilograms

$A$  – Total factor productivity

$L$  – No. of labour inputs

$B$  – No. of tea bushes

$E$  – No. of contract farming experience

The variables were regressed using the log linear approximation as depicted in equation (2) for the analytical purpose.

$$\log(Q) = \log(A) + \alpha * \log(L) + \beta * \log(B) + \gamma * \log(E) \quad (2)$$

The conceptual inquiry in equation (2) above is defined in the form of hypotheses which are expected to be tested against the data collected from the primary field survey. Thus,

the following hypotheses were developed with respect to the efficiency of the CF system.

(ii) Efficiency in production

$H_{0c}$ : There is no significant impact from the number of tea bushes on green leaves output

$H_{1c}$ : There is a significant impact from the number of tea bushes on green leaves output

$H_{0d}$ : There is no significant impact from the number of workers on green leaves output

$H_{1d}$ : There is a significant impact from the number of workers on green leaves output

$H_{0e}$ : There is no significant impact from the contract farming experience on green leaves output

$H_{1e}$ : There is a significant impact from the contract farming experience on green leaves output

#### 4.5 Data analysis and results

The descriptive CF output statistics (see Table 4.3) indicate that the total green leaves production is highly variable, ranging from 33 kilograms to 100 kilograms per week with a standard deviation of 13.9 kilograms. The mean output level is 64.28 kilograms per week with a median of 65 kilograms. Importantly, the CF output describes a symmetrical normal (0.0) and a moderate level platykurtic distribution (-0.46). The descriptive net income statistics (see Table 4.3) indicate that the monthly net income from contract farming is also highly variable, ranging from Rs. 3,500 to Rs. 12,000 with a standard deviation of Rs. 1,888.15. The mean monthly net income is Rs. 7,329.50 with a median of Rs. 7,500. Similarly, the monthly net income also describes a normal distribution (0.06) and a moderate level platykurtic distribution (-0.36).

**Table 4.3** Descriptive statistics – Total sample

	Mean	Median	Standard Deviation	Kurtosis	Skew	Min.	Max.
Output (kg/week)	64.28	65	13.90	-0.46	0.00	33	100
CF net income	7329.5	7500	1888.15	-0.36	0.06	3500	12000
Division	3	3	1.42	-1.30	0.00	1	5
Gender	1.44	1	0.50	-1.98	0.25	1	2
Age	51.22	51.5	8.05	-1.02	-0.26	35	65
Family size	5.22	5	1.59	0.05	0.43	2	10
Education (years)	4.46	5	3.16	-1.09	-0.05	0	10
Estate experience	31.36	32	8.44	-0.77	-0.09	10	48
CF experience	9.69	10	3.37	-0.93	-0.33	3	15
No. of tea bushes	1325	1300	156.91	2.46	0.59	1000	2000
Family labour	2.36	2	0.61	0.39	0.69	1	4
Hired labour	1.04	1	0.90	-0.86	0.35	0	3
Distance	1.715	1.75	0.78	-0.80	0.36	0.5	3.5
Management	2.9	3	0.93	-0.71	-0.42	1	4
Future CF	2.91	3	1.02	-0.55	-0.70	1	4

However, the descriptive statistics evidence that the output, CF net income and the number of tea bushes significantly ranging between minimum and maximum values in both female and male samples (see Table 4.4 and 4.5). However, that data clearly show that there is no considerable variance between gender groups as the statistics of two gender samples have not deviated from the statistics of the total sample (see Table 4.3). This has been signified in the t- Test for the equality of means (see Table 4.6).

**Table 4.4** Descriptive statistics – Female sample

	Mean	Median	Standard Deviation	Kurtosis	Skew	Min.	Max.
Output (kg/week)	64.43	65	14.35	-0.16	-0.15	33	100
CF net income	7360.71	7500	1943.30	-0.69	-0.06	3500	11500
Division	2.98	3	1.41	-1.25	-0.05	1	5
Age	51.95	52.5	7.13	-0.58	-0.24	35	65
Family size	5.09	5	1.52	-0.54	0.17	2	8
Education (years)	4.80	5	3.01	-0.96	-0.28	0	10
Estate experience	31.52	30	7.32	-0.49	-0.01	15	46
CF experience	10.00	10	3.42	-0.68	-0.48	3	15
No. of tea bushes	1321.43	1350	142.02	-0.30	-0.34	1000	1600
Family labour	2.34	2	0.58	0.74	0.96	1	4
Hired labour	1.05	1	0.90	-0.49	0.51	0	3
Distance	1.73	1.5	0.81	-1.00	0.35	0.5	3.5
Management	3.02	3	0.82	-0.40	-0.44	1	4
Future CF	3.02	3	0.96	-0.21	-0.80	1	4

**Table 4.5** Descriptive statistics – Male sample

	Mean	Median	Standard Deviation	Kurtosis	Skew	Min.	Max.
Output (kg/week)	64.09	65	13.46	-0.86	0.23	42	90
CF net income	7289.77	7250	1837.07	0.31	0.23	3750	12000
Division	3.02	3	1.45	-1.39	0.05	1	5
Age	50.30	50	9.10	-1.46	-0.16	36	64
Family size	5.39	5	1.69	0.40	0.63	2	10
Education (years)	4.02	5	3.33	-1.03	0.25	0	10
Estate experience	31.16	33	9.77	-1.12	-0.11	10	48
CF experience	9.30	10	3.30	-1.15	-0.18	4	15
No. of tea bushes	1329.55	1300	175.64	3.81	1.21	1050	2000
Family labour	2.39	2	0.65	0.22	0.44	1	4
Hired labour	1.02	1	0.90	-1.34	0.15	0	3
Distance	1.69	2	0.73	-0.41	0.35	0.5	3.5
Management	2.75	3	1.04	-1.10	-0.25	1	4
Future CF	2.77	3	1.08	-0.87	-0.58	1	4

**Table 4.6** t-Test for Equality of Means

	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
CF_outp	.000	.986	.120	98	.905	.337	2.813
ut			.121	94.906	.904	.337	2.791
Net_inco	.332	.566	.186	98	.853	70.941	382.247
me			.187	94.650	.852	70.941	379.653
Age	7.461	.007	1.018	98	.311	1.651	1.622
			.989	79.946	.326	1.651	1.670
Family_	.279	.598	-.925	98	.357	-.297	.321
size			-.913	87.396	.364	-.297	.325
Educatio	1.209	.274	1.230	98	.222	.781	.635
n			1.214	87.595	.228	.781	.643
Estate_e	9.269	.003	.210	98	.834	.358	1.709
xp			.203	77.539	.840	.358	1.768
CF_exp	.051	.822	1.039	98	.302	.704	.678
			1.043	93.975	.299	.704	.675
No._tea_	.645	.424	-.256	98	.799	-8.117	31.761
bushes			-.249	81.673	.804	-8.117	32.578
Family_l	1.253	.266	-.380	98	.704	-.047	.124
abour			-.375	86.701	.709	-.047	.126
Hired_la	.446	.506	.170	98	.866	.031	.182
bour			.170	92.529	.866	.031	.182
Distance	1.255	.265	.248	98	.805	.03896	.15709
			.251	96.147	.802	.03896	.15511
Mgt_sup	7.066	.009	1.443	98	.152	.268	.186
port			1.403	80.443	.164	.268	.191
Future_	1.620	.206	1.200	98	.233	.245	.204
CF			1.184	87.182	.239	.245	.207

