

Plantation Communities Project – Phase II

Investing in People: Social Welfare and Labour Productivity in Sri Lanka's Plantation Sector



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This study examines the relationships between social welfare programs and productivity on Sri Lanka's tea estates. Using both qualitative methods that inquire into stakeholder perceptions of the relationships between social welfare and productivity, and quantitative analysis of the factors that drive productivity, the report asks whether social welfare programs can be 'win-win'. The findings should be of interest to policy-makers, unionists, tea estate management, civil society, and other groups working to improve the livelihoods of Sri Lanka's plantations communities.



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Contents

Abbreviations.....	1
Forward	2
1. Setting the context.....	6
2. Gathering information	10
3. Examining perceptions of what leads to productivity.....	15
3.1 Qualifying and explaining the factors affecting productivity.....	15
3.1.1 The logic of the qualitative inquiry	15
3.1.2 Profile of the information providers	16
3.1.3 Economic capital – money matters and productivity.....	17
3.1.4 Physical capital and its effect on wellbeing.....	20
3.1.5 Investing in Social Capital for productivity.....	22
3.1.6 Individual characteristics and Productivity (Human Capital) .	25
3.1.7 What the data tells us	26
3.2 Quantifying the factors affecting productivity.....	27
3.2.1 Logic of the study	27
3.2.2 Profile of the estates	28
3.2.3 Profile of the respondents.....	31
3.2.4 Profile of the Household	32
3.2.5 Plucking productivity	33
3.2.6 Human, social, economic, physical attributes and attitudes .	34
3.2.7 Multivariate analysis of factors affecting productivity.....	41
3.2.8 What the data tells us	42
4. Interpreting perceptions and the link to social welfare programmes...	45
5. Conclusions	48
References.....	50
Annex 1: Average ranking of all factors within each capital.....	51
Annex 2: Data tables for the quantitative study component.....	55

ABBREVIATIONS

CIDA	-	Canadian International Development Agency
CEPA	-	Centre for Poverty Analysis
FGD	-	Focus Group Discussion
ID	-	Identity Cards
NGOs	-	Non-governmental Organizations
OHS	-	Occupational Safety and Health
PCP	-	Plantation Communities Project
RPC	-	Regional Plantation Company
WUSC	-	World University Service of Canada

FORWARD

For the past 13 years, World University Service of Canada's (WUSC) Plantations Communities Project has worked with funding from the Government of Canada to improve the lives of people living on or near Sri Lanka's tea estates through the Plantations Communities Project. Specific activities have included support to improved work environments through investments in Occupational Safety and Health and improved communication between management and workers, and support to non-work environments through support to alternative livelihoods and family welfare through gender, health and nutrition.

One common theme that has brought all of these together has been an understanding that social welfare improvements benefit both tea estate workers and the companies that manage tea estates. In short, improving social welfare for tea workers - historically among Sri Lanka's most excluded groups - is assumed to be "win-win".

But what does it mean for us to say that such activities are "win-win"? During WUSC's time working in Sri Lanka, we have noted that it is often taken for granted that many important investments in social welfare on tea estates have an important impact on the productivity of estates. A healthy, wealthy and empowered workforce is assumed to be a more productive one. And while this assumption seems intuitively correct, plantation companies and those that serve their workers have relatively little empirical evidence to argue that it is so. The goal of this study conducted by the Centre for Poverty Analysis has been to empirically question this "win-win" hypothesis through both qualitative work that examined stakeholder perceptions of the connections between welfare and productivity and a quantitative analysis of the empirical relationships between the two.

The social welfare of the estate community is a shared responsibility. Traditionally, this responsibility has fallen to estate management, who have been expected to provide housing, water, health care and education. Unions have also provided an important role in achieving social recognition for the estate community and pushing for better living and work conditions. The nationalization of health and education services has led to significant improvements in estate health and education. Finally, recent decades have seen the growth of non-governmental organizations and other service providers, such as the Plantation Human Development Trust, on estates. There are many good reasons to conduct such a study. First, we must state unequivocally that the goal of social welfare programs is foremost to improve the lives of tea estate residents, and to ensure that they can access all of the rights and privileges afforded to them as citizens of Sri Lanka. Productivity

is not the reason that clinics are opened on estates, nor the rationale for providing free education to children.

That said, plantation companies, for better or for worse, need to provide an accounting of the returns on investments. We hope that this report will provide some basis for dispelling the myth that welfare investments are simply a cost, and instead help to position them as an investment in the future of companies and communities alike.

The audience for this report includes tea estate managers and the management of Regional Plantation Companies, as well as government, unions and other actors working on tea estates. As you will see, some of the report's findings are inconclusive, but do offer some food for thought, and point to a number of directions for those of us who want to see both successful tea communities and successful tea companies.

Finally, we would like to express our thanks and gratitude to the research team from CEPA, and most of all to all of the estate management, staff and workers who took time from their busy schedules to contribute to this study.

Jim Delaney
Project Director
Plantations Communities Project, Phase II



Setting the context

1. Setting the context

A good cup of tea has been the backbone of Sri Lanka's foreign earnings and global reputation. It is a part of our colonial legacy and has without a doubt been a part of Sri Lanka's growth and character. Behind Sri Lanka's exceptional cup of tea is the hard work and toil of thousands of workers living on the tea plantations who have moved from being nameless and stateless to workers, and more recently to shareholders and citizens.

The journey is not yet over. Plantation communities continue their relationship with the tea plantations which play an important role as a place of work, a place to live in and belong to. This relationship created a unique set of conditions that have shaped the way the tea industry functions at a production level. Due to these conditions, relationships between the employer and the labour force are strained, the availability of state services such as health, education and administrative services are poor, the workers' rights as citizens are not fully established and levels of poverty are high. Over the years, the plantation companies, the government, and civil society groups have undertaken programmes to improve the wellbeing of the communities and the conditions on the estates: granting citizenship, improving housing, health and child care, providing loans and vocational training, encouraging saving and organising empowerment programmes aimed at improving community and household conditions, attitudes, dignity and employer-employee relationships.

While living conditions on the estates have improved, there have been changes in the tea sector at large that question its viability in the long term. External factors such as competition from other commodities and other tea producing countries, the need to meet ethical, fair trade and environmental standards as well as the changes in agro ecological conditions have increased the pressure on the tea industries' viability. The industry laments that low productivity is reducing profits, while high wages and labour costs are increasing the cost of production leading to a reduction of the industry's competitiveness. The ability to retain staff, especially the younger generation is also a key challenge.

¹The term plantations and estates have been used interchangeably in this document. Both terms are commonly used in Sri Lanka to describe the large scale tea production unit.



Tea is among the most labour-intensive of all the plantation crops. Hand-picking two leaves and a bud, is labour-intensive and accounts for about 70 percent of the workdays on estates and about 40 per cent of the total cost of production (Yogarathnam, 2011). Other operations such as maintenance of the tea fields and some of the work at the factory level also remain labour - intensive. Needless to say labour productivity - that is the efficiency with which individuals carry out tasks - is a crucial component of the overall tea estate productivity.

Labour characteristics such as health, age and experience, physical conditions such as estate maintenance, factory infrastructure, and economic incentives such as wages, and awards are said to influence willingness to work on the estates. Social aspects such as conditions at home, management practices, fair treatment, leadership, employer-employee relationships also have an impact on productivity (Kodithuwakku & Priyanth, 2007; Jayasinghemudalige, 2010; Arunatilaka, 2000). However, which of these factors are more crucial is not clearly defined.

Unlike in other industries, the duality existing on the estates in terms of being both a place for living and for working, impacts social welfare investments and programmes. Although social welfare programmes are directly aimed at the worker and household wellbeing they are also expected to have an impact on labour retention, the willingness to work on the estates and productivity. However, it is not clear how this is taking place. This prompted the World University Services of Canada (WUSC), a civil society group to look deeper into this issue.

WUSC has worked in the plantation sector for more than 10 years. With funding from the Canadian Development Agency (CIDA), WUSC implemented the Plantation Communities Project (PCP 1), and PCP 2 (since 2008) with the objective of creating a win-win situation for all stakeholders, and aligning social investments by different stakeholders (i.e. Regional Plantation Companies, government, donors and civil society) for greater impact on improving the wellbeing of the plantation community. While traditionally, a review would focus on the wellbeing improvements due to investments and services provided for this purpose, WUSC was interested in taking it beyond that. Hence this study, carried out by the Centre for Poverty Analysis (CEPA) for WUSC, aims to examine the links between social welfare programmes and productivity.

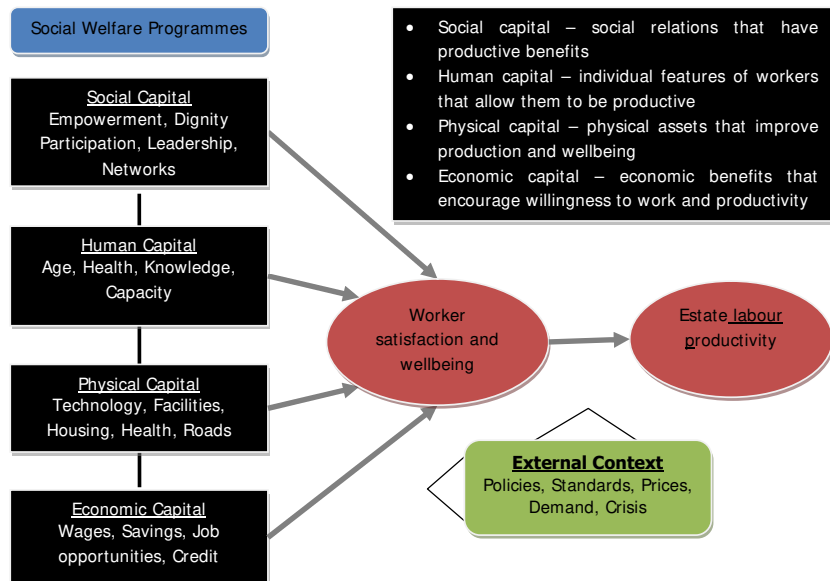
Gathering information

2. Gathering information

The overall objective of the study is to examine the relationship between social welfare programmes and their contribution to productivity. The study asks two questions: 1) What are pivotal factors that contribute to labour satisfaction and productivity? and 2) Can social programmes lead to productivity changes? If so, how do they benefit the workers and how does it benefit the estate/tea plantation?

In order to answer these questions the study ran two separate levels of inquiry. One was a qualitative–ranking method and the other was a quantitative-perception and factor analysis method. Each level of inquiry would enable information to be collected and looked at through different lenses to reveal different aspects. However, both used the same framework based on the premise that there are different dimensions or “capital” that impact productivity and satisfaction. The 4 groups or “capitals” selected were: economic, social, physical and human. The relationships of the capitals to satisfaction and productivity is visualised in Diagram 2.1.

Diagram 2.1: The conceptual framework



As the diagram depicts it is expected that within each capital there would be different factors that can lead to satisfaction or dissatisfaction with the work environment that affects productivity or has a direct impact on productivity. The framework also takes into consideration that there can be external factors – such as price, competition and policies – that affects productivity.

The factors within each of the capitals that affect productivity that were explored in this study were provided by a group of stakeholders representing Regional Plantation Companies (RPCs), Non-governmental Organisations (NGOs), Academics and Trade Unions (see Box 2.1)².

Box 2.1 : Factors affecting labour productivity on the estates

<p>Social Capital</p> <ul style="list-style-type: none"> • Dignity (treated with respect, appreciation for work done, attitudes, rights) • Employer-employee relationships (better relationships among workers and other levels, open communication, participatory management, being informed about the industry, managing trade union influences) • Family harmony • (behavioural issues (abuse, alcoholism), health issues, financial concerns, child care and family member wellbeing) • Land ownership • (owning land/sense of belonging) 	<p>Human Capital</p> <ul style="list-style-type: none"> • Skills on the job (how to use new machines in the factory or in the fields, training on 5S or other efficiency systems, pruning, plucking etc.) • Mental and physical health condition of the worker • Working hours (8 hour work days allows for targets and assigned work to be completed) • Knowledge (formal education - schooling) • Age of worker (Age and experience)
<p>Economic Capital</p> <ul style="list-style-type: none"> • Investment in social welfare programs • Satisfactory wages, statutory dues • Savings • Compensation and allowances (awards/incentives) • Access to alternative employment 	<p>Physical Capital</p> <ul style="list-style-type: none"> • Factory infrastructure (upgraded technology, machinery, processes) • Living conditions - housing, water, roads, sanitation • Ecological conditions and agricultural practices (tea estate management) • Good working condition, safety equipment, tools for work (health and safety, as well as toilets, rest areas, dust control) • Improved health care facilities (hospitals, dispensaries etc.)