**Table 4.7** Correlations matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) CF output	1													
(2) Net income	.73**	1												
(3) Division	.07	.04	1											
(4) Gender	-.01	-.02	.01	1										
(5) Age	-.09	.01	-.10	-.10	1									
(6) Family size	.10	.17	-.09	.09	-.07	1								
(7) Education	-.04	-.17	.02	-.12	-.67**	-.06	1							
(8) Estate experience	-.07	.05	-.06	-.02	.88**	-.02	-.71**	1						
(9) CF experience	.41**	.63**	-.27**	-.10	.14	.12	-.17	.13	1					
(10) No. of bushes	.72**	.51**	.10	.03	-.13	.19	-.11	-.09	.24*	1				
(11) HH labour	.25*	.24*	.09	.04	-.02	.50**	-.06	.02	.24*	.28**	1			
(12) Hired labour	.42**	.44**	.02	-.02	-.11	-.08	-.01	-.12	.21*	.27**	-.25*	1		
(13) Distance	-.14	-.23*	-.13	-.03	.04	.08	-.03	-.01	-.13	-.02	-.03	-.06	1	
(14) Manage. support	.43**	.60**	.11	-.14	-.11	.02	.04	-.05	.48**	.27**	.17	.21*	-.15	1
(15) Future involve	.46**	.54**	.17	-.12	-.30**	.19	.10	-.29**	.43**	.27**	.17	.29**	-.08	0.43**

**Note:**  $N=100$ . \*  $p < .05$  (two-tailed); \*\*  $p < .01$  (two-tailed)

The correlations among fourteen variables identified in the study are depicted in table 4.7 which is a fundamental requirement for all the subsequent analysis done in this study. Among those variables, CF output and CF net income are predominant as dependent variables which are significantly correlated with many other variables which seem to be rather independent.

The primary aim of this analysis is to understand whether the effect of estate division (or gender) on output and net income of contract farming is dependent on gender (or estate division). Although, it proves that the CF output and net income are significantly correlated as the coefficient value (0.73) is greater than 0.2, it has not created a multicollinearity effect as it is below 0.9. CF output further ensures significant positive relationships with number of tea bushes (0.72), number of workers hired (0.42), experience in contract farming practice (0.41), and the estate management support (0.43) at 1 percent ( $p\text{-value} < 0.01$ ) level of significance. Moreover, number of workers involved from the household (0.25) is also positively and significantly correlated with contract farming output at 5 percent ( $p\text{-value} < 0.05$ ) level of significance.

Net income earned from contract farming also has shown positive significant relationships with contract farming experience (0.63), number of tea bushes (0.51), amount of hired workers (0.44), and estate management support (0.6) at 1 percent level of significance, and number of workers involved from the household (0.24) at 5 percent level of significance. Notably, the distance to the CF plot has shown a much weaker significant negative correlation (-0.23) with the net income from contract farming at 5 percent level. However, tendency of contract farming involvement is depicting a negative relationship (-0.27) with the tea estate division which is significant at 1 percent.

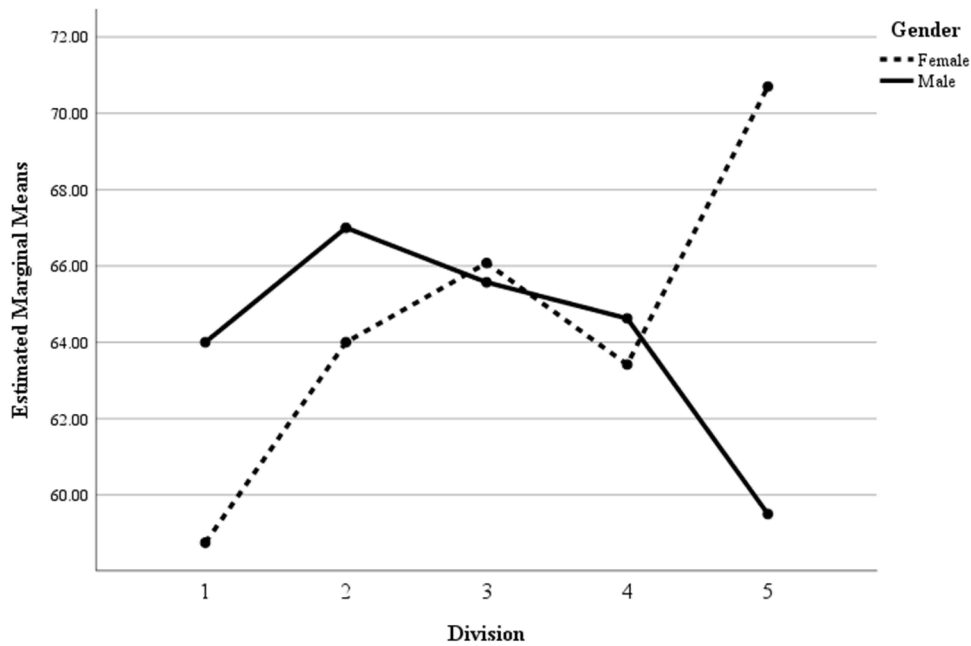
Among the other significant correlations; although the age of the contract farmer highlights a strong significant positive correlation with estate work experience (0.88), its

relationship with contract farming experience is insignificant. However, the results signify that higher the contract farming experience, higher the number of tea bushes managed (0.24). Although, the negative correlations of level of education attained by contract farmers with age (-0.67) and estate work experience (-0.71) are significant, the involvement in contract farming practice is not significantly related to the level of education attained by the farmer.

The result notably highlights some significant positive indications on the involvement of household labour in contract farming. Among those, family size is significant with a moderate correlation. Further, it reveals that contract farmers tend to use more family workers and as well as hired labour as they increase their involvement in contract farming. However, the results further confirm a much expected significant negative correlation (-0.25) between household labour and hired labour. Most notably, the results in table 3 suggest that highly involved contract farmers (with more experience and tea bushes) with more hired labour tend to perceive the estate management support in their contract farming endeavour positively. As far as the future involvement of estate workers in contract farming is concerned, the correlation result reveals a positive significant relationship with contract farming output (0.46), net income from contract farming (0.54), past experience in contract farming (0.43) and the support from the estate management (0.43). However, the future involvement signifies a negative correlation with farmer's age (-0.30) and estate work experience (-0.29).

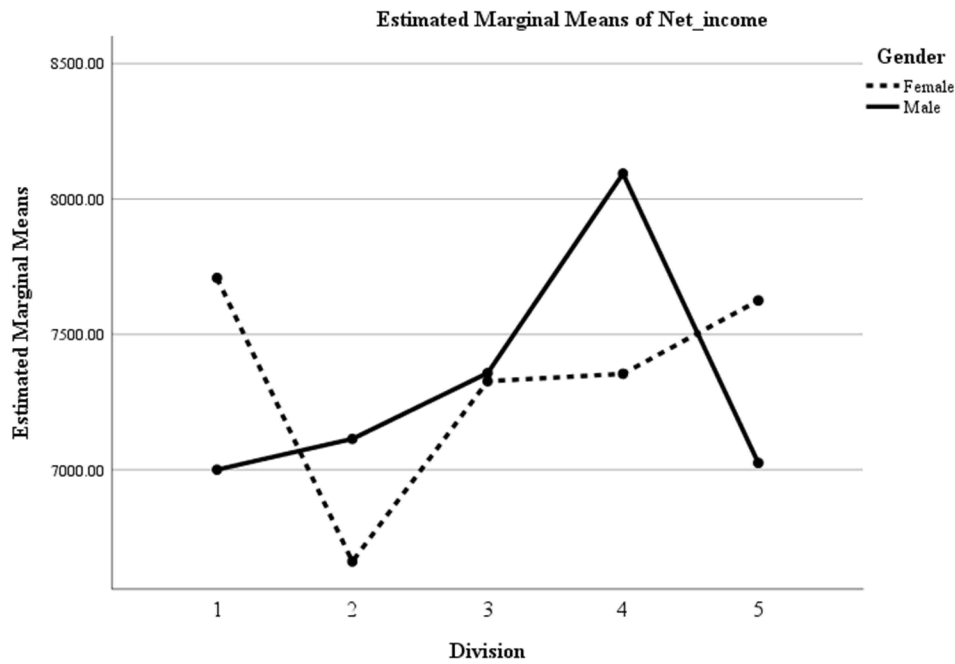
#### ***4.5.1 Gender Equity in Contract Farming at Alpha Estate***

Estimated means of CF output are illustrated in figure 4.2 explaining the performance diversity between gender groups in five estate divisions. These tea divisions were used as proxies for variability in land productivity. It explains that marginal means of females (compared with men's) are lower in Division 1, 2 and 4. The higher performance of females in Division 5 shows a considerable difference than men. In Division 3, both the genders are performing at the same level which is close the mean CF output of the sample selected.



**Figure 4.2** Estimated marginal means of CF output

The divisional marginal means of CF output are reflected in divisional marginal means of net income (see Figure 4.3). However, Division 1 females have managed to maintain their net income at a higher level than men irrespective of their lower CF output. Thus, the marginal means of divisional CF output and net income are based on the differences of individual capacities which are apparently not exogenously determined.



**Figure 4.3** Estimated marginal means of net income

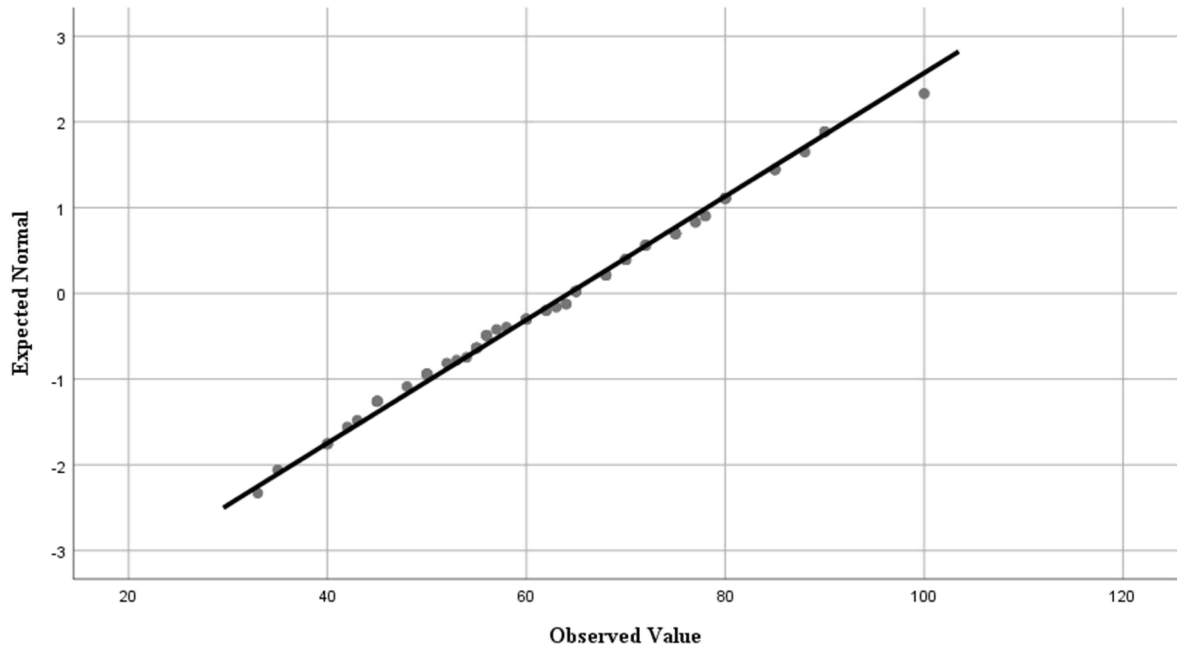
**Table 4.8** Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
CF output	.061	100	.200*	.990	100	.629
Net income	.069	100	.200*	.985	100	.313

\*. *This is a lower bound of the true significance.*

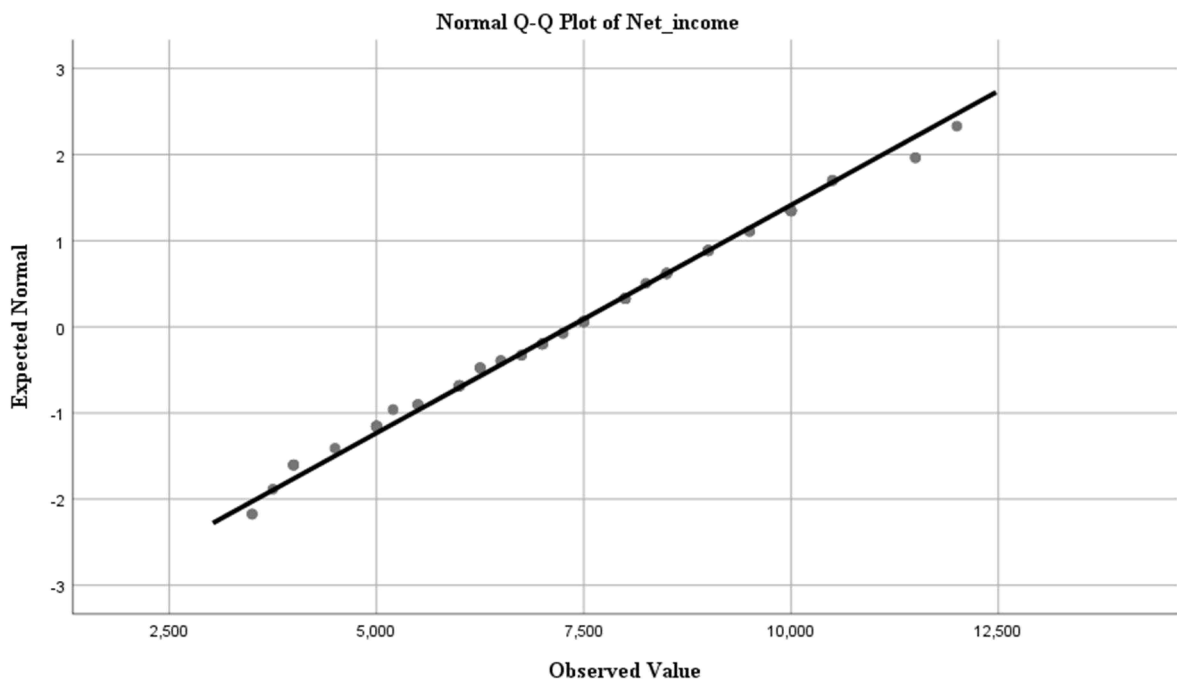
a. *Lilliefors Significance Correction*

One of the key requirements (assumptions) of MANOVA to be satisfied is the normality. According to this requirement the dependent variables need to be normally distributed. The Shapiro-Wilk result of the normality tests with significance values of 0.629 and 0.313 (see Table 4.8) evidences that CF output and net income are normally distributed. The K-S test as well by reporting a significance value of 0.2 for both the dependent variables confirms that there is enough statistical evidence to prove the data are normal.



**Figure 4.4** Normal Q-Q plot of CF output

The normal Q-Q scatterplots in figure 4.4 and figure 4.5 depict that all the points lie quite close to the trend line confirming that the CF output and CF net income data come from a normal distribution. Although, there's a little random wriggle about the line; this does not disqualify these data from being normal.



**Figure 4.5** Normal Q-Q plot of net income

The results of different multivariate tests (see Table 4.9) can be used to test the statistical significance of the different effects of the independent variables. Although, different tests provide different statistics for the significance, we have used the most commonly adopted Wilks' Lambda. Accordingly, significance values 0.362 and 0.981 of emphasize that there is no significance variation in CF output and net income between estate divisions and gender groups, respectively. The interaction effect determines whether the gender effect is similar for all the divisions. However, the p-value of 0.222 explains that the gender effect is similar for all the divisions. Therefore, it is concluded that there is no statistically significance interaction effect between estate division and gender on the combined dependent variables (CF output and net income).