The qualitative inquiry focussed on increasing the understanding of what factors affected productivity and how social welfare programmes have helped to achieve these factors. The factors were ranked by different staff categories (managers, field officers, administration and

² The factors that affect productivity were discussed among a group of tea industry stakeholders at a consultation workshop held at the initial stages of this study. The factors were discussed along with their contribution to productivity. These were the factors that were then used in the ranking exercise

workers) so that different perceptions are captured and the most significant factors will be identified. This was done in twelve estates that represent a range of high to low productivity estates within six RPCs. The quantitative component used a factor analysis based on attitudinal statements to express the direct and indirect relationships between the capitals and productivity. This was done in four estates representing two high productivity and two low productivity estates. Data collection and sample details are given in the Table 2.1.

³These RPCs and estates were selected based on the fact that WUSC had worked in these RPCs and hence this would allow access to these sites as well as the fact that then all the estates would have had some experience with social welfare programmes.

Table 2.1 Data collection methods and sampling information

Qualitative Inquiry		Quantitative Inquiry	
Data collected from 12 estates:		Data collected from 4 estates	
Plantation Company	Estate	Plantation Company	Estate
Agrapataana	Waverly	Company 1	Estate A
Agrapataana	Diyagamawest	Company 1	Estate B
Bogawantalawa	Fetteresso	Company 2	Estate C
Bogawantalawa	Loinorn	Company 2	Estate D
Elpitiya	Fernlands		
Elpitiya	Nayapane		
Kelani Valley	Tillerie		
Kelani Valley	Halgolla		
Kahawatta	Galamuduna		
Kahawatta	Queensburry		
Watawala	Kenilworth		
Watawala	Abbotsleigh		
Data was collected through:		Data was collected through:	
<ul style="list-style-type: none"> • Male and Female Focus Group Discussions (FGD) for each estate with 10-15 participants per group selected randomly and proportionate to the type of job. • Interviews with different staff. 		<ul style="list-style-type: none"> • Productivity data gathered from each estate. • Worker survey capturing 113 workers, who were selected randomly and proportionate to the type of job. 	
Designation	interviews	Designation	interviews
Managers	8	Tea pluckers	73
Assistant Managers	10	Field labourers	27
Admin Officers	11	Factory & other workers	13
Field Officers	11		
Kanganis (field supervisors)	11	Total Males	50
Male workers (total # in FGDs)	105	Total Female	63
Female workers (total# in FGDs)	147		

**Examining
perceptions
of what
leads to
productivity**

3. Examining perceptions of what leads to productivity

3.1 Qualifying and explaining the factors affecting productivity

Section 3 will first elaborate on the details and descriptions from the qualitative exercise. The qualitative component asked different people to rank the factors that affected satisfaction and/or productivity and to justify these reasons. At this level of inquiry productivity is taken to be factors that impact the efficiency when a task is carried out.

3.1.1 The logic of the qualitative inquiry

The qualitative component aims to bring out perceptions on the key factors that affect productivity and the contribution of social programs to productivity. This was done through a ranking exercise that went through each factor within each capital and asked the stakeholder to rank it based on their perception of its importance to satisfaction with the job and its influence on productivity. The reasons for their choices were also captured. By asking for different staff to carry out this exercise, factors deemed important by each level of staff and those that are more significant or where there was consensus among different staff are captured. A comparison of the ranking of factors with social welfare programmes then shows if the welfare programmes have addressed priority productivity factors and if there has been some influence.

The analysis is done based on 51 interviews with different staff, and 26 focus group discussions with male and female workers in 12 estates (see Table 2.1). From each RPC, the estates were sorted based on lowest to highest labour productivity, derived as the annual production of tea divided by the number of workers. The sites were selected randomly by generating a random start number and a sampling interval based on the number of estates per RPC. The participants for the FGD were selected randomly but proportionate to all field divisions⁴ and the factory. Interviews were carried out based on availability.

⁴Each estate is generally divided into several sections - called divisions - where the tea is grown and collected.

3.1.2 Profile of the information providers

The profiles of the workers (labourers) that attended the focus group discussions and the profiles of the other categories of staff that were interviewed are given in Tables 3.1a and 3.1b.

Table 3.1a Profiles of the workers in the Focus Group Discussions.

Age	Female (147)	Male (105)	Worker Categories	Female (147)	Male (105)
<25	5%	12%	Tea Pluckers	100%	25%
25-35	35%	27%	Field labourers		54%
36-45	20%	30%	Factory labourers		7%
46-55	26%	27%	Kanganis		10%
>55	9%	4%	Watchers		5%
Missing data	6%	1%			

Marital Status	Female (147)	Male (105)	Years of Experience	Female (147)	Male (105)
Single	9%	10%	> 10 years	21%	20%
Married	86%	87%	10 - 20 years	39%	36%
Divorced/ widowed	4%	2%	21 to 30 years	28%	16%
Missing data	1%	2%	31 - 40 years	8%	17%
			>40 years	2%	3%
			Missing data	1%	8%

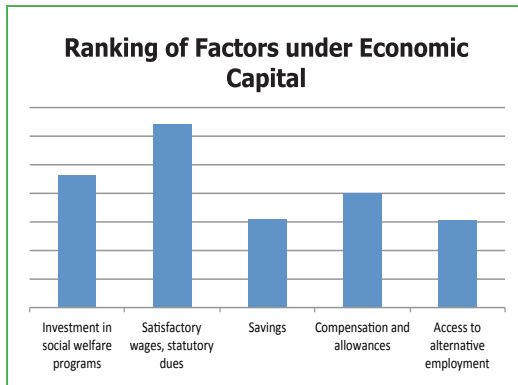
Source: Profile data gathered during FGDS.

Table 3.1b Profiles of the staff that were interviewed.

Years of Experience in this position	Managers (8)	Assistant Managers (10)	Admin. Officers (11)	Field Officers (11)	Kanganis (11)
< 10 years	2	8	0	2	1
10 to 20 years	5	2	1	2	0
21 – 30 years	1	0	6	5	4
> 30 years	0	0	3	2	5
Missing values	0	0	1	0	1

Source: Profile data gathered during interviews.

3.1.3 Economic capital – money matters and productivity



Wages was the most important factor affecting worker satisfaction. This is not surprising and is also reflected in the literature. This perception and its importance as a key driver of satisfaction was unanimous among all the stakeholders.

Workers' satisfaction with employment on the estates, is linked to the formal, regular nature of the work that also gives them statutory dues such as EPF/ETF and maternity benefits. Since the amount they earn is dependent upon meeting targets, this is linked to earning capacity, wages and productivity.

Most of the participants expressed that they are in financial difficulties and in poverty. They also have the responsibility to educate and look after their children and families. Some said they have peace of mind to work since the employment is permanent and they get a regular income. Even though the salary is low they like to continue this since it is a permanent work. The rest of them agreed with this idea and its ranking.

Enumerator notes, FGD Female

There are some youngsters who come back to estate because they get the EPF and ETF which will help them in the future.

-FGD Male

However some dissatisfaction was raised on the adequacy of pay, especially in keeping with the rising cost of living. This reduces the ability of wages to drive productivity higher.

... When cost of living shoots up salary does not go up, so they are demotivated, so we need to really keep par with proper wage and cost of living. See even when the salary was increased last year their plucking targets also went up by 2kg so it's something like previous situation so they were frustrated. I know that if wages are increased they will be happy and do well, but there are difficulties also.

-(Manager 16 years of experience)

The other strong factor influencing satisfaction, was the level of investment in social welfare programmes (such as housing, basic services, health services, education, child care), by the management of the estate and other entities (Government, NGOs). Given the link between work place and home, this factor could play a larger role in creating satisfaction than it would in other industries. The management sees this investment

as a means of motivating the workers to continue to stay in and contribute to the estates. However, views were also expressed by the management that reciprocal contribution to the estates is not as forthcoming as expected. From the workers

Estate is just like a country. We must improve social welfare as well as profit. But workers must help us. If they work more then we can earn more. On the one side it will increase the factory profit. On the other side, it will increase worker's income. PHDT and estate management combine to improve estate social welfare.

-Manager (8 years of experience)

point of view, they see investment in social welfare programmes as a major contributory factor to their connection to the estates, but feel that services provided are still inadequate. Investment on housing, water etc. has reduced; facilities, especially water, sanitation and roads are poor/inadequate; the costs incurred are cut from the salary; the investment and services are not evenly distributed among the community; are some reasons for dissatisfaction. Due to the historical link and context of the estates this has created a mutual dependency between the management and the estate population. Hence the management expects a return on investment in terms of increased productivity while the workers expect greater investment in welfare in order to improve productivity. Responses from both sides indicate a shortfall in meeting expectations.

Some factors that got mixed results were compensation and allowances and access to alternative employment. There are several incentives in place to encourage higher performance. Allowances for plucking targets and attendance are two incentives that are directly related to productivity. If the workers' monthly attendance is above 75%, an additional Rs. 105/= is added to the daily basic wage. One and a half days wages are paid for working on Sundays and Poya days and double the payment for male field workers who work for the whole day. Plucking targets are set at between 14-20kg depending on the estate and its ecological conditions, and anything above that receives additional payment⁵. While trying to pluck above the targets is a key incentive for the female workers, most levels of staff (Kangani's to Managers) feel that awards can help to further boost performance.

My eyes were affected because of a chemical and I got treatment at the town hospital. When I wanted to get the compensation they wanted the medical certificate, so I got that from the hospital spending about 3 days, and they told me it has to be authorised by the head of that hospital. For that reason I had to spend 3 more days. So ultimately I spent six days, lost wages and did not get any compensation.

- Male FGD

Workers are also entitled to compensation for accidents. However, workers are not

⁵These allowances and incentives are not static and change over time. There are also differences based on RPCs.

satisfied with the process necessary to claim compensation. A process which involves obtaining documentation relating to number of days in hospital, paper work, and also time spent – at the cost of workdays.

There was also some dissatisfaction expressed in terms of how allowances were paid for meeting targets – for example, the docking of pay if the target cannot be met due to lack of tea leaves or if they are entitled to EPF/ETF for extra kilos plucked. Hence, some confusion and a lack of transparency and procedures have led to allowances and compensation being ranked lower in terms of their contribution to productivity.

Different levels of staff perceive the contribution of access to alternative employment to productivity very differently. Male workers who have more free time see this as a very important factor. A majority of them have ranked this as the second most important economic factor and see it as a necessity to make ends meet, especially during the off seasons when work on the estates is limited. Female workers see this as less important, as they have less free time. They



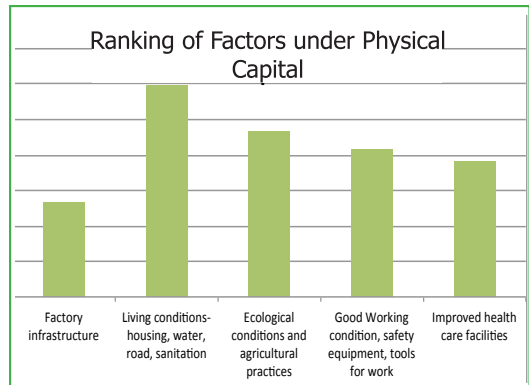
"It acts as a push pull factor. If they have alternative jobs, they try to finish estate duties as soon as possible and go to other jobs. On other hand, it may save time and improve their living condition by more income."

- Field Officer (33 years of experience)

tend to engage in activities such as poultry or home-gardening that can be combined with estate work. Both males and females treat these as supplementary income, not as employment that replaces estate work, but as employment that infuses some additional cash or savings on expenditure into the household.

Managers rank alternative employment very low, as they see it as a negative contributor to productivity that takes people away from estate work, especially the men, who then do not come to work or do not complete their tasks. In contrast, a view among Kanganis and Field Workers is that alternative employment increases livelihood opportunities on the estates and helps diversify livelihood portfolios, bringing in additional income. Additionally, better access to goods and services

(shops, poultry, carpenters, etc.) within the estates are seen to enhance living conditions and encourage people to remain on the estates. There is divergence of views with regards to the role of alternative employment as an indicator of worker satisfaction and productivity.



3.1.4 Physical capital and its effect on wellbeing

Improvements to living conditions and facilities (housing, water, transport, sanitation) are ranked as the most important physical contributor to worker satisfaction. The rationale being that basic needs come first and addressing these will reduce mental stress and the preoccupation with conditions at home and thus improve concentration at work. Better facilities (water, sanitation, roads) mean less time spent on household

"We need first of all a house and basic facilities, and then only we can think of the rest. Then only we can peacefully go to work."

- Male FGD

"They go to fetch water, walk too long taking children to schools etc and this makes them tired and less productive during working hours. If the living condition is improved additional work can be done."

Administrative Officer (35 years experience)

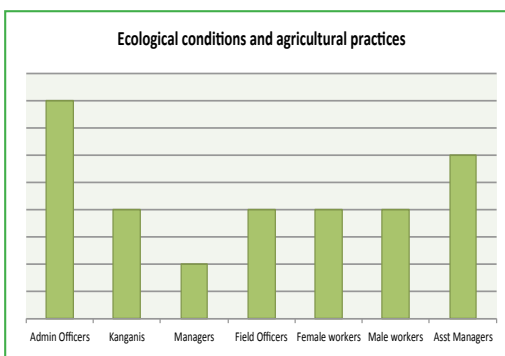
"Water is a basic need that is essential. It will affect their attendance. These things [better living conditions] will facilitate them to reach their target."

- Assistant Manager (1 year experience)

chores, taking children to school and accessing medical services etc. that will improve attendance and the ability to work.



The lack of these facilities leads to dissatisfaction and demotivation. Shortcomings especially in water and sanitation facilities, roads, maintenance of line rooms, lack of space and privacy were some of the inadequacies highlighted by the stakeholders – the labour force and other levels of staff.



Ecological conditions and management of the estates was ranked as the 2nd most important factor. This factor encompasses components such as weather, altitude, rainfall etc., significant growing conditions that affect productivity and are beyond the control of the estates.

Ecological conditions and agriculture practices and benefits to productivity

"The workers know that healthy tea bushes means they can earn more so they have a positive attitude towards periodic fertilizing and maintenance."

- Assistant Manager (6 years of experience)

"Now we are converting seedling tea to VP tea. It costs 1.5 million. But it will be double the production. In addition, we have target oriented programs called කැබෙන දළ නෙවෙයි කඩන දළ වික ගන්න ඕනේ....."

- Manager (8 years of experience)

If the tea bushes are in a good condition, pluckers can work more days, they like to come to work and increase their productivity.

Administrative Officer (33 years of experience)

"Now we are working even though we do not have any facilities, but we need tea leaves to pluck and make money"

- Female FGD

Ecological conditions and agriculture practices and reduction in productivity

"Workers go for outside work because the amount of work available in the estate is low. If the crop is there in the estate, they don't go for outside work."

- Field Officer (29 years of experience)

"If the management makes arrangements to maintain the tea bushes - such as timely fertilizing, removal of grass - they could double the productivity."

- Female FGD

"The bushes are not maintained properly, less spraying and fertilizing gives very less yield and unhealthy bushes. It's very difficult to pluck at least 15 kg."

- Female FGD

"This estate's productivity is very low compared to other estates because of the lower growth of bushes, due to the weather pattern."

- Assistant Manager (8 years of experience)

It also included aspects of soil management, replanting, pruning and maintenance of the tea estates. This was ranked as more important by the female workers, managers and field officers while the estate managers have given it the highest priority. Females see their productivity – their

ability to meet targets, make a good income – as very much linked to the proper management of the tea bushes and weather conditions.

Overall, good working conditions were ranked as more important than factory infrastructure in terms of improving productivity. However, there was a difference in opinion on the importance of this factor based on job type (tea pluckers and factory workers). The tea pluckers have poorer working conditions (heavy baskets, no protective gear, less rest areas and toilet facilities). Interestingly, however, the females felt that having good factory infrastructure is more important as the final value added and quality of the tea they pluck and the profits are dependent on having modernised, well maintained tea factories. Better conditions and facilities in the factories are associated with less physical labour and more efficiency.

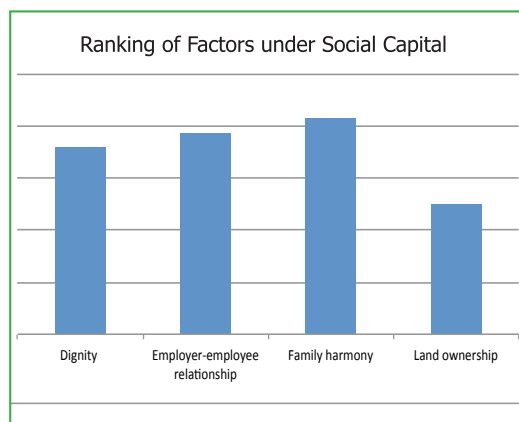
Awareness on occupational health and safety (OHS) and use of safety equipment are seen to improve health conditions and reduce accidents and absenteeism thus having an impact on productivity. However, there is concern that not enough importance is placed on safety equipment and workers don't wear protective gear or follow procedures.

"If a good working environment is provided, it will make a positive impact on the productivity. Safety equipment such as boots, masks, jenkins etc are given to the sprayers but they don't use them. The management has given enough awareness but it is not practiced."

- Assistant Manager (6 years of experience)

Improvements and access to health care are acknowledged as being largely free and available on the estates but seen as relatively less important to productivity in terms of physical capital.

3.1.5 Investing in Social Capital for productivity



Unlike the other capitals, in social capital, there is no clear winner among the three factors – dignity, employer – employee relationships and family harmony, although, family harmony has a very slight edge over the other two. Table 3.1 indicates the mix of views as to what factors are more important among the different staff categories.

Table 3.1: Most often selected (mode) social capital factors by different staff level

	Dignity	Employer – Employee relationships	Family Harmony	Land Ownership
Female workers	3	4	2	3
Male workers	4	3	1	4
Kangani	3	2	1	4
Field officers	3	1	2	4
Administrative officers	3	2	1	4
Assistant managers	3	1	3	4
Managers	1	2	3	4

The most common choices are Employer-Employee relationships and Family harmony. These two factors may be precursors to achieving dignity. They show how the way they are treated and the types of relationships both at work and home, affect their ability to work. Dignity, although ranked most important by managers is seen as least important by both female and male workers. Female workers also show a completely different prioritisation structure to other staff categories. There was no one factor that was prioritised more frequently across the estates.



In terms of family harmony, a “peaceful mind”, rest and relaxation, being free from abuse and alcoholism were seen as necessary mental and physical conditions to work. Data implies that these issues have got better, but continue to be prevalent on the estates and that it affects concentration, attendance, and the physical ability to work. Better conditions were also linked to the ability to save, have control over income (especially for women), earn respect and be able to lead more fulfilled lives.

“Men take alcohol and come to work. Wives are beaten and they struggle to work the next day with their physical pain and mental struggle. This is an important factor which affects the productivity.”

- Assistant Manager (6 years experienced)

“First I want my children and wife to be happy then only all the other things. Having that happiness I actually can work well and go forward.”

- Male FGD

“A very important issue in the estate families is alcoholic men who abuse their wives, who in turn face difficulty in going to work the next day. They require at least Rs. 100/= per day to drink, which sums up to Rs. 3000/= per month, which is an unwanted cost.”

- Male FGD

Most stated that employer-employee relationships have improved, especially between the managers and workers, with open door policies, meetings, and the ability to approach the employer directly. However, issues on how they are addressed and reprimanded while at work by various levels of staff reduce their motivation to work. This type of treatment is also linked with dignity, and the reason it is placed low among women workers, for example, is because they feel despite this treatment they will work as they need the job and income. It is also seen as a reason why young people do not want to work in the plantations and seek external employment.

“The land is available for them; generations can live here lifelong. Land ownership does not make any impact on productivity.”

- Manager (20 years experience)

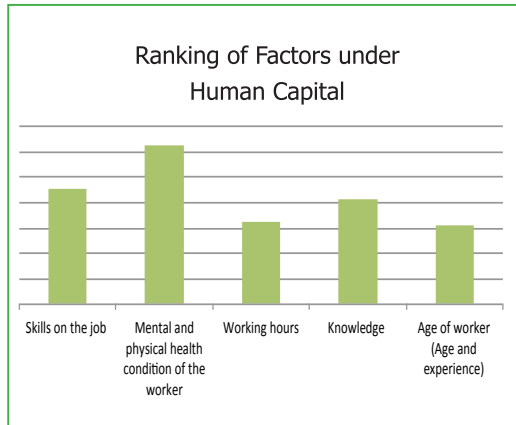
“If we have a place of our own we will be able to go and rest peacefully, that gives mental satisfaction.”

Kanganis (30 years experience)

In terms of land ownership, there was a debate whether there was a link between land ownership and productivity. Female workers, kanganis and field officers tend to give this factor a higher weight compared to estate management. They feel that peace of mind and a rightful place to live can help in the way they relate to the work. However, the argument

against this is that, even though they do not own the land they have user rights, they can live there permanently – even after they retire. In relation to productivity, in the instances when land has been given for home gardening purposes it has not made a difference to the productivity. Hence, in reality the role land ownership plays in improving productivity remains debatable.

3.1.6 Individual characteristics and productivity (Human Capital)



When considering individuals the most important factor affecting productivity is the health of the worker. Since job tasks are physical, good health is necessary to achieve targets, reduce absenteeism, and maintain a healthy mental condition for work. Mental conditions are linked to issues in the social capitals – especially family harmony and treatment in

the workplace. Health is also impacted by the availability, access and quality of health care services that have been acknowledged to have improved over time.

“If we are in good health we can work actively. If the whole body pains we stay home even when we are sick can’t meet the target of 18kg here. Mentally we should be free otherwise thinking too much will give headache that will not allow us to work.”

- Female FGD

Perceptions of skills gathered on the job and knowledge gathered through formal education show inter-relationships that have an impact on productivity.

If skilled

they need less supervision
they are more efficient, save time
can produce better quality outputs

“When we pluck tea we should know how to pluck tea leaves without damaging the tree, the same way when we prune tea bushes, if we do not do it properly, next time we are the people who will suffer without enough tea leaves to pluck to meet the target set for us each day.”

- Male FGD

If knowledgeable

they need less supervision
they can understand instructions better
can use/adopt new technologies easier

“If they are knowledgeable workers, they can easier understand what we are saying. They can choose the best way and they know that they can improve their living standards. The main reason for current labor issues is the lack of their knowledge.”

- Manager (8 years experience)



The older and less educated worker relies on 'hands on' training and experience for their skill level, while a younger person with better education and training, is seen to be as efficient. Hence, the age of the worker and productivity is dependent on skills and knowledge.

Workers are formally supposed to work 8 hours, however, they also have to meet targets and tasks. The targets of being able to 'earn more if you pluck more' or working overtime had a stronger link to productivity than working hours. In fact some considered working hours as a deterrent to productivity. Flexible working hours was

"They are working for their targets. So working hours is not an important factor. They have flexible work time."

- Assistant Manager (8 years experience)

"They don't need to stay the whole day, we give targets to pruning, plucking so they can finish and go. When given hours they work slowly but fewer hours and target makes them faster."

- Field Officer (33 years experience)

seen as a positive feature by the workers. Further elaboration on the different ranking of each factor is given in Annex 1.

3.1.7 What the data tells us

Climatic conditions, soil types and topography etc., are conditions within which productivity targets should be set. Within these bounds, factors that are important and affect labour productivity are wages, individual health and physical improvements to living conditions. All different levels of staff agreed that these were important. Other factors that are important are family harmony, employer-employee relationships, agriculture practices and management of the tea land. Productivity is related to issues that are straight forward i.e wages but also to those that improve satisfaction and wellbeing such as personal health and living conditions. Some have push-pull effects such as alternative employment, age and formal knowledge. The factors also differ depending on job type, for example tea pluckers, well managed fields and good factories were seen as a necessary condition for productivity, while working conditions and dignity were considered less important as the need to earn an income took priority over how they were treated in the workplace.

3.2 Quantifying the factors affecting productivity

In this section we aim to see if there are statistically significant factors by separating out the perceptions in high producing and low producing estates. The information was gathered through household surveys and quantitative information from four estates. In this component productivity is measured based on plucking productivity.

3.2.1 Logic of the study

It is assumed that the empirical model underlying productivity of workers will consist of measurable explanatory variables as well as attitudinal factors, grouped under human, social, physical capitals and economic benefits. The issue of measuring attitudinal factors which are unobservable and subjective is addressed by developing a set of attitude statements under each of the four capitals. The statements are ranked on a likert scale and factor analysis conducted to derive suitable factors reflecting the workers attitudes towards the benefits arising from the four capitals.

The factors affecting plucking productivity are examined through an empirical regression model, assumed to take the form,

$$D_i = f(F_i, M_i) + e_i \quad (1)$$

Where D_i is plucking productivity of the "i"th worker, which is defined as the quantity of green leaf plucked by a tea plucker during a single day. F_i are the set of attitudinal factors under the human, economic, physical and social capital based incentives and M_i a set of measurable characteristics. e_i is a random error. The set of attitudinal factors F_i are estimated using exploratory factor analysis.