**Table 4.9** Multivariate Tests<sup>a</sup> (Wilks' Lambda)

Effect	Value	F	Hypothesis Df	Error df	Sig.
Intercept	.043	998.865 <sup>b</sup>	2.00	89.00	.000
Division	.908	1.104 <sup>b</sup>	8.00	178.00	.362
Gender	1.000	.019 <sup>b</sup>	2.00	89.00	.981
Division * Gender	.889	1.350 <sup>b</sup>	8.00	178.00	.222

a. *Design: Intercept + Division + Gender + Division \* Gender*

b. *Exact statistic*

Accordingly, the following section of the data analysis depicts the major results of the gender equity of CF system at the Alpha Tea Estate of Beta RPC. Multiple linear regressions were conducted using performance indicators as the dependent variable and farmers' and farm characteristics as explanatory (independent) variables including divisional dummies.

Regression output in table 4.10 depicts the impact of explanatory variables on the weekly CF output of green leaves harvest in kilograms. Accordingly, the result suggests that the gender is not statistically significant in CF output. Thus it reveals that the CF system successfully equalizes gender in terms of weekly CF output. However, it reveals that the

estate management support is statistically significant (0.043) variable as a farm characteristic with a positive impact.

**Table 4.10** Linear regression analysis for CF output

Linear regression		Number of obs	=	100
		F(3, 4)	=	.
		Prob > F	=	.
		R-squared	=	0.3195
		Root MSE	=	12.158

(Std. Err. adjusted for 5 clusters in Division)

Output	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
female	-.453802	4.473483	-0.10	0.924	-12.87418	11.96658
Age	-.3992723	.2462763	-1.62	0.180	-1.083045	.2845003
Famsize	.3811138	.3340436	1.14	0.318	-.5463399	1.308567
Education	-.7480611	.5414879	-1.38	0.239	-2.251473	.7553504
Expcont	1.52871	.8226612	1.86	0.137	-.7553634	3.812784
Dist	-1.119106	2.316391	-0.48	0.654	-7.550438	5.312226
Manage	3.26542	1.11185	2.94	0.043	.1784302	6.352409
Division						
2	10.57409	1.642096	6.44	0.003	6.014899	15.13327
3	6.54817	.8413295	7.78	0.001	4.212265	8.884075
4	6.123142	2.04141	3.00	0.040	.4552786	11.79101
5	8.229083	3.697806	2.23	0.090	-2.037671	18.49584
_cons	57.61879	23.24952	2.48	0.068	-6.932215	122.1698

**Table 4.11** Linear regression analysis for CF yield

Linear regression		Number of obs	=	100
		F(3, 4)	=	.
		Prob > F	=	.
		R-squared	=	0.2850
		Root MSE	=	.0066

(Std. Err. adjusted for 5 clusters in Division)

yield	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
female	.00019	.0018089	0.11	0.921	-.0048323	.0052122
Age	-.000111	.0001615	-0.69	0.530	-.0005593	.0003373
Famsize	-.0000576	.0001812	-0.32	0.766	-.0005608	.0004455
Education	-.0001084	.000358	-0.30	0.777	-.0011023	.0008856
Expcont	.0008736	.0003419	2.56	0.063	-.0000756	.0018228
Dist	-.0008886	.0008854	-1.00	0.372	-.0033469	.0015698
Manage	.0013751	.0004848	2.84	0.047	.0000291	.0027211
Division						
2	.0052959	.0009939	5.33	0.006	.0025365	.0080553
3	.002708	.0004561	5.94	0.004	.0014418	.0039743
4	.0021762	.000959	2.27	0.086	-.0004865	.0048389
5	.0041573	.0015748	2.64	0.058	-.0002149	.0085296
_cons	.0408311	.0112623	3.63	0.022	.009562	.0721001

CF yield explains the CF output per tea bush maintained by the contract farmer. According to the result in table 4.11, gender equality is apparent in CF system. Further, this result also positively signifies (0.047) the estate management support in yielding the maximum output from a tea bush.

**Table 4.12** Linear regression analysis for output per family labour

Linear regression		Number of obs	=	100		
		F(3, 4)	=	.		
		Prob > F	=	.		
		R-squared	=	0.2199		
		Root MSE	=	9.4575		
		(Std. Err. adjusted for	5 clusters in Division)			
OperF	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
female	-.8783682	2.293637	-0.38	0.721	-7.246526	5.48979
Age	-.2517078	.1955404	-1.29	0.267	-.7946149	.2911992
Famsize	-2.174795	.8851146	-2.46	0.070	-4.632267	.2826772
Education	-.5718324	.4623742	-1.24	0.284	-1.855589	.7119241
Expcont	.4707288	.403999	1.17	0.309	-.6509522	1.59241
Dist	-1.530204	1.551503	-0.99	0.380	-5.837868	2.777459
Manage	.7171929	1.243268	0.58	0.595	-2.734671	4.169057
Division						
2	8.460227	.9884229	8.56	0.001	5.715925	11.20453
3	2.397532	.8055916	2.98	0.041	.1608508	4.634212
4	1.110196	.9434587	1.18	0.305	-1.509265	3.729658
5	1.837643	1.493586	1.23	0.286	-2.309215	5.984502
_cons	49.26872	10.35678	4.76	0.009	20.51368	78.02375

The regression result proves the gender equality in output per family labour (see Table 4.12). However, the family size seemed to be significant at 10 percent level of significance (0.070), though it is insignificant at 5 percent level.

As the other key performance indicator, the monthly net income from contract farming is not affected by the gender (see Table 4.13). However, there is statistical evidence to prove that the family size, contract farming experience (0.039) and management support are significant (0.003) in determining the monthly net income from contract farming.

The regression result in table 4.14 suggests that gender is not significant in determining the net income per tea bush.

**Table 4.13** Linear regression analysis for CF net income

Linear regression			Number of obs	=		100
			F(3, 4)	=		.
			Prob > F	=		.
			R-squared	=		0.5762
			Root MSE	=		1303.7
(Std. Err. adjusted for 5 clusters in Division)						

Income	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
female	89.48566	327.7688	0.27	0.798	-820.5465	999.5178
Age	-27.54733	25.37432	-1.09	0.339	-97.99774	42.90308
Famsize	135.7977	38.32206	3.54	0.024	29.39865	242.1968
Education	-110.359	72.83953	-1.52	0.204	-312.5939	91.87599
Expcont	258.9485	85.9085	3.01	0.039	20.4283	497.4688
Dist	-271.7724	207.7931	-1.31	0.261	-848.6985	305.1537
Manage	704.131	106.7287	6.60	0.003	407.8046	1000.457
Division						
2	397.3433	147.9395	2.69	0.055	-13.40251	808.0891
3	180.1585	61.99921	2.91	0.044	8.021115	352.2959
4	735.1728	202.2577	3.63	0.022	173.6154	1296.73
5	607.5665	361.1635	1.68	0.168	-395.184	1610.317
_cons	4015.288	2442.309	1.64	0.176	-2765.65	10796.22

Thus, the gender equality is maintained in the CF system in terms of net income earned from a tea bush. However, contract farming experience (0.015) and the management support (0.009) are significant in determining the net income per tea bush.