The analysis is based on data collected from a statistical sample of 113 workers, in 4 estates under two RPCs. Two estates within each plantation company were selected using a systematic random method, where the estates within the RPC were listed according to a productivity indicator and two estates were selected at a sampling interval from a random start. Information was collected on the range of personal and socio economic attributes and worker response to twelve attitudinal statements assumed to have an impact on worker productivity. The questionnaire for data collection was designed based on existing literature and expert/ key informant views.

3.2.2 Profile of the estates

The four estates selected for the study, are referred to in this study as Estate A, B, C and D. All four estates are located in two adjacent divisional administrative divisions in the Nuwara Eliya district. The revenue generating extents, workforce and key economic indicators (averaged over the last 5 years) are given in Table 3.2.

Table 3.2: Key economic parameters of the selected estates

Estate	Revenue generating extent (hectares)	Number of workers	Made tea production Mts.	Cost of production per Kg of made tea Rs.
Estate A	306	603	1432	306
Estate B	295	513	701	293
Estate C	256	441	285	327
Estate D	257	465	290	326

Source: Information provided by the estate management.

Made tea include, plucked tea and bread leaf



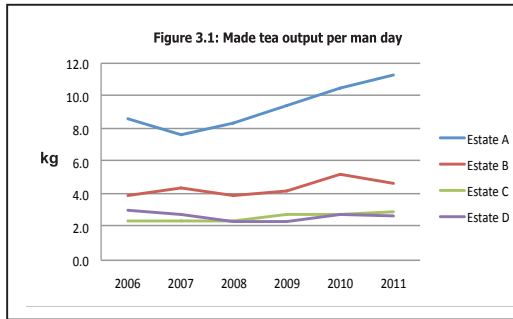
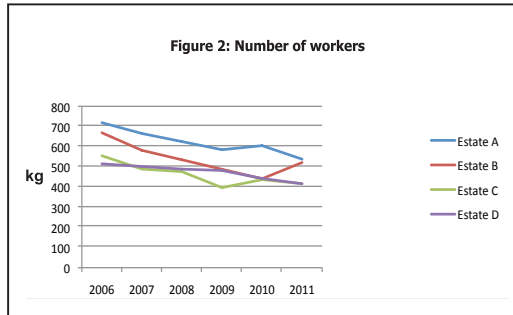


Figure 3.1 shows that productivity in terms of made tea output per person day are much higher in Estate A as compared to other estates, with Estate A showing a marked improvement over the last 4 years. Revenue generating tea extents have remained more or less stable over the last five years with Estate A and Estate B having larger extents of tea land compared to Estate C and Estate D.



There has been a fall in the number of workers (figure 3.2), with Estate A and Estate B having larger workforces.

Source of charts: Generated from information provided by the estates

The reduction in the work forces is consistent with the literature that indicates that estates are facing difficulties in maintaining their labour force. This adds to the need to improve productivity.

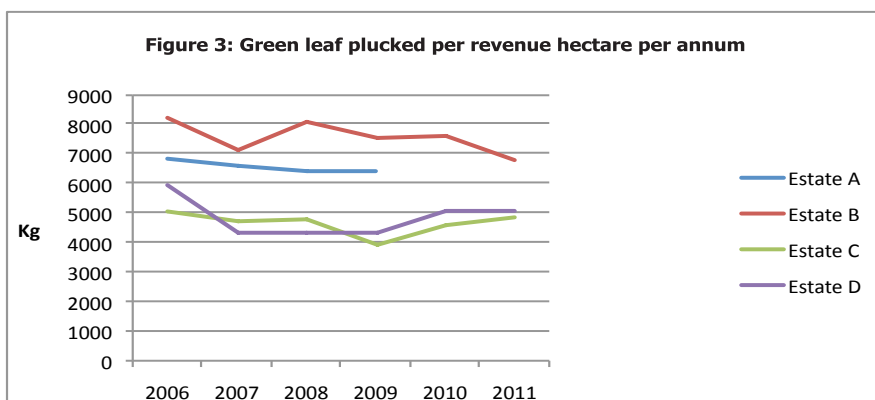
The table 3.3 and figure 3.3 below provide different aspects of plucking productivity in the four estates.

Table 3.3: Estate level productivity indicators

Productivity indicator	Estate A	Estate B	Estate C	Estate D
Annual made tea output per person day (Kg) ⁶	7-12	4-6	2-4	2-4
Worker per revenue generating hectare	1.6 to 1.9 across all estates			
Green leaf plucked per revenue hectare (Kg)	7000-8000	6000-7000	4000-6000	4000-6000
Green leaf plucked per person (plucker) day (Kg)	21	25	18	21
Input share of bought leaf	68%	32%	7%	4%

Source: Information from the estates

⁶ Made tea includes tea plucked from the estate and broad leaf purchased by the estate factory off estate



Source: Based on Information provided by the estate management

Table 3.3 indicates that Estate A and B have a higher made tea productivity and perform better than Estates C and D. At the same time, while Estates C and D have benefitted from development interventions since 2002, the better performing Estates (A and B) have only recently benefitted from development interventions (Table 3.4). These observations question relatedness between development interventions and productivity.

Table 3.4 timelines for welfare programmes in Estates

	Health and Nutrition	Skill development	Vocational training	Physical infrastructure
Estate A	Since 2008			Since 2006
Estate B	Since 2004		Since 2005	Since 2004
Estate C	Since 2002	Since 2003	Since 2005	Since 2006
Estate D	Since 2002	Since 2003	Since 2005	Since 2004



3.2.3 Profile of the respondents

A sample of 113 respondents, more or less equally spread across the estates, were interviewed for the survey. The total sample included 73 pluckers, 27 field labourers and 13 factory & other labourers. The sample reflects the predominance of pluckers in the estate labour force (65%), the gendered composition of pluckers and field and factory labourers. Among the pluckers, 85% are women, and among the field and factory labourers, 90% are men. The sample comprises 73 pluckers (65% of the sample) and 56% women.

Sixty two percent of the respondents were in the 36 to 55 year age group, 32% were in the 16 to 35 year age group. Educational levels of respondents were low with 18% having never been to school and only 4% having more than 10 years of schooling, this is much lower than the national level educational attainments where only 4.2% of adults have never been to school and 25.1% have completed more than 10 years of schooling.

Monthly earning from estate work (Table 3.5) was similar to the national average per capita earnings which is Rs 9,104 and estate sector per capita earnings was Rs 5,782. However income varied widely across the estates and type of job. Respondents in Estate B, the best in terms of productivity indicators, reported the highest average earnings, three times greater than those in Estate C which had the lowest earnings and performed low. Second highest average earnings were reported in Estate A. The men earned consistently higher wages, except in the low performing Estate C where women's wages for plucking were higher than that of male pluckers.

Table 3.5 : Average monthly earnings of the respondents from the main activity

	Factory & other								
	Plucker		Field labourer		Labourer		All		All
	Male	Female	Male	Female	Male	Female	Male	Female	
Estate A	9000	8506	9230	.	10580	2500	9385	8153	8687
Estate B	12270	9200	9810	.	11983	10800	10917	9413	10139
Estate C	2898	3761	4620	.	.	.	3759	3761	3760
Estate D	5880	5676	6143	.	9250	.	6595	5676	6117

Source: Survey data

Monthly earnings are based on survey data rather than estate averages

3.2.4. Profile of the Household

The total population in the households of the surveyed respondents was 601 of which 51% were women. The average household size is 5 and larger than the national average (4.0) or the national average for the estate sector (4.2). The population is young and of working age. The younger children are educated, but a large number of the total population had never been to school, though the percentage of workers in the sample who had never been to school was even higher. Only 17% of the population had completed more than 10 years of schooling, but among the workers this was 25%.

Sixty two percent of the working age population in the estates are employed on the estate. Fifteen percent are employed outside the estate. Unemployment is high, and at 16% much higher than the national average of 3.9%. Only 6% had received vocational training and only a small percentage of them (3%) are employed in a trained vocation. While 14% percent had migrated for employment, less than 2% had migrated out of the country. The low level of educational attainment isn't a limiting factor to work in the estate (as labour) but is likely to be so in securing employment with better earnings outside the estate. However, education may not be the only limiting factor for outside employment, factors such as social networks and citizenship status may also have an influence.

Monthly household incomes varied across the estates (see Table 3.6), but the average of Rs 18,664, falls below the national average of Rs 36,451 and overall estate sector average of Rs.24,162. Sixty nine percent of the household incomes are from working on the estates, while 23% comes from working outside the estate. About 8% are non-salary incomes from the estate, from activities such as agriculture, animal husbandry and trading. Highest household incomes are reported in Estate B and A with the lowest reported from Estate C, which indicates a relation to plucking productivity.

Sixty eight percent of household expenditure is on food which is much higher than the national food ratio, 42.3%, and overall estate sector food ratio of 50.9%. Given that most of the non-food expenditure including housing, medical and education is taken care by the estate management the high food expenditure ratio is unlikely to be an indication of poverty in these estates.

The surveyed households were not asset poor. More than three quarters of the households (77%-86%) owned a radio and/or a television and 84% owned telephones; one third of the households owned a cooker but only 18% of the households owned any means of transport (at least a bicycle). Seventy six percent of the households had some form of

savings, 55% in the form of formal bank savings, 39%-49% in the form of jewellery or informal savings, with the value of savings varying around Rs 100,000. Savings in microfinance programs were minimal. Despite this, 78%, of the households were in debt, indicating that there may be some issues related to money management in these households.

Table 3.6: Monthly household incomes

Average Household Earnings	Estate A	Estate B	Estate C	Estate D	All	%
Average estate salaries	15469	17844	5832	12376	12858	69%
Average estate other income	414	1534	2414	1329	1426	8%
Average off estate income	4641	3121	4141	5800	4375	23%
Average All included	20524	22499	12404	19505	18664	100%

Source: Survey data

A majority of the families lived in line rooms (62%), about 36% in detached houses, with 87% living in houses owned by the estate. Eighty eight percent of the households have lived on the estate for more than 10 years, hence the preoccupation of the workers in the need for better housing and ownership of houses.

3.2.5 Plucking productivity

As noted earlier the quantity of green leaf plucked per work day or plucking productivity is an important factor influencing the overall estate productivity. Plucking productivity depends on two main factors: the quantity of leaf available for plucking and worker productivity. Quantity of leaves available depends on a wide spectrum of factors including agro-ecological conditions and physical conditions in estates. Worker productivity depends on a range of personal, social, economic, and attitudinal factors.

In the four estates during the period surveyed, the plucking target ranged between 18-20 kgs per day. The average quantity plucked is given in Table 3.7. The season in which the survey was done being between normal and dry, the leaf available for plucking was below the potential in the good season but at or above that in the dry season. Comparison of individual plucking productivity (Table 3.2) and the plucking productivity

⁷Salaries and other household income data was gathered through a worker survey rather than from company records. While discrepancies may exist between the two, the same method was applied across all estates for consistency.

based on total quantity of green leaf plucked in the estates (Table 3.3) shows that the green leaf plucking productivity patterns are the same across the estates.

Table 3.7: Individual plucking productivity

	Estate A	Estate B	Estate C	Estate D
Average weight (Kg) of green leaf plucked per day over the last five days	18	22	15	19
Average weight (Kg) that can be plucked during a normal season	36	36	33	28
Average weight (Kg) during a dry season	15	21	15	15

Source: Survey data

3.2.6. Human, social, economic, physical attributes and attitudes

Gender, age, marital status, schooling, training and personal disabilities
 A majority of the pluckers were female (84%), aged between 16-55 years (96%) and married (88%). 36% had some form of personal disability which affected their work. Most of the pluckers had less than 10 years of schooling (21% had never been to school) and only about a fifth (21%) had ever trained for plucking. Among pluckers and other labourers the majority, 81%, were of the view that education or the number of years of schooling helped them to work better. More than two thirds agreed that training helps to do a better job. But only 29% had been trained to do their job. 46% believed that the young and trained were more productive while a similar percentage (48%) believed that the old and experienced were more productive. The responses did not vary across the estates. The same relationship between age, experience, skills and knowledge were expressed in the qualitative component.

Personal issues and family harmony questions

A considerable number of workers had family issues. About 72% of the workers faced financial difficulties such as not having enough money for daily expenses, inability to pay outstanding loans or having enough money to save. There were also many family care issues such as having a sick family member (44%) or a member addicted to alcohol (42%), household member that needed care (44%), being unable to either take care of children (50%) or pay them the required attention (50%). Twenty-eight percent of the workers had a physical disability that affected

their ability to work. Very few of the workers (only 11%) said they faced verbal or physical abuse or harassment. Ninety percent of the male and 70% of the female and an overall 80% of the workers perceived that family harmony helps to work better.

Earnings

Work load and remunerations

Wages and incentives have often been cited as most important factors influencing labour productivity (Bandara (1996), Kodithuwakku and Priyanath (2007), Sivaran (1996)). According to the established practice, pluckers in all tea estates receive the same basic wage and additional 'over the target' payments, overtime and holiday work payments. The standard wages are a result of the tripartite collective agreement that negotiates wages every two years. The targets however are set by the companies based on ecological and other considerations and have an impact on the earning capacity.

A majority of the pluckers and labourers were aware of the financial remunerations and entitlements. A majority of the women workers were aware of the maternity leave benefits and new born child allowance. Strangely only 59% said they knew that trade unions played a role in deciding their financial remunerations and entitlements.

The workers attitude on the impact of work load and wages differed widely across the estates. Despite the evidence in the literature and through the qualitative ranking exercise that wages are an important determinant of better work, overall less than a half of the workers (40% - 44%) agreed that wages encourage better work. This can be linked with the view that wages were lower than expected and that this is discouraging. The fact that it was unsatisfactory was expressed widely. Comparing across estates, notably, a larger percentage of workers in Estate B perceived that workload and wages did impact work.

Off-estate earnings

On an average about 32% of pluckers and 45% other labourers received income from off estate sources, but 33% of pluckers and only 18% of other labourers stated that off estate income is a push factor to seek off estate employment.

The major pull factors which keep them working for the estate are the EPF / ETF (77%) and housing (49%); 30-40% acknowledge that medical facilities, crèche facilities and other income earning opportunities in the estate.

Employer-Employee relations

Very good employer-employee relationships were evident from the survey data and the pattern in responses was similar across estates. Overall, 90% of the employees reported that they are treated with respect by the management as well as by the kanganis or field supervisors. However, some of the female tea pluckers (in the focus group discussions) drew a distinction between treatment by the managers and the field level supervisors/Kanganis. More than 80% of the workers reported that they are kept informed about the tea industry and productivity issues. An overall majority of 84% reported that they can communicate any of their concerns with the supervising field staff or with the management. Only about a third felt that there is favouritism from the management and less than a quarter reported that they have been disallowed leave to attend to physical necessities by the supervisors or the management. A majority, 79%, were of the view that disputes between workers and the management are effectively and efficiently settled.



The good employer-employee relationships do not seem to be a result of consultation with employees on management decisions or on their participation in programmes that improved employer-employee relationships or programme on empowerment and team building. Only 38% of the workers had been consulted in decision making related to work or employee welfare, and only 26% had participated in any programmes for improving relationships or empowering workers. However, overall workers are experiencing changes in behaviour and attitudes in the workplace and nearly two thirds agreed that better relationships between employer and employees is encouraging them to work better. Hence the change may be more related to RPC management decisions on how to maintain relationships with the community.

Physical capital maintenance

Jeganathan, Barkely and Balakumar (2010), on studying worker perceptions observed workers' concern over field and factory maintenance as a factor influencing worker satisfaction. Overall in this study 77% of the factory labourers and 57% of the pluckers/field labourers observed that fields/factories were well maintained. The contribution of well maintained factories and fields to productivity was seen to be more important by the higher productivity Estates, Estates A (60%) and B (66%), than in lower productivity estates (Estate D was 52% and Estate C was only 7%). Estate C also reported a very low factory and field maintenance (14%). Hence a link between well maintained fields and factories and productivity is apparent.

A wide variation across estates was noted in response to the question whether the management has taken measures to improve occupational health and safety (OHS). Seventy nine percent of the factory labourers and 58% of the pluckers responded positively, but only 33% of field labourers responded positively. Comparing across estates, positive responses were low in Estates C and D, with only 28% of the workers having got occupational health and safety training compared to 66% in Estate B and 77% in Estate A. The latter is a major improvement to what is recorded by Jeganathan, Barkely and Balakumar 2010, who found that only 29% had received OHS training or material. The perception from the estates on the value of OHS to productivity is linked to the spread of OHS in the estates. Estates A and B who have had more experience with OHS place a higher importance on its contribution to improve productivity while Estates C and D with less exposure to OHS give it less importance.



Access to health facilities during work hours (eg. latrines, rest areas) appeared to be low, about 20% overall in the estates, and very low in Estate C (7%) and estate D (4%) estates. In all four estates the workers reported that the distance from home to work was about 2 km. Inadequate facilities can be seen intuitively as a factor influencing productivity. Across all estates surveyed working conditions appeared inadequate and hence prevented assessing the impact of these facilities on worker productivity.

Welfare facilities

Welfare facilities considered here were various; housing/living, health care, child care, education and community facilities and loans that the literature talks about in terms of welfare facilities given to estate workers.

Overall around half of the workers were satisfied with these facilities across the estates, while in Estate A the positive responses in relation to several welfare variables were high compared with the other estates (Table 3.8). Interestingly in Estate B that is also a higher productivity estate, positive responses were on the lower end. Workers' attitudes on the impact of welfare facilities on encouraging work were below 45% in all estates except Estate A. Workers in Estate A were more satisfied with welfare facilities provided and a relatively higher percentage of pluckers (79%) and labourers (82%) thought it encouraged them to do their jobs better.

Table 3.8: Workers satisfaction with estate welfare facilities

	Estate A	Estate B	Estate C	Estate D	All
Living conditions					
Pluckers	58%	43%	46%	63%	52%
Laborers	82%	40%	20%	67%	55%
Children's schooling facilities					
Pluckers	89%	43%	71%	63%	68%
Laborers	73%	47%	40%	33%	50%
Estate medical facilities					
Pluckers	89%	43%	46%	50%	58%
Laborers	91%	33%	60%	56%	58%
Child care facilities					
Pluckers	74%	57%	71%	63%	67%
Laborers	55%	60%	80%	67%	63%
Community support facilities					
Pluckers	53%	36%	33%	31%	38%
Laborers	45%	47%	20%	56%	45%
Loan facilities					
Pluckers	95%	93%	79%	94%	89%
Laborers	91%	80%	80%	89%	85%
'Welfare systems in the estate encourages better work'					
Pluckers	79%	43%	38%	44%	51%
Laborers	82%	33%	40%	44%	50%

Development interventions in the estates

The development interventions considered were social programmes that were carried out for the households and community by groups such as WUSC. Services such as housing improvements, water and sanitation, nutrition, micro finance, assistance to get identity (ID) cards, training and alternative employment. The knowledge in general that there were development programmes happening on the estate was high, but varied in terms of the types of programmes. Most (80%) knew about assistance for getting identification documentation, but only about 54% knew about interventions for micro-finance, while their knowledge relating to skills development and alternative employment was very low (25%). Interestingly there was also low awareness on training programmes including those on rights and building employer-employee relationships.



The workers were also asked to list at least 4 types of development programmes that they or their family members had benefitted from and as shown in Table 3.9, there is a wide variety in the responses.

In Estate B there were a larger number (93%) of households that received at least one form of support. Across the other three estates 62%-68% received at least one form of support. Among the different types of benefits, support for housing was the most prevalent but it was still below 50% and was markedly low in Estate C (17%). The highest number of households who received training (on rights, women's issues, employer-employee relations, participatory management or other) were in Estate B (38%). The least received were support for micro finance and support for other income generating activities. The wide variation in workers receiving various development interventions shows in general that the spread of these benefits is not uniform. The observation that Estate B that has a highest level of productivity also has the largest number of beneficiaries indicate a positive association, but Estate D where productivity is low had at least 68% beneficiary households. Hence the link between development interventions and productivity is not clear.

Table 3.9: Types of development interventions received by workers and their households

Type of benefit	Estate A	Estate B	Estate C	Estate D
training	13.3%	37.9%	10.3%	16.0%
ID cards/other documentation	10.0%	17.2%	17.2%	20.0%
water/sanitation	16.7%	34.5%	6.9%	4.0%
housing/house improvement	30.0%	41.4%	17.2%	48.0%
micro finance	6.7%	3.4%	0.0%	0.0%
nutrition	10.0%	27.6%	24.1%	4.0%
other income generation	0.0%	3.4%	13.8%	8.0%

3.2.7 Multivariate analysis of factors affecting productivity

In this section we attempt to explore the human, social, physical and economic attributes and attitudinal factors and their impact on plucking productivity. While some of these factors are measurable (i.e health facilities, wages, training etc.), the motivational or attitudinal factors are non-measurable. The attitudinal factors were explored via a set of twelve attitudinal statements, already described. An exploratory factor analysis was carried out using the method of principal component analysis, to identify underlying factors that are explained by the attitudinal statements. The factor analysis was done for all workers and then for the pluckers separately, because labour productivity information was available only for pluckers.

The factor analysis using observations for all workers (pluckers and other labourers) resulted in four groups of factors that showed some connection to productivity (Table 3.10). Factors with the highest contribution or “loading” towards productivity were wages, workload, welfare measures (housing, educational, health, childcare, financial help), OHS measures, field/factory maintenance and working conditions. This shows that a mixture of economic capital (e.g. wages, investment in social welfare) and physical capital (e.g. welfare facilities, field/factory maintenance, OHS, working conditions) were seen to be equally important. The second level of loading comes mainly from social capital such as employer dignity, impartiality towards workers and being a beneficiary of development interventions. The second level also had rewards (an economic capital) as an incentive for better work. In the third and fourth levels of loading, family harmony and training had the largest impact in producing better work. A similar pattern emerged when the factor analysis was repeated only for pluckers.

Taking the statistical analysis one step further, a regression was carried out for pluckers using the unobservable attitudinal and the observable and directly measurable variables. The purpose of the regression was to examine the influence of the attitudinal factors analysed above, as well as the influence of the directly measurable variables – such as pluckers’ sex, age, training, marital status, presence of disability, income, and being a beneficiary of development interventions over the last 5 years – on plucking productivity. This was done to see if any of the factors will be statistically linked to plucking productivity.

The regression results show that pluckers salary and the presence of disability (with negative coefficient) were the only two variables with coefficients that were statistically significant (with a 95% level of confidence). However, it must be noted that the sample is very small. The quantitative analysis was intended to be mainly a descriptive exercise and this level of analysis was done only as a test. A larger sample and more detailed questioning would be needed to increase the rigour of this model.

Table 3.10 Contribution of factors to productivity

Most Important (loading 34%)	I mportant (loading 14%)	Less important (loading 10%)	Least important (loading 9%)
• Wages	• Dignity	• Family	• Training
• Workload	• Impartiality	Harmony	
• Provision of Welfare facilities	• Beneficiary of development interventions		
• OHS	• Rewards and allowances		
• Field/Factory maintenance			
• Working conditions			

Details of all the data tables in the quantitative inquiry can be found in annex 2.

3.2.8 What the data tells us

The analysis of estate level macro data showed that Estates A and B outperformed, in terms of made tea productivity, green tea productivity, cost of production of made tea as well as plucker productivity. The clearest indication from the descriptive analysis of information from the four estates was the relatedness in the pattern of productivity performance to

the average earnings of the workers. The analysis showed that average estate earnings were highest in Estate B with Estate A coming next, and Estate C with the lowest productivity also reporting the lowest level of earnings. A similar trend was seen in average household income where Estate B reported the highest, Estate A coming next and Estate C reporting the lowest.

In terms of the attitudinal statements as to what factors contribute to better productivity, factors such as wages inclusive of EPF/ETF, family harmony, employer-employee relationships are perceived to be important across the estates. Perceptions on the role of well-maintained factories and fields and training on productivity were seen to be higher in more productive estates. Factors such as working conditions, welfare facilities, being a beneficiary of development initiatives got more mixed results as the coverage of these conditions amongst the estates are also varied.

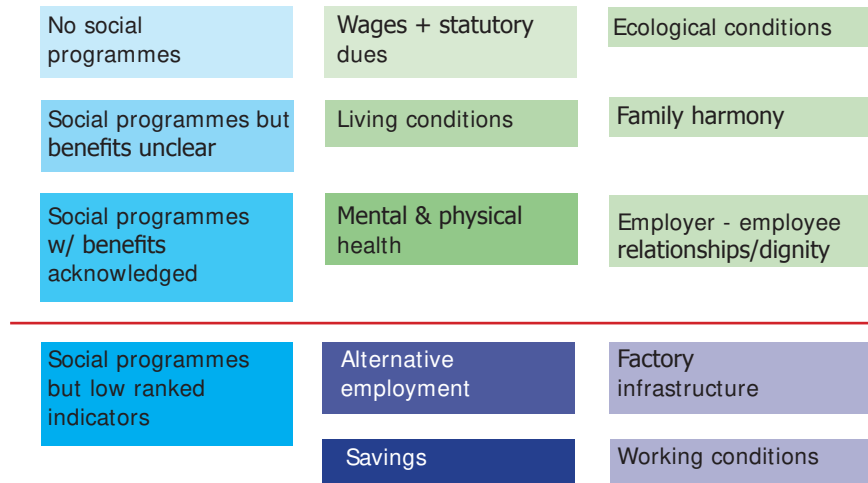
Education levels attained by estate workers were below the national level attainments; but not a limiting factor for employment – as a worker – within the estate. Training was perceived to be useful to improve work, but less than a third had been trained to do their job. Equal weight was also given to a combination of age and experience (hands on acquired skills) and age and training in terms of how they affect productivity.