**Table 4.14** Linear regression analysis for CF net income per tea bush

Linear regression			Number of obs	=		100
			F(3, 4)	=		.
			Prob > F	=		.
			R-squared	=		0.4938
			Root MSE	=		.23435
(Std. Err. adjusted for 5 clusters in Division)						

IperB	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
female	.032621	.0309738	1.05	0.352	-.0533761	.1186181
Age	.0007053	.0030569	0.23	0.829	-.0077819	.0091925
Famsize	.0157718	.0085585	1.84	0.139	-.0079904	.039534
Education	-.006826	.0068158	-1.00	0.373	-.0257496	.0120976
Expcont	.0412896	.0100869	4.09	0.015	.013284	.0692952
Dist	-.0516868	.0251552	-2.05	0.109	-.121529	.0181553
Manage	.1015153	.0210837	4.81	0.009	.0429775	.160053
Division						
2	-.0148116	.0270739	-0.55	0.613	-.0899809	.0603577
3	-.0455203	.0064911	-7.01	0.002	-.0635424	-.0274982
4	.0436418	.0232863	1.87	0.134	-.0210114	.1082949
5	.0341143	.0373378	0.91	0.413	-.069552	.1377805
_cons	.667878	.1459358	4.58	0.010	.2626952	1.073061

**Table 4.15** Linear regression analysis for CF net income per family labour

Linear regression		Number of obs		=		100	
		F(3, 4)		=		.	
		Prob > F		=		.	
		R-squared		=		0.2383	
		Root MSE		=		298.3	
		(Std. Err. adjusted for		5 clusters in Division)			
IperF	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]		
female	-3.066813	55.73283	-0.06	0.959	-157.806	151.6723	
Age	-4.321914	4.979567	-0.87	0.434	-18.14741	9.503582	
Famsize	-47.91094	29.41213	-1.63	0.179	-129.5721	33.75023	
Education	-18.86035	12.96866	-1.45	0.220	-54.86713	17.14644	
Expcont	23.0894	12.3597	1.87	0.135	-11.22664	57.40544	
Dist	-61.04396	53.32367	-1.14	0.316	-209.0942	87.00627	
Manage	60.8475	33.7423	1.80	0.146	-32.83613	154.5311	
Division							
2	158.1365	29.31964	5.39	0.006	76.73213	239.5409	
3	-8.863328	20.1093	-0.44	0.682	-64.69569	46.96904	
4	16.65041	28.13438	0.59	0.586	-61.46314	94.76396	
5	8.92381	42.56689	0.21	0.844	-109.2608	127.1084	
_cons	1049.832	201.1339	5.22	0.006	491.3946	1608.269	

The regression result in table 4.15 reveals that none of the main explanatory variables are statistically significant in determining the net income from CF per family labour. Especially, this result also proves that being a female in contract farming does not significantly determine the net income per family labour.

One of the key performance indicators of CF system is the allocation of tea bushes among contract farmers as it principally determines both the green leaves output and subsequently the net income. Interestingly, the regression result (see Table 4.16) reveals that gender or any other explanatory variable is not significant in the allocation of tea bushes among contract farmers. Thus, it proves that the equity is maintained in the CF system thereby both males and females have equal opportunities to involve in contract farming system.

**Table 4.16** Linear regression analysis for distribution of tea bushes

Linear regression	Number of obs	=	100
	F(3, 4)	=	.
	Prob > F	=	.
	R-squared	=	0.2167
	Root MSE	=	147.3

(Std. Err. adjusted for 5 clusters in Division)

Bushes	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
female	-9.818626	53.71191	-0.18	0.864	-158.9468	139.3095
Age	-7.040115	4.568779	-1.54	0.198	-19.72508	5.64485
Famsize	12.38471	6.271978	1.97	0.120	-5.029095	29.79851
Education	-17.00107	8.812526	-1.93	0.126	-41.46857	7.466423
Expcont	9.085511	8.749498	1.04	0.358	-15.20699	33.37801
Dist	4.360522	24.40264	0.18	0.867	-63.39206	72.11311
Manage	23.05279	16.36621	1.41	0.232	-22.38711	68.49268
Division						
2	86.31349	5.107668	16.90	0.000	72.13233	100.4947
3	89.55077	5.894715	15.19	0.000	73.18441	105.9171
4	78.17586	18.2815	4.28	0.013	27.41827	128.9334
5	71.40311	37.78862	1.89	0.132	-33.51492	176.3212
_cons	1473.633	382.2046	3.86	0.018	412.4628	2534.803

Family labour seems to be a key explanatory variable in contract farming as it is literally dominated by family labour. Thus, family size is supposed to be a significant variable in determining the number of tea bushes per family labour.

**Table 4.17** Linear regression analysis for tea bushes per family labour

Linear regression	Number of obs	=	100
	F(3, 4)	=	.
	Prob > F	=	.
	R-squared	=	0.2030
	Root MSE	=	154.04

(Std. Err. adjusted for 5 clusters in Division)

BperF	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
female	-14.05871	44.44675	-0.32	0.768	-137.4627	109.3452
Age	-4.085257	3.030971	-1.35	0.249	-12.50058	4.330068
Famsize	-39.53348	16.08333	-2.46	0.070	-84.18795	5.120995
Education	-10.51606	6.230637	-1.69	0.167	-27.81508	6.782963
Expcont	-1.838254	4.516998	-0.41	0.705	-14.37945	10.70294
Dist	-15.34083	26.06249	-0.59	0.588	-87.70191	57.02026
Manage	1.916391	20.32977	0.09	0.929	-54.52811	58.36089
Division						
2	103.9814	13.31891	7.81	0.001	67.00213	140.9606
3	23.24724	10.85959	2.14	0.099	-6.90382	53.39831
4	-8.750749	11.19996	-0.78	0.478	-39.84682	22.34532
5	-12.05374	14.51382	-0.83	0.453	-52.35057	28.24309
_cons	1081.521	116.713	9.27	0.001	757.4732	1405.568

Nevertheless, the regression result (see Table 4.17) evidences that family size is insignificant at 5 percent level. Further, reemphasizing the gender equality in this analysis, being a male or female proved to be insignificant.

**Table 4.18** Linear regression analysis for family labour

Linear regression		Number of obs		=		100	
		F(3, 4)		=		.	
		Prob > F		=		.	
		R-squared		=		0.3486	
		Root MSE		=		.52362	
		(Std. Err. adjusted for		5 clusters in Division)			
Famlabor	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]		
female	.054031	.1541835	0.35	0.744	-.374051	.482113	
Age	.0036973	.0119111	0.31	0.772	-.0293732	.0367678	
Famsize	.192496	.059	3.26	0.031	.0286858	.3563062	
Education	.0095683	.0284978	0.34	0.754	-.0695544	.088691	
Expcont	.0333447	.0144552	2.31	0.082	-.0067894	.0734789	
Dist	-.0061052	.0787682	-0.08	0.942	-.2248009	.2125904	
Manage	.0351134	.0390519	0.90	0.419	-.0733122	.1435389	
Division							
2	-.1258792	.0715146	-1.76	0.153	-.3244356	.0726772	
3	.0577518	.0183483	3.15	0.035	.0068088	.1086949	
4	.3299811	.0425738	7.75	0.001	.2117771	.448185	
5	.1697737	.0733546	2.31	0.082	-.0338913	.3734388	
_cons	.5985538	.8438921	0.71	0.517	-1.744466	2.941574	

As explained in the preceding analysis, family labour is highly important in CF system as it improves the household income by reducing the explicit labour cost. As expected, the family size has become significant (0.031) in determining the family labour involvement in contract farming (see Table 4.18). However, the gender issue has become insignificant in this determination implying an improvement in females' position within the household. This indicates that the traditional gender disparity is gradually disappearing from household with the introduction of CF system to the tea estate sector.

Family labour per tea bush (see Table 4.19) is another important factor as it necessarily depicts a positive relationship with the yield. Therefore, the size of the family is statistically significant (0.043) in determining the family labour per tea bush.

**Table 4.19** Linear regression analysis for family labour per tea bush

Linear regression		Number of obs	=		100
		F(3, 4)	=		.
		Prob > F	=		.
		R-squared	=		0.2564
		Root MSE	=		.00041

(Std. Err. adjusted for 5 clusters in Division)

FperB	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
female	.0000325	.0000957	0.34	0.751	-.000233	.0002981
Age	.0000118	.0000115	1.03	0.361	-.00002	.0000436
Famsize	.000127	.0000433	2.93	0.043	6.70e-06	.0002474
Education	.0000298	.0000256	1.16	0.310	-.0000414	.000101
Expcont	.0000162	8.29e-06	1.95	0.123	-6.82e-06	.0000392
Dist	-.0000169	.0000538	-0.31	0.769	-.0001664	.0001325
Manage	-.000026	.0000547	-0.48	0.659	-.000178	.0001259
Division						
2	-.0002232	.0000397	-5.63	0.005	-.0003334	-.0001131
3	-.0000814	.0000163	-4.99	0.008	-.0001266	-.0000361
4	.0001166	2.78e-06	41.97	0.000	.0001089	.0001243
5	.0000295	.0000244	1.21	0.293	-.0000382	.0000973
_cons	.0003548	.0006463	0.55	0.612	-.0014396	.0021493

However, the regression result in table 4.19 also proves that gender is insignificant in determining family labour per tea bush. This result also validates the gender equity maintained in CF system.

**Table 4.20** Linear regression analysis for hired labour

Linear regression		Number of obs	=		100
		F(3, 4)	=		.
		Prob > F	=		.
		R-squared	=		0.1059
		Root MSE	=		.90064

(Std. Err. adjusted for 5 clusters in Division)

Hidlabor	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
female	-.0296383	.2253775	-0.13	0.902	-.6553866	.5961101
Age	-.0250022	.0153687	-1.63	0.179	-.0676725	.0176681
Famsize	-.0713012	.0481979	-1.48	0.213	-.2051199	.0625175
Education	-.0387437	.0588682	-0.66	0.546	-.2021879	.1247005
Expcont	.0543651	.0112924	4.81	0.009	.0230125	.0857177
Dist	.009939	.097737	0.10	0.924	-.2614225	.2813006
Manage	.0903078	.1643213	0.55	0.612	-.3659214	.546537
Division						
2	-.0271908	.1221592	-0.22	0.835	-.3663592	.3119777
3	-.0867745	.043092	-2.01	0.114	-.2064172	.0328682
4	-.0571277	.0370804	-1.54	0.198	-.1600793	.045824
5	.1141403	.057508	1.98	0.118	-.0455277	.2738082
_cons	2.084298	.7546541	2.76	0.051	-.010958	4.179553

Hired labour is a substitute for family labour in contract farming. According to the regression result in table 4.20, family size has become insignificant in determining the number of workers hired from outside.

**Table 4.21** Linear regression analysis for hired labour per tea bush

Linear regression		Number of obs		=		100	
		F(3, 4)		=		.	
		Prob > F		=		.	
		R-squared		=		0.0853	
		Root MSE		=		.00067	
		(Std. Err. adjusted for		5 clusters in Division)			
EperB	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]		
female	-7.31e-06	.0001571	-0.05	0.965	-.0004436	.000429	
Age	-.0000175	.0000101	-1.72	0.160	-.0000455	.0000106	
Famsize	-.0000493	.0000392	-1.26	0.277	-.0001582	.0000595	
Education	-.0000268	.0000413	-0.65	0.552	-.0001415	.0000879	
Expcont	.0000359	9.09e-06	3.95	0.017	.0000107	.0000611	
Dist	.0000107	.0000794	0.14	0.899	-.0002097	.0002311	
Manage	.0000533	.0001217	0.44	0.684	-.0002845	.000391	
Division							
2	-.0000239	.0000836	-0.29	0.790	-.0002561	.0002083	
3	-.0000577	.0000302	-1.91	0.129	-.0001415	.0000261	
4	-.0000381	.0000318	-1.20	0.297	-.0001264	.0000502	
5	.0000671	.0000509	1.32	0.258	-.0000743	.0002085	
_cons	.0015352	.0004849	3.17	0.034	.0001889	.0028816	

Probably the reason might be, the family size essentially does not perfectly and positively correlated with family labour. In other words, the family might lack of working-age members. Therefore, the contract farmer has to hire workers from outside. However, the results in table 4.20 reveals that contract farmer tend hire workers when he/she is well-experienced in contract farming (0.009). However, the interesting result here is, hiring workers from outside is gender neutral implying gender equity promoted in CF system.

The regression result in table 4.21 repeats the same outcome which was highlighted in the preceding analysis. That is the hired labour per tea bush significantly depends on CF experience (0.017) of the farmers though the predictor variable is gender neutral. The outcome of table 4.22 can be identified as the combined output of the regression results in table 4.18 and table 4.20.

**Table 4.22** Linear regression analysis for family and hired labour

Linear regression			Number of obs	=		100
			F(3, 4)	=		.
			Prob > F	=		.
			R-squared	=		0.2494
			Root MSE	=		.87618
(Std. Err. adjusted for 5 clusters in Division)						

Labor	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
female	.0243927	.1919146	0.13	0.905	-.5084477	.5572331
Age	-.0213049	.0119324	-1.79	0.149	-.0544345	.0118247
Famsize	.1211948	.0367808	3.30	0.030	.0190749	.2233147
Education	-.0291754	.042582	-0.69	0.531	-.147402	.0890512
Expcont	.0877098	.024006	3.65	0.022	.0210586	.1543611
Dist	.0038338	.0829875	0.05	0.965	-.2265764	.2342441
Manage	.1254212	.1326079	0.95	0.398	-.2427575	.4935998
Division						
2	-.15307	.0756261	-2.02	0.113	-.3630417	.0569017
3	-.0290227	.029543	-0.98	0.382	-.1110472	.0530018
4	.2728534	.0651361	4.19	0.014	.0920067	.4537001
5	.283914	.1073196	2.65	0.057	-.014053	.5818809
_cons	2.682851	.927398	2.89	0.044	.1079818	5.257721

Thus, the family and hired labour usage of a contract farmer is significantly affected by the size of the contract farmers' household and the past CF experience of the farmer.

**Table 4.23** Linear regression analysis for family and hired labour per tea bush

Linear regression			Number of obs	=		100
			F(3, 4)	=		.
			Prob > F	=		.
			R-squared	=		0.1733
			Root MSE	=		.00062
(Std. Err. adjusted for 5 clusters in Division)						

LperB	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
female	.0000252	.0000779	0.32	0.762	-.000191	.0002415
Age	-5.64e-06	.0000102	-0.55	0.610	-.000034	.0000227
Famsize	.0000777	.0000316	2.46	0.070	-9.92e-06	.0001653
Education	3.01e-06	.0000292	0.10	0.923	-.0000779	.0000839
Expcont	.0000521	.000016	3.25	0.031	7.58e-06	.0000965
Dist	-6.19e-06	.0000548	-0.11	0.915	-.0001583	.0001459
Manage	.0000272	.0000793	0.34	0.749	-.0001929	.0002474
Division						
2	-.0002471	.0000505	-4.90	0.008	-.0003872	-.000107
3	-.000139	.000018	-7.71	0.002	-.0001891	-.000089
4	.0000785	.0000307	2.56	0.063	-6.68e-06	.0001637
5	.0000966	.0000676	1.43	0.226	-.000091	.0002843
_cons	.00189	.0007023	2.69	0.055	-.00006	.0038401

Further, the analysis reveals (see Table 4.22) that it is gender neutral proving that females are treated equally in using family and hired labour. However, unlike the preceding outcome, the linear regression for family and hired labour per tea bush (see Table 4.23) significantly depend only on the past CF experience of the contract farmer. Moreover, this outcome also neutralizes the gender promoting equity.

The future involvement in contract farming by the existing farmers is significantly determined (0.001) by the past CF experience of them (see Table 4.24). It is further sufficiently and significantly determined (0.034) by the age of the existing farmer. In other words, young farmers have shown a high enthusiasm in increasing their participation in CF system in the future.

**Table 4.24** Linear regression analysis for future involvement in CF system

Linear regression		Number of obs	=	100	
		F(3, 4)	=	.	
		Prob > F	=	.	
		R-squared	=	0.4450	
		Root MSE	=	.80281	
		(Std. Err. adjusted for	5 clusters in Division)		
Future	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
female	-.2648022	.1545474	-1.71	0.162	-.6938947 .1642902
Age	-.0507537	.0160766	-3.16	0.034	-.0953894 -.0061179
Famsize	.0817101	.0427609	1.91	0.129	-.0370132 .2004335
Education	-.0354932	.0434728	-0.82	0.460	-.1561931 .0852066
Expcont	.139056	.0152653	9.11	0.001	.0966727 .1814393
Dist	.0374657	.1066434	0.35	0.743	-.2586237 .3335552
Manage	.1415716	.0898235	1.58	0.190	-.1078183 .3909616
Division					
2	.4064163	.1035908	3.92	0.017	.1188022 .6940304
3	.534753	.0485993	11.00	0.000	.3998198 .6696862
4	.5653128	.0642116	8.80	0.001	.3870327 .7435929
5	.8700852	.0779595	11.16	0.000	.653635 1.086535
_cons	3.06031	.9845273	3.11	0.036	.3268244 5.793796

Accordingly, there are no sufficient statistical evidences to reject the null hypothesis  $H_{0a}$  and  $H_{0b}$ , developed in favour of gender equity in distribution of the outcomes of contract farming in light of the linear regression outcomes.

#### 4.5.2 Productive Efficiency of Contract Farming at Alpha Estate

The second primary objective of this study is to evaluate the significance of the contract farming system in enhancing the productive efficiency in Alpha Tea Estate of the Beta RPC. This has been evaluated using the log-linear regression model of the neo-classical production function. In this analysis, total labour hours of both family and hired labour, number of tea bushes and the contract farming experience of the farmer were used as input variables to evaluate the green leaves output (see Table 4.25).

**Table 4.25** Log-linear regression analysis of neoclassical production function - I

Linear regression		Number of obs		=		100	
		F(2, 4)		=		.	
		Prob > F		=		.	
		R-squared		=		0.6812	
		Root MSE		=		.13323	
		(Std. Err. adjusted for		5 clusters in Division)			
LY	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]		
1H	.1026538	.0428733	2.39	0.075	-.0163817	.2216893	
1B	1.220861	.2056489	5.94	0.004	.649888	1.791834	
1E	.1169511	.0525715	2.22	0.090	-.0290107	.2629129	
Division							
2	.0910826	.0152764	5.96	0.004	.0486684	.1334968	
3	.0149208	.0139372	1.07	0.345	-.0237751	.0536167	
4	.0227286	.0182676	1.24	0.281	-.0279904	.0734476	
5	.0595748	.0263423	2.26	0.087	-.0135631	.1327127	
_cons	-5.238581	1.405198	-3.73	0.020	-9.140037	-1.337125	

In observing the regression coefficients, it has been proved that number of tea bushes has become the predominant variable with increasing returns to scale (1.22). This apparently shows that the output elasticity with respect to the number of tea bushes is elastic. However, both labour hours and CF experience have been found to be insignificant (at 5 percent level of significance) but, inelastic in output determination with coefficient values 0.102 and 0.116, respectively.

**Table 4.26** Log-linear regression analysis of neoclassical production function - II

Linear regression		Number of obs		=		100	
		F(3, 4)		=		.	
		Prob > F		=		.	
		R-squared		=		0.6958	
		Root MSE		=		.13459	
		(Std. Err. adjusted for		5 clusters in Division)			
LY	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]		
lH	.1142613	.0373544	3.06	0.038	.0105488	.2179739	
lB	1.246139	.1701528	7.32	0.002	.7737194	1.718559	
lE	.0874036	.0530246	1.65	0.175	-.0598164	.2346236	
female	.018665	.0340221	0.55	0.612	-.0757954	.1131254	
Age	.0018522	.0035952	0.52	0.634	-.0081298	.0118341	
Famsize	-.0090764	.0040573	-2.24	0.089	-.0203414	.0021886	
Education	.0038316	.0078071	0.49	0.649	-.0178442	.0255074	
Dist	-.0200585	.0141472	-1.42	0.229	-.0593373	.0192204	
Manage	.0159945	.0087157	1.84	0.140	-.0082042	.0401931	
Division							
2	.0755987	.0188938	4.00	0.016	.0231411	.1280562	
3	.0080049	.010618	0.75	0.493	-.0214754	.0374853	
4	.0027995	.0199423	0.14	0.895	-.052569	.0581681	
5	.0344535	.0307508	1.12	0.325	-.0509245	.1198316	
_cons	-5.462086	1.050093	-5.20	0.007	-8.377611	-2.546561	

The log-linear function in table 4.26 has occupied both input variables and, farmers' and farm characteristics. Accordingly, both labour hours and number of tea bushes have become significant with values 0.038 and 0.002, respectively. However, the gender has become insignificant as a farmer characteristic.

If the marginal productivity of labour is the same between male and female, the allocation of tea bushes within the estate is Pareto efficient. If the female's productivity is higher than male's one, tea bushes should be allocated more to female in order to increase the efficiency of the company. The results (see Table 4.27) show that marginal productivity of labour is equalized between genders, but marginal productivity of bush is not equalized between genders. It implies that labour allocation is efficient, but tea bush allocation is not efficient. In order to increase output from the CF system, tea bush should be allocated to males more and to females less. Considering that tea bush is allocated equally between gender, such allocation is not efficient. Accordingly, the CF system encourages male workers

to work more seriously (at least by hiring workers) than without the CF system, and because males' inherent ability is higher than females'. Therefore, the equal allocation of bushes between genders is not efficient.'

**Table 4.27** Gender and marginal productivity

Linear regression		Number of obs		=		100	
		F(3, 4)		=		.	
		Prob > F		=		.	
		R-squared		=		0.7425	
		Root MSE		=		.12606	
		(Std. Err. adjusted for		5 clusters in Division)			
LY	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]		
1H	.1159769	.0501562	2.31	0.082	-.023279	.2552327	
1.female	6.407089	1.784366	3.59	0.023	1.452894	11.36128	
female#c.1H							
1	-.0200052	.0740708	-0.27	0.800	-.2256588	.1856483	
1B	1.702314	.1246165	13.66	0.000	1.356323	2.048304	
female#c.1B							
1	-.9197752	.2468738	-3.73	0.020	-1.605207	-.2343436	
1E	.0345036	.0252856	1.36	0.244	-.0357003	.1047076	
female#c.1E							
1	.12859	.0587018	2.19	0.094	-.0343924	.2915724	
Age	.0008687	.0021593	0.40	0.708	-.0051263	.0068638	
Famsize	-.0117827	.0045831	-2.57	0.062	-.0245073	.000942	
Education	.0031301	.0038282	0.82	0.459	-.0074986	.0137588	
Dist	-.0128213	.0158001	-0.81	0.463	-.0566893	.0310466	
Manage	.0157013	.0065323	2.40	0.074	-.0024352	.0338378	
Division							
2	.038916	.0140999	2.76	0.051	-.0002316	.0780636	
3	-.0017043	.0078626	-0.22	0.839	-.0235343	.0201257	
4	-.0318825	.008329	-3.83	0.019	-.0550075	-.0087576	
5	-.0194394	.0173644	-1.12	0.326	-.0676507	.0287718	
_cons	-8.543491	.9133833	-9.35	0.001	-11.07945	-6.007533	

## 4.6 Discussion and implications

### 4.6.1 Equity in distribution

One of the two objectives of this particular study is to identify whether the CF system maintains positive attributes in doing justice to socio-economically deprived tea estate community. In this effort, we have focused especially on the gender equity as female workers

in this working community have been subjected to socio-economic vulnerabilities. In the traditional estate management system, the role of females is considerably depressed in employment, and equity is not maintained in compensation. The CF system has eliminated those discriminative practices and proved to be equitable both in performance (output) and compensation (income).

In the traditional estate labour-management system, both male and female workers are equally paid despite the fact that female workers' full-day engagement compared to male workers' half-a-day (Samarasinghe, 1993; Philips, 2003). This has violated the fundamental justice in income distribution as the share of the income is not aligned to the level of contribution. Conversely, the CF system has proved that the equity is addressed and maintained as gender discrimination has been eliminated in all the spheres of the system such as, farmer selection, enforcing contracts, monitoring and guidance, resource assistance and payment management.

#### ***4.6.2 Efficiency in production***

Efficiency in the human development paradigm refers to the optimal use of existing resources to expand capabilities in order to reach goals of individuals and communities. Tea plantation sector in Sri Lanka has been challenged by the technical efficiency issue due to its inability to maximize the output with the given amount of labour and land inputs. Tea lands were idled due to the fact that labour was in a severe shortage. Therefore, the technical efficiency in production in CF has been assessed in light of the neo-classical Cobb-Douglas production function in order to identify the behaviour of returns through maximizing the usage of labour and land resources.

The neo-classical Cobb-Douglas production function is predominantly attributed with some intrinsic values which are fundamental in analyzing the economic behaviour of input

and output relationship. This analysis has been included with two conventional explicit input variables (land and labour) and one non-conventional explicit input variable (CF experience). According to the nature of the CF system of the study, the land factor has been indicated by the number of tea bushes. Labour factor includes both hired and household labour which has been accounted in terms of number of workers. Thus, the output of the neo-classical analysis (see Table 4.25) explains the linear dependency of tea green leaves output on labour, number of tea bushes and contract farming experience.

The valid and vital implication given by high output elasticity of tea bushes is, encouraging more male farmers to the system while retaining the existing farmers as the experience is significant in maintaining the gender equity.

#### **4.7 Conclusion**

The major reasons for the poor performance in the tea estate sector of Sri Lanka have been known to be the labour shortage and low labour productivity attributed in the existing traditional labour-management system, and hence a CF system has been introduced as an alternative institution. In this study, we investigate the performance of CF system of Alpha Estate of Beta Regional Plantation Company in terms of gender equity and production efficiency of contact farmers and find that it would be a concrete and sustainable solution for the socio-economic problems faced by the estate community as it is attributed with equity, efficiency and empowerment.

The present practice of labour-management system in the plantation sector can be successfully and easily converted into small-scale CF system as implemented by the Beta RPC in its Alpha Estate. Since each estate household gets a reasonable proportion from the tea land, they can raise their income by gradually increasing their participation. As the CF system promotes both freedom and equality, it encourages the discouraged to participate as

entrepreneurial farmers instead of being mere estate workers. This transition of tea estate workers would uplift their independent behaviour strengthening them to be their own agents in their socio-economic endeavours which is essential in human development.

## **Chapter Five**

### **CONCLUSION**

#### **5.1 Concluding remarks**

Different varieties of teas produced in Sri Lanka have gained the attention of different consumers around the world since the 19<sup>th</sup> century. However, as far as the tea growing and manufacturing process in the tea plantation sector in Sri Lanka is concerned, the prevailing condition is quite unwholesome due to poor socio-economic well-being condition of tea plantation workers, which was defined in above chapters as labour problem of tea plantation sector. This poor well-being condition of tea plantation workers has adversely affected their performance level (defined as labour productivity problem) and ultimately the contribution of tea plantation sector to the national tea output. Although these problems were discussed by different stakeholders of the tea industry of Sri Lanka, none of them were able to introduce a successful and sustainable solution.

According to the identification of the above labour and labour productivity problems, this study was designed and conducted with an ultimate objective of introducing a successful and sustainable solution for the tea plantation/ estate sector in Sri Lanka. In order to achieve this expected outcome, field investigations were conducted in both tea industries in Sri Lanka and Japan with an extensive literature survey. The study and the solution development consisted of three (03) stages.

1. It was investigated the initiatives taken by the management of selected Regional Plantation Companies (RPCs) to improve the labour productivity and level of socio-economic well-being of their tea estate workers.

2. Level of socio-economic well-being of tea estate workers were analyzed using Amartya Sen's capability approach in order to identify what they really value (want to do and be) in their personal and work life.
3. Small scale contract farming mechanism was evaluated to identify the suitability and applicability to tea plantation sector of Sri Lanka as a successful and sustainable solution to the chronic labour problem.

The major findings of the study are explained here which satisfy the study objectives explained in chapter one (01). Based on the findings explained below, recommendations and policy implications are given for different stake holders in order to implement the small scale contract farming solution in the tea plantation sector of Sri Lanka, successfully.

## **5.2 Major findings of the study**

1. The existing labour policies and practices of Regional Plantation Companies (RPCs) have failed in addressing the poor socio-economic well-being of estate workers and improving labour productivity of tea plantations in Sri Lanka. This failure does not definitely explain that the RPCs' labour policies are totally ineffective; rather those are insufficient in addressing those labour problems due to the prevailing deprived socio-economic condition within the estate community and budgetary constraints of RPCs.
2. As far as human development essentials in the tea plantation/ estate sector in Sri Lanka are concerned, the condition is rather adverse over to non-estate rural and urban sectors of the economy. This community is socio-economically deprived as they are lacking many basic (education, housing, health and nutrition) and complex human capabilities (social status, job recognition, participation and decision making) which have ultimately affected their freedom of choice. Although, employers and other

interested parties attempt to enhance basic capabilities, those have not been sufficient. Increase in estate income itself does not give a solution for this, if the individual does not have freedom to convert it to achieve his/ her personal goals.

3. Although plantation systems are important for the tea industry due to its economies of scale effect, small scale contract farming practice as well provide better solutions to enhance the production efficiency due to the reduced burden of involving in tea growing and harvesting. Further, it promotes gender equity which is hardly seen in the plantation sector.
4. Small scale contract farming system is widely used agricultural practice around the world due to its intrinsic values. Entrepreneurial nature of this practice gives the farmers a better social recognition and thus enhances their complex capabilities such as social status and empowerment. It was found in the field survey that the preference of estate workers for such a practice is significant.

### **5.3 Recommendations and policy implications**

In accordance with the above findings of this study, it is highly recommend introducing small scale contract farming in to the tea plantation sector in Sri Lanka through a formal mechanism. In the process of introducing this mechanism following activities are further recommended.

1. This practice has to be introduced gradually without replacing the existing system at once. Since, there are estate workers who are not familiar with contract farming and its effects; they will be reluctant to become contract farmers at the beginning. This was apparent in the field survey as some workers in the sample expressed their desire to continue with the existing system.

2. Although, the new system is introduced, some estate workers may prefer the existing plantation employment. As a solution for that, RPCs can provide both the alternatives for workers to make their choice by respecting their freedom of opportunity.
3. The following barriers identified in the study should be customized to enhance capabilities of tea estate workers through this new system.
  - a. Avoidance of participation and mediation of politicized estate workers' trade unions which are not functioning as real agents of estate workers. These trade unions should be replaced with farmers' cooperatives which are owned and controlled by independent estate farmers.
  - b. Customization of traditions and norms which minimize the effectiveness of the new system. Specially, the male dominant culture has adversely affected the empowerment of women through this new system.
4. Importantly, the success of this mechanism is partially depends on the policy instruments of the government. The government should provide adequate provision in the contract and labour law to support the promotion of such mechanism.

#### **5.4 Limitations of the study**

##### Limitations

1. As explained in above chapters, Sri Lankan tea estate community in high-grown areas consists of Tamil immigrant workers from South India and considered as an ethnic minority. This attribute has created different human rights related issues in past. Therefore, top management of RPCs has applied restrictions and strict conditions for outsiders in accessing this community.
2. Due to the limited accessibility of these Tamil estate workers to other communities, their Sinhala language speaking ability was very low. This created a barrier for the researchers in conducting interviews with them.

3. It was found many contradictions in the secondary data obtained from different regulatory firms of the tea industry of Sri Lanka. Since, there were mutual interdependence among these firms; it was difficult to identify the original source of data for reliability.

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