The multivariate analysis further shows that economic and physical capitals have a stronger relationship to productivity, while social capital can add value to improving productivity. Overall the variables that turned out to be statistically significant were the average monthly earnings with a positive coefficient and the presence of a disability affecting work with a negative coefficient. Despite nearly two thirds being beneficiaries of development interventions, the variable indicating whether or not the household or the respondent was a beneficiary of development interventions turned out to be statistically insignificant in terms of its contribution to productivity. However, the sample was very small and would need to be increased to provide a more rigorous analysis.

**Interpreting
perceptions
and the link
to social
welfare
programmes**

4. Interpreting perceptions and the link to social welfare programmes

Diagram 4.1 relationship between productivity factors and social welfare programmes



When looking at the information gathered and the relationships between social welfare programmes and productivity, several types of links emerge:

- Some of the main contributors to productivity such as wages and ecological conditions and agriculture practices have little or no relationship to social welfare programmes. These are policies, procedures and decisions that are taken by the companies and not influenced by interventions carried out for worker welfare.
- Factors such as family harmony and improved living conditions are the main focus of social welfare programmes, although these are ranked high in terms of how they are perceived to influence productivity, they have mixed results and it is not possible to ascertain a clear impact on productivity. This could be due to the fact that family harmony as they would like it was not the condition they were experiencing, and dissatisfaction in current conditions of housing, access to water and sanitation facilities was reducing its attributable benefits. Even amongst the higher productive estates there was an unequal distribution of housing, water and sanitation facilities amongst divisions and households.

Social programmes had tried to address issues such as alcoholism but it has not resulted in a tangible change.

- In contrast, some programmes and management decisions put in place to improve areas such as employer / employee relationships and individual health show a contribution and acknowledgement of their value to improving worker satisfaction. This can result in workers staying on in the estate, reducing absenteeism and therefore impacting productivity.
- Some factors such as alternative employment, savings and training are also common in the social programmes, but show less impact on productivity. This could be linked to the spread of these activities – for example micro finance programmes, vocational training and alternative employment have reached only a small percentage of the workers. In addition it also shows that activities such as alternative employment are taking male workers away from the estate jobs.

Conclusions

5. Conclusions

In the current context of increasing competition and cost of production, managing labour and improving their productivity remains a vital component for the estates. Two factors; wages (along with formal statutory benefits) and individual health are showing a direct link to productivity. Other factors such as welfare facilities and maintenance of fields under physical capital, and social capital factors such as employer-employee relationships and family harmony can be considered as those that add value to improving worker satisfaction. Hence all round improvement in all the capitals is needed to achieve better productivity.

Some of the critical factors such as improvements in welfare facilities, employer-employee relationships and family harmony have been the target of many social welfare programmes put in place by the estates, state and NGO sector. Hence social welfare investments have contributed directly and indirectly to improving productivity. However, although changes and improvement are being acknowledged, there are areas that can be built on or improved for greater impact. For example, some interventions that have shown positive results such as programmes to build employer-employee relationship can be scaled up. They can also be improved to address issues of dignity and respect through the chain of management to the lower levels.

For the estate worker, whose work place and home are intertwined, there is dissatisfaction with their living conditions especially housing, water and sanitation facilities and they continue to lobby for better conditions. Three areas can be identified where development actors could improve their performance to have a stronger link to estate productivity.

1. Improved facilities and uniform spread of improvements within the estates – where all divisions have similar conditions.
2. Interventions that seek to improve worker dignity through developing better relationships with management should strive to include a greater number of workers and develop systems to work with other levels of staff (Assistant Managers, Health Officers, Kenganis).
3. Other interventions that are important to family harmony (alcoholism, financial management) that have been addressed but with less success, continue to need support. More targeted and specialized programs that work with the individuals/households over a longer period of time may be an option.

4. If activities such as alternative employment are to have a stronger impact on estate productivity, they could be targeted more towards creating jobs that are useful for the industry such as masons, electricians, and IT. There is a perception that young people are drawn to such jobs that are more in keeping with their education and skill levels, and estate managers have similarly indicated a willingness to employ local people who have appropriate skills.

In conclusion, social welfare programmes were not intended to contribute to productivity, but to improve individual and community living conditions, and to enable them to improve their rights and status as citizens of Sri Lanka. However, given the historical and current context under which this industry functions, it does show that motives of increased productivity do exist in welfare programmes and are expected. It also shows that more work needs to be done; possibly with increased consciousness of the importance to productivity and greater clarity of the expectations when delivering these programmes.



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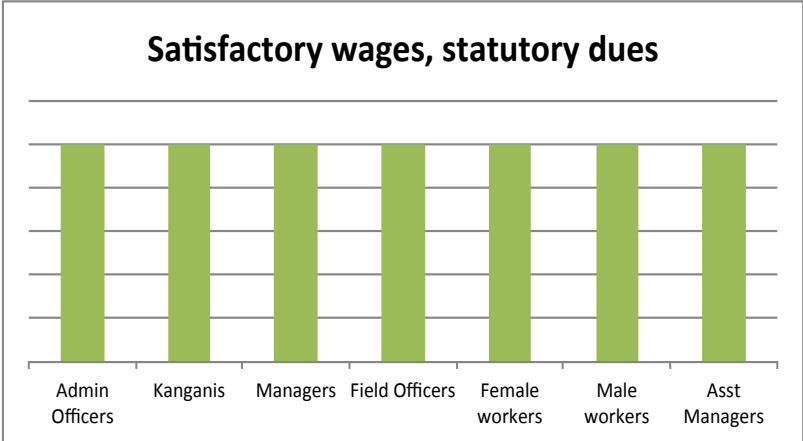
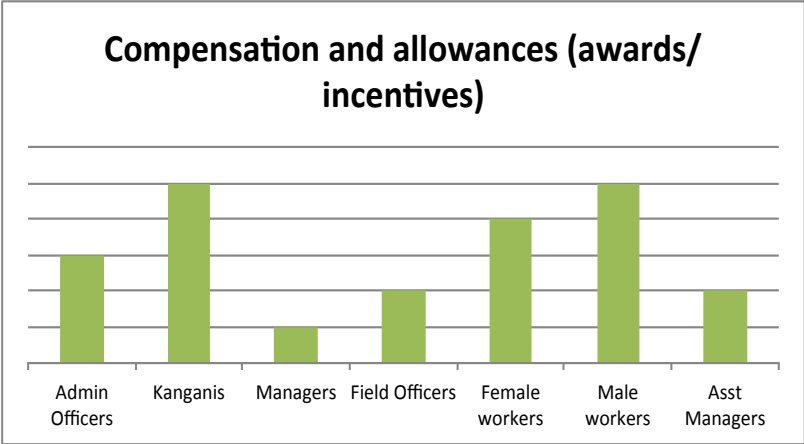
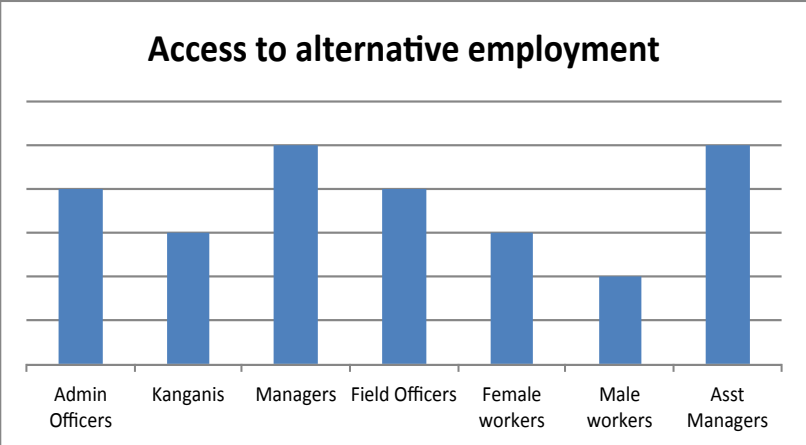
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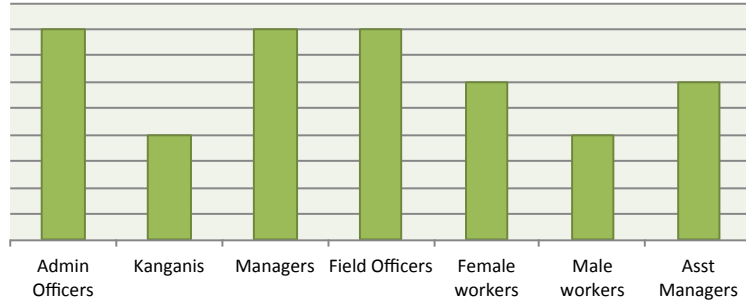
Annex 1: Average ranking of all factors within each capital

1. Economic Capital



2. Human Capital

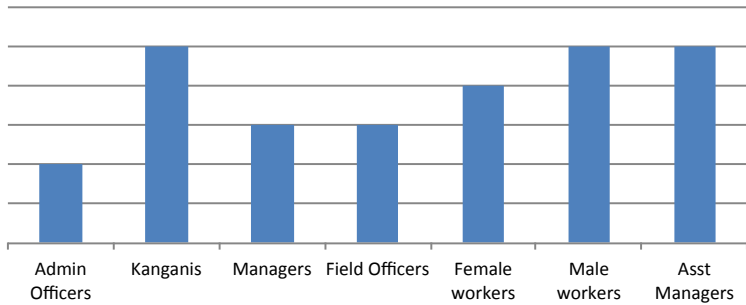
Knowledge



Mental and physical health condition of the worker



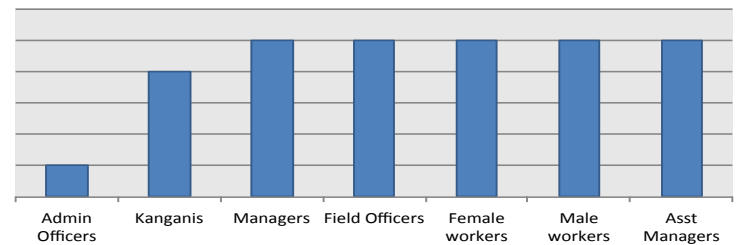
Age of worker (Age and experience)



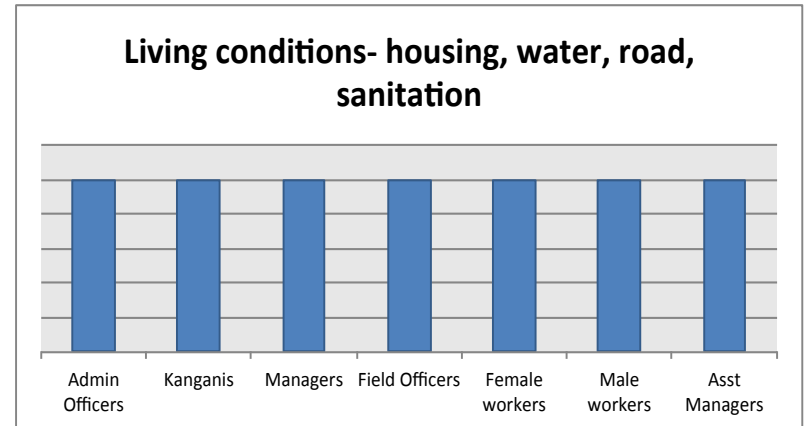
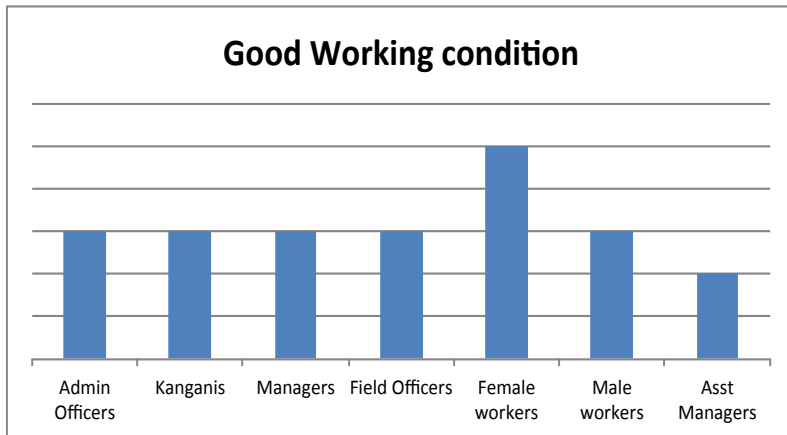
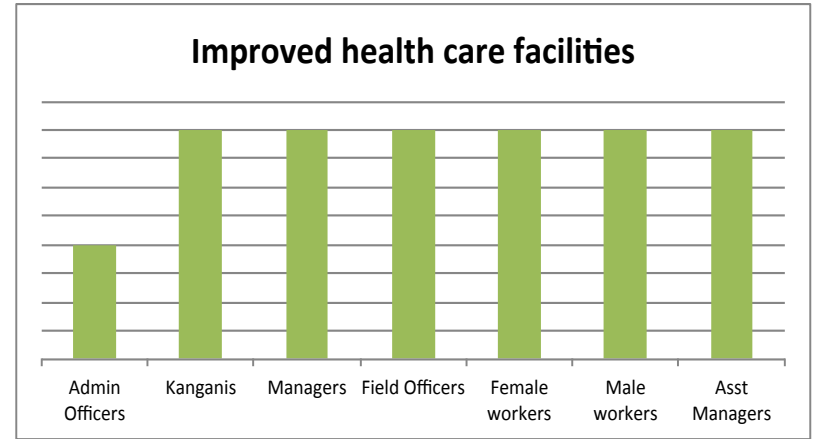
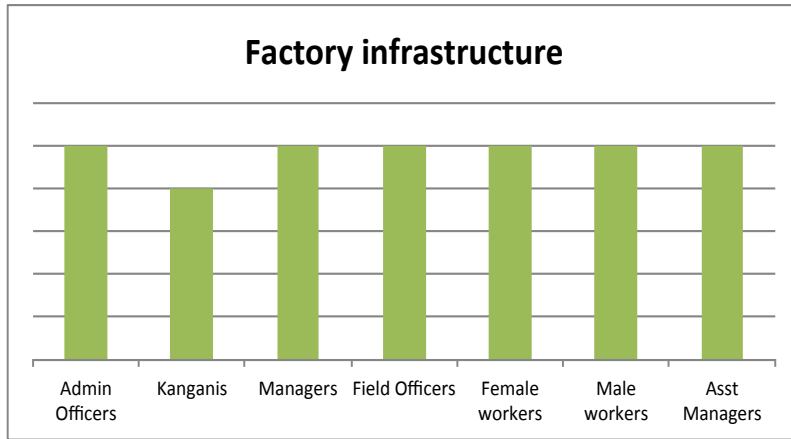
Skills on the job



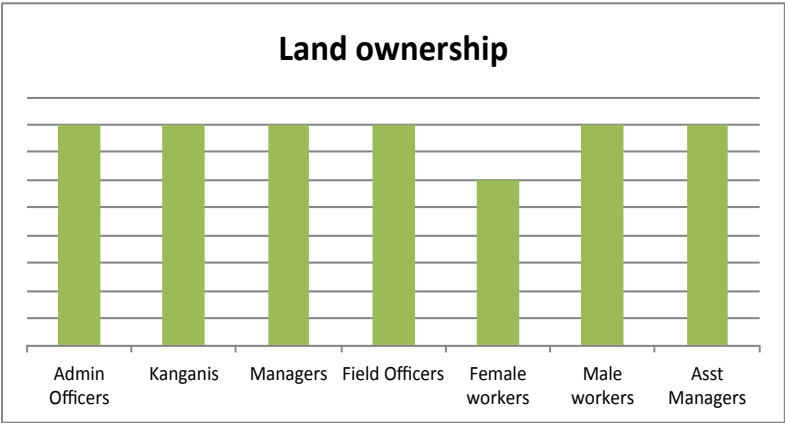
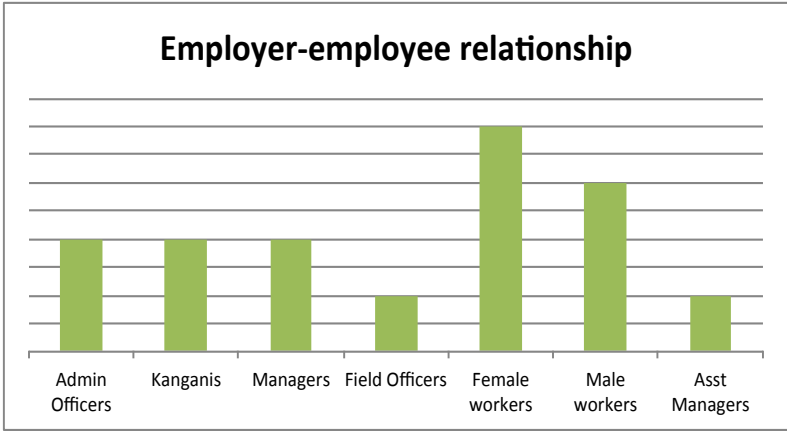
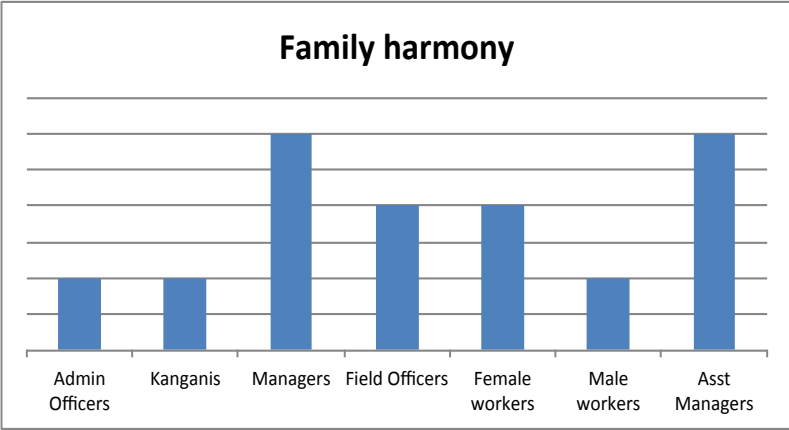
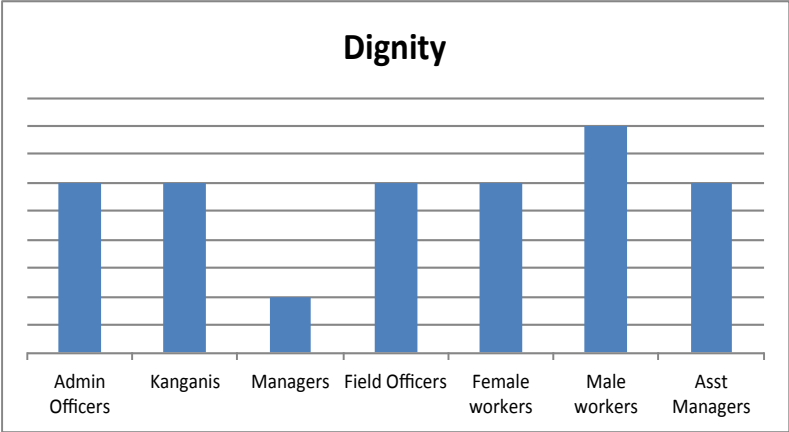
Working hours



3. Physical Capital



4. Social Capital



Annex 2: Data tables for the quantitative study component

Worker Profile data

Table 1: Sample profile of respondents in the sample.

	Pluckers		Field labourers		Factory & other labourers		All		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
Estate A	3	16	8	0	2	1	13	17	30
Estate B	1	13	7	0	6	2	15	14	29
Estate C	5	19	5	0	0	0	10	19	29
Estate D	3	13	7	0	2	0	12	13	25
All Estates	11	62	27	0	10	3	50	63	113

Table 2: Age distribution of respondents

	Pluckers	Field labourer	Factory & other labourer	All
16 to 35 years	36%	22%	31%	32%
36 to 55 years	60%	66%	61%	62%
56 to 76 years	4%	11%	8%	6%

Table 3: Education of respondents

	Plucker	Field labourers	Factory & other labourers	All
Never been to school	20%	11%	15%	18%
5 years or less	44%	51%	38%	45%
Six to 10 years	30%	33%	46%	33%
More than 10 yrs	5%	3%	0%	4%

Table 4: Age and sex distribution of the household population

	Estate A		Estate B		Estate C		Estate D		All Estates		All
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
<6 yrs	5%	8%	13%	10%	10%	10%	8%	16%	9%	13%	11%
6-15 yrs	23%	20%	18%	22%	11%	11%	21%	15%	18%	19%	18%
16-35 yrs	32%	30%	35%	36%	45%	45%	38%	36%	37%	32%	35%
36-55 yrs	32%	31%	21%	20%	28%	28%	22%	28%	26%	26%	26%
56-76 yrs	9%	8%	9%	10%	6%	6%	10%	5%	8%	9%	8%
>76	0%	3%	5%	1%	0%	0%	2%	0%	2%	1%	1%

Table 5: Level of education of those above 16 years of age

	Estate A		Estate B		Estate C		Estate D		All Estates		All
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Never been to school	5%	14%	10%	10%	6%	13%	9%	20%	7%	14%	11%
Five yrs or less	33%	31%	36%	31%	19%	34%	38%	37%	31%	33%	32%
Six to 10 yrs	47%	47%	43%	48%	47%	30%	36%	22%	43%	38%	40%
More than 10 yrs	15%	8%	11%	10%	28%	22%	17%	22%	18%	16%	17%

Table 6: Age distribution of those who have never been to school

Age	Estate A		Estate B		Estate C		Estate D		All Estates		All
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
6-15 yrs	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
16-35 yrs	0%	0%	0%	0%	0%	18%	20%	40%	5%	16%	12%
36-55 yrs	50%	50%	71%	38%	75%	27%	40%	50%	60%	41%	47%
56-76 yrs	50%	38%	14%	50%	25%	45%	40%	10%	30%	35%	33%
> 76 yrs	0%	13%	14%	13%	0%	9%	0%	0%	5%	8%	7%

Table 7: Main Activity status of household members

	Estate A		Estate B		Estate C		Estate D		All Estates		All
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Pluckers	7%	71%	10%	52%	27%	57%	19%	66%	15%	61%	38%
Field labourers	41%	0%	26%	0%	22%	0%	31%	6%	31%	1%	16%
Factory labourers	7%	6%	24%	7%	5%	0%	9%	0%	11%	3%	7%
Office employee	0%	0%	2%	0%	3%	0%	0%	0%	1%	0%	1%
Off estate permanent employee	20%	9%	14%	11%	14%	17%	22%	9%	17%	12%	15%
Off estate irregular employee	13%	0%	14%	2%	11%	2%	19%	3%	14%	2%	8%
Unemployed	13%	14%	10%	27%	19%	24%	0%	16%	11%	21%	16%

Table 8 : Vocational training received by household members

	Estate A		Estate B		Estate C		Estate D		All Estates		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	All
Vocational training received	4%	6%	12%	0%	0%	9%	9%	6%	6%	5%	6%
Employed in a job related to the training	4%	3%	12%	0%	0%	0%	3%	3%	5%	1%	3%

Table 9: Migration for employment

	Estate A		Estate B		Estate C		Estate D		All Estates		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	All
To another country	2%	0%	4%	8%	0%	2%	0%	3%	2%	3%	2%
To another district	15%	5%	6%	4%	20%	13%	24%	3%	16%	7%	12%

Table 10: Household monthly expenditure

	Estate A	Estate B	Estate C	Estate D	All Estates
Food expenditure	12103	12339	10852	12708	11965
Food ratio	68%	69%	66%	67%	68%
Non-food expenditure	5690	5571	5603	6125	5732
Total expenditure	17793	17910	16455	18833	17697
Total income	20524	22499	12404	19505	18664

Table 11: Asset ownership of households

	Estate A	Estate B	Estate C	Estate D	All Estates
Cooker	41%	25%	38%	20%	32%
Radio	79%	75%	79%	75%	77%
Television	93%	68%	90%	95%	86%
Telephone	86%	78%	86%	92%	84%
Vehicle	3%	14%	14%	46%	18%
Other electric equipment	41%	32%	52%	70%	48%

Table 12: Household savings and debts

	Estate A	Estate B	Estate C	Estate D	All Estates
Formal savings	51%	67%	38%	66%	55%
Microfinance	3%	4%	0%	0%	0%
Jewelry	38%	32%	38%	50%	39%
Informal savings	37%	57%	44%	58%	49%
No savings	34%	21%	24%	12%	24%
Average value of savings (Rs)	112842	102945	81280	161087	113824
Debts	90%	54%	86%	83%	78%
Average value of debts (Rs)	69846	48971	70660	60974	64518

Table 13: House type

		Estate A	Estate B	Estate C	Estate D	All Estates
Type of house	detached house	45%	21%	38%	42%	36%
	line room	52%	75%	62%	58%	62%
	Other	3%	4%	0%	0%	2%
Tenurial status	owned by occupants	31%	4%	7%	4%	12%
	owned by estate	66%	96%	93%	96%	87%
	rented from other	3%	0%	0%	0%	1%
	Other	0%	0%	0%	0%	0%
Length of occupancy	< 5 years	3%	7%	3%	8%	5%
	> 5 to ten years	3%	4%	3%	17%	6%
	> 10 years	93%	89%	93%	75%	88%

Table14: Pluckers Gender, Age, Marital status and personal disabilities

	Male	Female	16 to 35 yrs	36 to 55 yrs	56 to 76 yrs	Married	Widowed/ Separated/ never married	Disabled	No-disability
Estate A	16%	84%	37%	58%	5%	89%	11%	16%	84%
Estate B	6%	81%	43%	50%	7%	85%	23%	36%	64%
Estate C	21%	79%	21%	75%	4%	88%	13%	54%	46%
Estate D	19%	81%	50%	50%	0%	94%	6%	31%	69%
All Estates	11%	62%	26%	44%	3%	64%	8%	26%	47%

Table 15 : Pluckers Schooling and training

	Never been to school	5 years or less	Six to 10 years	More than 10 yrs	Trained	Never trained
Estate A	21%	37%	42%	0%	26%	74%
Estate B	7%	36%	50%	7%	43%	57%
Estate C	17%	54%	17%	13%	8%	92%
Estate D	38%	44%	19%	0%	13%	88%
All	21%	44%	30%	5%	21%	79%

Data tables on Attitudinal statements

Table 16 : Workers attitude of age, education, experience and training on work

	Estate A	Estate B	Estate C	Estate D	All Estates
Trained for work	37%	52%	14%	12%	29%
'Education help work better'	77%	83%	79%	84%	81%
young/trained more productive	53%	45%	48%	36%	46%
old/experienced more productive	30%	52%	48%	64%	48%
Training help work better	50%	76%	79%	72%	69%

Table 17 : Personal and family harmony

		Estate A	Estate B	Estate C	Estate D	All Estates
Family member needing attention	Plucker	26%	50%	63%	31%	44%
	Other Labourers	36%	67%	60%	11%	45%
Family member addicted to alcohol or drugs	Plucker	58%	29%	33%	56%	44%
	Other Labourers	45%	33%	0%	56%	38%
Being abused/harrassed verbally or physically by family member	Plucker	0%	21%	8%	19%	11%
	Other Labourers	18%	7%	20%	0%	10%
Financial difficulties	Plucker	53%	64%	96%	75%	74%
	Other Labourers	73%	60%	80%	67%	68%
Children not receiving required attention	Plucker	32%	36%	25%	25%	29%
	Other Labourers	27%	33%	80%	22%	35%
While at work children not being well looked after	Plucker	47%	43%	54%	50%	49%
	Other Labourers	55%	60%	60%	33%	53%
Affirmative responses that family harmony helps work better	Plucker	68%	71%	83%	81%	77%
	Labourers	73%	87%	100%	100%	88%

Table 18 : Awareness of entitlements and benefits

	Estate A	Estate B	Estate C	Estate D	All Estates
Attendance bonus at the end of the year	80%	76%	79%	72%	77%
Salary increments	80%	66%	41%	52%	60%
Wage information	73%	83%	66%	64%	72%
Role of Trade Union	57%	59%	66%	56%	59%
Source of information about wages:-					
Managers /Field officers	27%	24%	38%	44%	33%
Kangani/ Thalaeivar	47%	62%	55%	52%	54%
NGOS	0%	0%	0%	0%	0%
Co-workers or other	30%	34%	14%	32%	27%
Benefits:-					
Maternity leave	74%	79%	63%	88%	
New born child allowance	95%	79%	79%	94%	

Table 19: Impact of work load and wages on work

		Estate A	Estate B	Estate C	Estate D	All Estates
Impact of work load	Pluckers	53%	86%	42%	49%	25%
	Laborers	73%	93%	58%	44%	58%
Impact of wage	Pluckers	53%	64%	33%	44%	31%
	Laborers	27%	73%	40%	44%	40%

Table20: Impact of off estate income

	With other income sources		Other income sources are a push factor	
	Pluckers	Laborers	Pluckers	laborers
Estate A	21%	45%	37%	27%
Estate B	29%	33%	29%	13%
Estate C	33%	60%	29%	20%
Estate D	44%	56%	38%	11%
All Estates	32%	45%	33%	18%

Table 21 : Off estate work and push-pull factors to work for the estate

Pull factors	Estate A	Estate B	Estate C	Estate D	All Estates
Estate housing	53%	45%	41%	56%	49%
EPF/ ETF	60%	86%	86%	76%	77%
Medical facilities	27%	48%	41%	28%	36%
Creche facilities	20%	34%	38%	28%	30%
Other income earned in the estate	57%	41%	14%	44%	39%

Table 22: Employer-employee relations

	Estate A		Estate B		Estate C		Estate D		All
	Plucker	Other Laborer	Plucker	Other Laborer	Plucker	Other Laborer	Plucker	Other Laborer	
Respect from Managements/Supervisors/Kanganis	95%	82%	86%	87%	96%	80%	94%	89%	90%
Industry Information	84%	73%	79%	87%	88%	100%	75%	100%	80%
Participation in discussions	42%	27%	43%	60%	25%	20%	38%	44%	38%
Access to communication	95%	91%	86%	80%	58%	100%	94%	100%	84%
Participation in programmes that improve relations with the management	21%	18%	29%	40%	17%	60%	25%	22%	26%
Favouritism	32%	36%	29%	33%	54%	20%	25%	33%	32%
Not allowing to attend to necessities	11%	18%	29%	40%	25%	40%	13%	22%	21%
Management's effectiveness in dispute settlement	79%	82%	86%	80%	67%	60%	88%	89%	79%

Table 23 : Impact of physical capital maintenance

	Estate A	Estate B	Estate C	Estate D	All Estates
Field/factory maintenance					
Pluckers & field labourers	70%	86%	14%	70%	57%
Factory labourers	100%	75%	0%	50%	77%
'Good maintenance of field/ factory encourage to work better'	60%	66%	7%	52%	46%
Occupational health & safety					
Pluckers	74%	79%	42%	44%	58%
Field labourers	50%	43%	20%	14%	33%
Factory labourers	100%	75%	0%	50%	79%
Received training on occupational health & safety	77%	66%	28%	28%	50%
'Occupational health & safety measures encourage to work better'	53%	48%	3%	20%	32%
Access to health & safety facilities during work (latrines, rest rooms)	27%	41%	7%	4%	20%
'Good working conditions encourages to work better'	37%	55%	10%	20%	31%

Table 24 : Workers satisfaction with estate welfare facilities

	Estate A	Estate B	Estate C	Estate D	All Estates
Living conditions pluckers					
Pluckers	58%	43%	46%	63%	52%
Labourers	82%	40%	20%	67%	55%
Children's schooling facilities					
Pluckers	89%	43%	71%	63%	68%
Labourers	73%	47%	40%	33%	50%
Estate medical facilities pluckers					
Pluckers	89%	43%	46%	50%	58%
Labourers	91%	33%	60%	56%	58%
Child care facilities					
Pluckers	74%	57%	71%	63%	67%
Labourers	55%	60%	80%	67%	63%
Community support facilities					
Pluckers	53%	36%	33%	31%	38%
Labourers	45%	47%	20%	56%	45%
Loan facilities					
Pluckers	95%	93%	79%	94%	89%
Labourers	91%	80%	80%	89%	85%
Source of loan:-					
Informal sources	40%	21%	38%	40%	35%
Bank	13%	17%	17%	44%	22%
Estate management	37%	41%	24%	36%	35%
Micro finance	10%	41%	3%	16%	18%

'Welfare systems in the estate encourages to work better'					
Pluckers	79%	43%	38%	44%	51%
Labourers	82%	33%	40%	44%	50%

Table 25: Knowledge of development interventions

	Estate A	Estate B	Estate C	Estate D	All Estates
Assistance to obtain identification documents (birth certificates, NIC etc.)	90%	79%	83%	68%	81%
Maternal/Child health & Nutrition	87%	86%	72%	84%	82%
Housing/water/latrines/electricity	93%	90%	59%	76%	80%
Micro finance	67%	59%	34%	56%	54%
Help to get off estate employment for family members	20%	21%	17%	24%	20%
Training for the job	20%	48%	10%	20%	25%
Training program on rights, women's issues, employer-employee relationship	13%	34%	14%	28%	22%
Participatory management forums	10%	3%	14%	4%	8%
Vocational skill development	33%	17%	10%	32%	23%
Households benefitted from development programmes	63%	93%	62%	68%	72%
'Receipt of development assistance by the household help work better'	12%	11%	8%	11%	42%

Table 26 : Knowledge of development organizations

	Estate A	Estate B	Estate C	Estate D	All Estates
PHDT/EWHCS (support for housing and other infrastructure facilities)	20%	17%	10%	16%	16%
NGOs	47%	83%	59%	56%	61%
Estate community organizations	7%	10%	7%	4%	7%
Estate management	87%	79%	62%	84%	78%

Multivariate analysis

Table 27 For all workers

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.150	34.586	34.586	4.150	34.586	34.586
2	1.702	14.186	48.772	1.702	14.186	48.772
3	1.190	9.914	58.685	1.190	9.914	58.685
4	1.092	9.097	67.782	1.092	9.097	67.782
5	.945	7.878	75.660			
6	.682	5.684	81.344			
7	.567	4.728	86.072			
8	.482	4.016	90.088			
9	.374	3.119	93.207			
10	.321	2.676	95.884			
11	.272	2.270	98.154			
12	.222	1.846	100.000			

Table 28: Component Matrix^a

	Component			
	1	2	3	4
PVWAGES	.734	-.267	.190	-.049
PVWRKLOAD	.683	-.369	.277	-.140
PVWELFARE	.674	.177	.032	-.332
WORKCOND	.730	-.243	.069	.436
PVOHS	.780	-.263	-.091	.324
PVTRAINING	-.209	.441	.094	.779
PVMaintanance	.690	-.249	-.339	.103
PVDIGNITY	.601	.381	-.332	-.152
PVIMPARTIALITY	.577	.512	-.398	.027
PVREWARDS	.415	.608	.192	-.021
PVBENEFICIARY	.269	.509	.129	-.152
PVFAMHARMONY	.303	.207	.786	.005

Table 29 For pluckers

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.579	38.162	38.162	4.579	38.162	38.162
2	1.571	13.094	51.257	1.571	13.094	51.257
3	1.239	10.325	61.582	1.239	10.325	61.582
4	1.010	8.421	70.003	1.010	8.421	70.003
5	.846	7.053	77.056			
6	.693	5.779	82.835			
7	.565	4.706	87.541			
8	.429	3.575	91.116			
9	.342	2.847	93.963			
10	.279	2.328	96.290			
11	.233	1.944	98.235			
12	.212	1.765	100.000			

Table 30: Component Matrix^a

	Component			
	1	2	3	4
PVWAGES	.749	-.232	.260	.145
PVWRKLOAD	.702	-.385	.311	.034
WORKCOND	.750	-.255	.103	.228
PVOHS	.786	-.289	-.004	.037
PVMaintanance	.664	-.190	-.414	-.159
PVWELFARE	.714	.155	-.073	-.177
PVDIGNITY	.675	.242	-.418	.240
PVIMPARTIALITY	.557	.469	-.448	.236
PVREWARDS	.533	.549	.204	-.118
PVBENEFICIARY	.285	.551	.121	-.539
PVFAMHARMONY	.465	.231	.619	-.060
PVTRAINING	-.220	.473	.270	.676

Table 31: Plucker regression:-

R squared = 0.52

Explanatory variables	Coefficient	Std. Error	t	Significance
1 (Constant)	12.951	4.647	2.787	.007
GENDER	1.724	1.694	1.018	.313
AGE	.015	.076	.196	.845
MARISTATUS	-.204	1.946	-.105	.917
Training	-.991	1.648	-.601	.550
Dissability	-3.036	1.451	-2.092	.041
Beneficiary	.389	1.393	.279	.781
ESTATESALARY	.001	.000	3.307	.002
REGR factor score 1 for analysis 1	-.417	.638	-.653	.516
REGR factor score 2 for analysis 1	.025	.682	.036	.971
REGR factor score 3 for analysis 1	-.595	.610	-.974	.334
REGR factor score 4 for analysis 1	-.009	.637	-.014	.989

Notes: