

An Assessment of Labour Availability in Major Coconut Growing Regions in Coconut Triangle

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ABSTRACT

Absence of labour, increased labour charges and shortage of both skilled and unskilled labour have become a big issue for coconut growers. Therefore, this study aimed to assess the current labour availability in coconut cultivation sector. A field survey was conducted from October to December 2005, focusing four major coconut growing areas in the coconut triangle namely; Kurunegala, Kuliyaipitiya, Marawila and Gampaha. A pre-tested questionnaire was used to collect the data. The findings show that an acute labour shortage is experienced by 23% and 21% of the respondents in Kuliyaipitiya and Gampaha regions respectively. Generally, 65% shortage in Gampaha, 60% in Kuliyaipitiya, 50% in Kurunegala and 27% shortage in Marawila were observed. An acute shortage for skilled labour necessary for harvesting was observed in Gampaha and Marawila whereas in other two areas it was for unskilled labour. Irrespective of the region, young generation's participation to the labour force was very poor. In terms of wage rates, a statistically significant gender disparity exists in each region favouring male labour. Skilled labour is highly paid compared to the unskilled labour in each region. The findings suggest the need of inventing innovative mechanization technology in order to reduce the dependence on manual labour. The cost effectiveness of the mechanization technologies is also highlighted. A deep attitudinal change is a requisite to attract the young generation to cultivation sector and there is a possibility of reintroducing harvesting as a recognized commercial service by a company.

Key words: *Labour availability, skilled labour, acute shortage*

INTRODUCTION

Coconut sector contributes 1.3% of the GDP in Sri Lanka and its export earnings in 2007 was US \$ 141.2 million (Central Bank of Sri Lanka, 2007). It provides employment for 500,000 people including both cultivation and processing sectors (National Plantation Industry Policy Framework, 2007). Around 20.6% of the total arable lands of the country is utilized by coconut (Dissanayake, 2005). The total coconut cultivated extent is about 394,837 ha (975,245 acres) and around 82% is small

holdings while the rest is considered as the estate holdings (Sri Lanka Coconut Statistics, 2006). The main coconut growing areas are concentrated to Puttalam, Kurunegala, Gampaha and Kalutara districts which is called coconut triangle. These areas contribute to 61% of the total coconut extent and around 34% from Kurunegala, 12% from Puttalam and 11% from Gampaha (Coconut Extent, 2002). Since last two decades, the coconut industry has been facing many problems, of which, the declining profit from coconut cultivation is notable. The declining profit is due to increase in cost of

production fuelled by high cost of inputs, mainly fertilizer and labour. Apart from the cost, the labour availability in the coconut cultivation sector has shown a declining trend over the recent years irrespective of skilled or otherwise. The coconut growers complain of the shortage of labour and the rising labour costs.

The labour utilization in coconut cultivation sector is around 1 person per 4 ha (approximately 10 acres) and it is a much lower value with compared to the other plantation sector crops like tea and rubber (Mahindapala and Pinto, 1991). The absence of labour to cater this less labour intensive sector shows a huge drawback for the future of coconut industry.

The intensity of labour shortage appears to be unevenly distributed among the different Coconut Development Officer's ranges (CDO ranges). Therefore, the present study attempts to assess the regional variations of current labour availability and labour cost in the coconut cultivation sector within the coconut triangle. The study further analyzes the prevalence of labour shortage in various labour activities in different regional management areas and in different land size classes. The influence of demographic factors in labour availability and the possible solutions for labour shortage are also looked into.

METHODOLOGY

Primary data, comprising both qualitative and quantitative was collected using a pre-prepared questionnaire by a field survey conducted from October to December 2005, focusing four major coconut growing areas in the coconut triangle namely; Kurunegala, Kuliyaipitiya, Marawila and Gampaha.

The above-mentioned areas were selected purposely and 30 respondents were selected from each area. From each region, five CDO ranges were selected. From each CDO range, six sampling units were randomly taken considering the land size

class. These land size classes were 2 to 5 acres, 5 to 10 acres, 10 to 20 acres and greater than 20 acres. Less than 2 acres category was not taken, as the labour requirement is not considerable in those lands and it is assumed to be covered by family labour. The total sample size thus came to 119.

Labour requirement is highly related with management practices. Therefore, selected lands were categorized into three management levels namely, high, medium and low. The lands subjected to regular fertilizer application, proper land management practices like weeding, moisture conservation were considered as highly managed lands. The lands which were not regularly practiced above mentioned activities were considered as medium level and the lands which rarely practice any of those activities were considered as poorly managed lands.

Graphical and tabular analyses were used to generate a general picture regarding the labour availability and its demography. An attitude scale was used in measuring the respondent's attitude towards labour availability according to their experience. There were five categories namely; very scarce, scarce, adequate, plentiful and very plentiful. The assigned scores were +2, +1, 0, -1 and -2 for the above categories accordingly. The sum of the score values by all the respondents were taken in assessing the severity of the labour shortage.

The demography of labour availability was analyzed considering young generation's participation trend to the labour force, gender composition, activity specific labour availability and skilled or unskilled nature of labour.

Wage rate differences against these types of labour were concerned. Further the geographical variation of wage rates and the average labour requirement per year per unit land in each region and variation of wage rates with respect to land holding size were analyzed.

RESULTS AND DISCUSSION

Land management

Management level of the land was decided by the number of agronomic practices followed by the land owners in order to maximize the yield. The labour requirement highly depends on the level of management. The selected respondents represent three management levels namely; high, medium and low. Management levels of the selected sample are distributed as represented in Fig. 1.

The income level of the farmer may affect the level of management. When other income sources exist the owner tends to manage his land well. It may be a result of that the income earned from coconut is not sufficient to manage the land well and at the same time satisfying the needs of the land owner. Fig. 2 shows the variation of labour shortage in each region according to the management level. The aggregated attitude scale values for the labour availability shows that the highest values are obtained in management level one compared to the other management levels except Kuliypitiya region. For Kurunegala, Gmpaha and Marawila regions these values were 7, 13 and 5 respectively. In Kuliypitiya region it was 10.

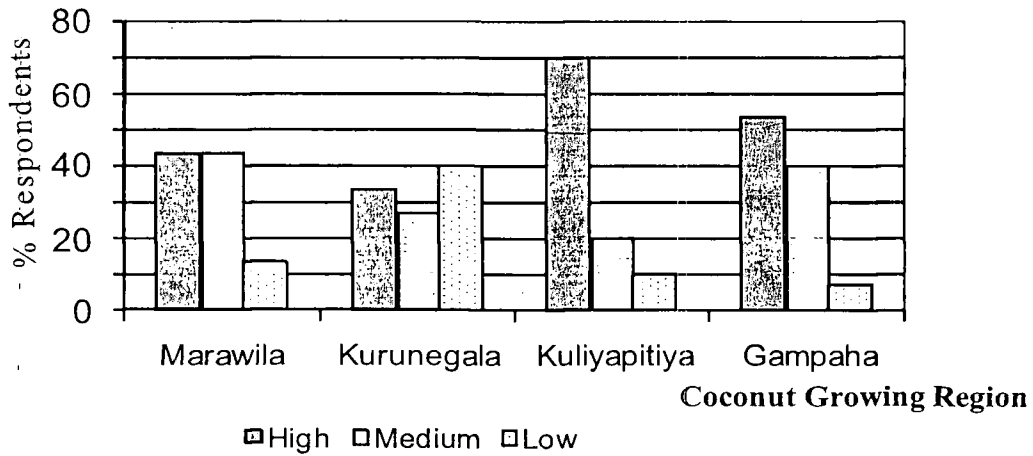


Fig.1. Management Level of Lands in Each Region

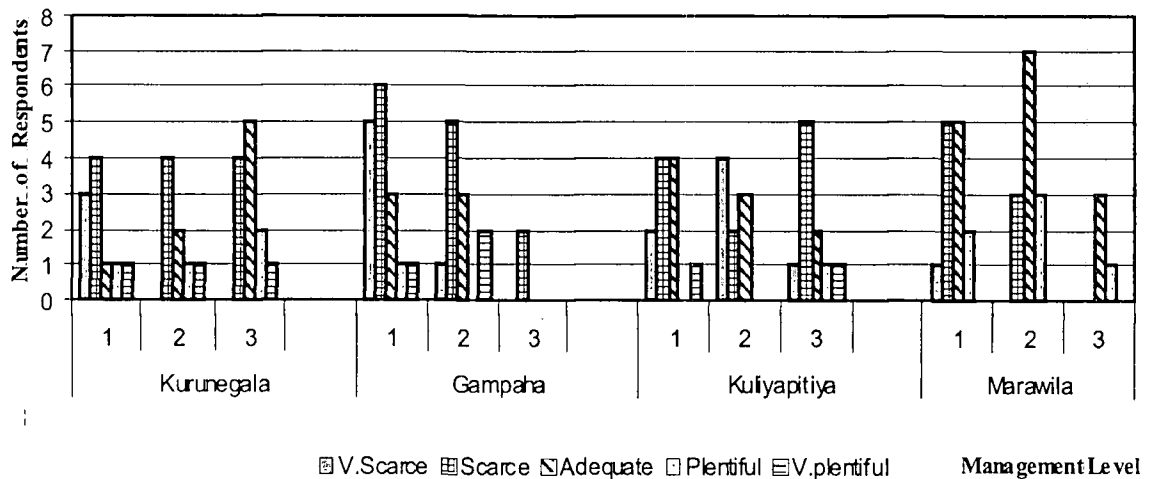


Fig. 2. Labour availability in Coconut Triangle with respect to management level

Management level three (poor) category obtained the lowest values in each region. The values were zero, -2, 4 and -1 for Kurunegala, Gampaha, Kuliypitiya and Marawila regions respectively. It implies that the respondents who managed their lands well tend to experience a severe shortage compared to the poorly managed.

Labour availability

Fig. 3 shows the general picture of level of labour availability as reported by respondents in each region.

a substantial percentage of respondents in Kuliypitiya and Gampaha regions experienced an acute shortage of labour, 23% and 21% respectively. Equally, these two regions also experienced a relatively higher general shortage of labour, 60% and 65% respectively in Kuliypitiya and Gampaha regions.

Young generation's participation in the labour force

Young generation's (age between 16 to 35 years) participation in the labour force crucially determines

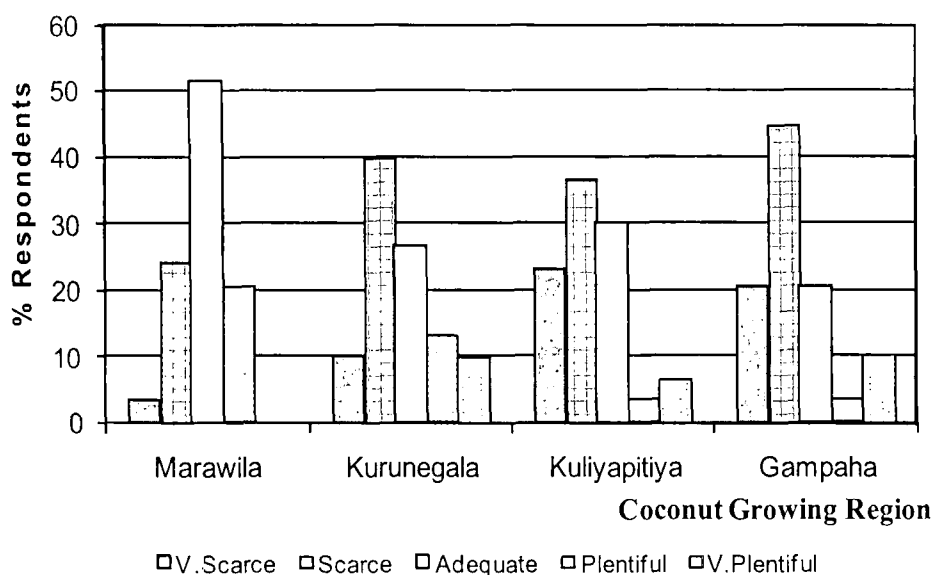


Fig. 3. Labour Availability in Coconut Triangle

About 27% of the respondents experience a labour shortage in Marawila region while 73% had an adequate supply⁵. In Kurunegala, 50% of the respondents experience a shortage while the other 50% have an adequate labour supply. Interestingly,

the labour productivity. Irrespective of the region, there is a significant drawback in young generation's contribution to the labour force (Table 1). The highest participation is from Kurunegala which is still as low as 33%. The lesser the participation of

Table 1. Young Generation's Contribution to the Labour Force

	% Respondents			
	Marawila	Kurunegala	Kuliypitiya	Gampaha
N	80	66.67	92.59	86.21
Y	20	33.33	7.41	13.79

Source: Labour survey (2005)

⁵ Since the percentage of respondents who indicated that the labour is very scarce is relatively less, this category was also considered together with the 'scarce' category.

young generation to the labour force, the lesser the labour productivity and it will cause to increase the cost of production.

Presence of gender- specific labour shortage

In Marawila, Kurunegala and Gampaha, the percentage of respondents who experienced a gender-sensitive labour shortage was relatively less whereas it was high in Kuliyaipitiya (See Fig. 4).

by the occurrence of female-labour intensive garment factories. The greater demand for female labour exerted by these garment factories may be the reason for the acute female labour shortage observed in Gampaha region.

In each region, picking, climbing, and fencing are totally done by male labour. For weeding and manuring, female labour is more frequently used

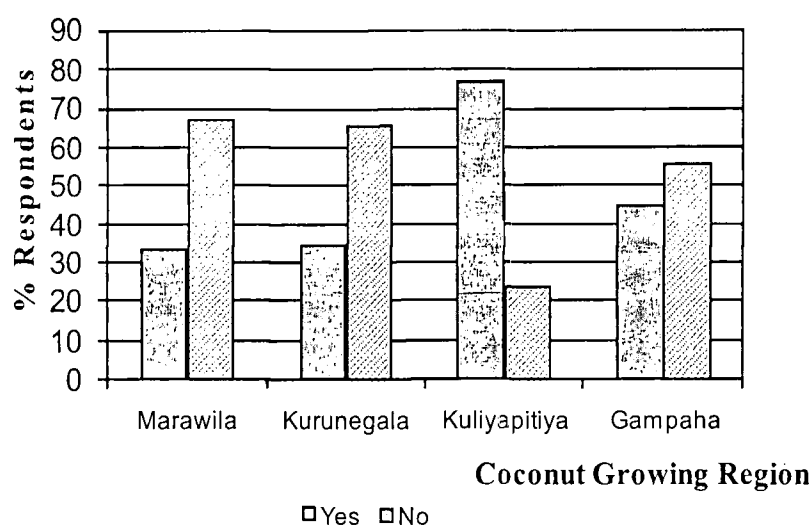


Fig.4. Presence of Gender Variation in Labour Shortage⁶

Fig. 5 shows the shortage of labour by gender in each region. In Marawila and Kurunegala, male labour was of highly short and in Kuliyaipitiya both male and female labour was of equally short. Conversely, in Gampaha region, 76% of the respondents experience a shortage in female labour. Part of the Gampaha region falls under the Export Processing Zone (EPZ). The EPZ is overwhelmed

than male labour. Nut collection and manuring are equally done by both male and female labour.

In coconut cultivation, skilled work is usually paid higher than unskilled work. Coconut harvesting (both by climbing and poles), fencing are considered as skilled work while weeding and nut collection are considered to be unskilled work. The former

Table 2. Geographical distribution of current actual wage rates by gender

Gender	Marawila	Kurunegala	Kuliyaipitiya	Gampaha
	Rs/MD or Rs./WD			
Male	269(57.31)	257(48.26)	269 (57.01)	300 (61.07)
Female	191 (46.68)	191(27.01)	194 (32.21)	204 (39.93)

Notes: MD- Man Day (8 working hours), WD- Women Day (8 working hours) Figures in parentheses are standard deviations. Figures in parentheses are standard deviations.

Source: Labour Survey (2005)

⁶ These values were obtained as a percentage of the respondents who experienced a labour shortage.

work is exclusively male-dominated, as women cannot do it due to hard nature while the latter work is generally done by women. This means that women tend to be involved in low-paid unskilled jobs in coconut cultivation, leading them to be less economically empowered than men. Manuring is generally a semi-skilled work which is equally shared by both male and female workers.

However, the regional differences are not statistically significant for both male and female labour. In all the four regions male labour is highly paid compared to female labour and this difference is statistically significant. This shows the existence of gender inequity in terms of wage rates in coconut cultivation sector.

Table 3 describes the variation of labour wages in each region according to the land size class. Across

Table 3. Variation of wage rate with respect to land holding size

Land category	Marawila		Kurunegala		Kuliyaipitiya		Gampaha	
	Rs./MD ¹	Rs./WD	Rs./MD	Rs./WD	Rs./MD	Rs./WD	Rs./MD	Rs./WD
2 to <5 acres	285	190	289	210	311	211	325	212
> or =5 and <10	265	212	255	215	290	200	316	225
> or = 10 &< 20	300	212	250	187	237	192	300	200
> or equal 20	237	171	228	162	234	178	263	188

Source: Labour Survey (2005)

As shown in Table 2, highest wage rates are recorded for both male and female labour in Gampaha region. The pressure exerted by the higher wages in industrial sector labour in Gampaha area raises the price of agricultural labour also upwards, making the coconut cultivation a competitive enterprise.

all four regions, there is a modest reduction in both male and female wage rates with increase in land size. Tendency for use of permanent labour by larger estates may be the reason for this. This implies that the smallholders have to pay higher rates compared to the estate sector. According to 2002 Agriculture Census, nearly 81.9% of the national coconut extent is comprised by

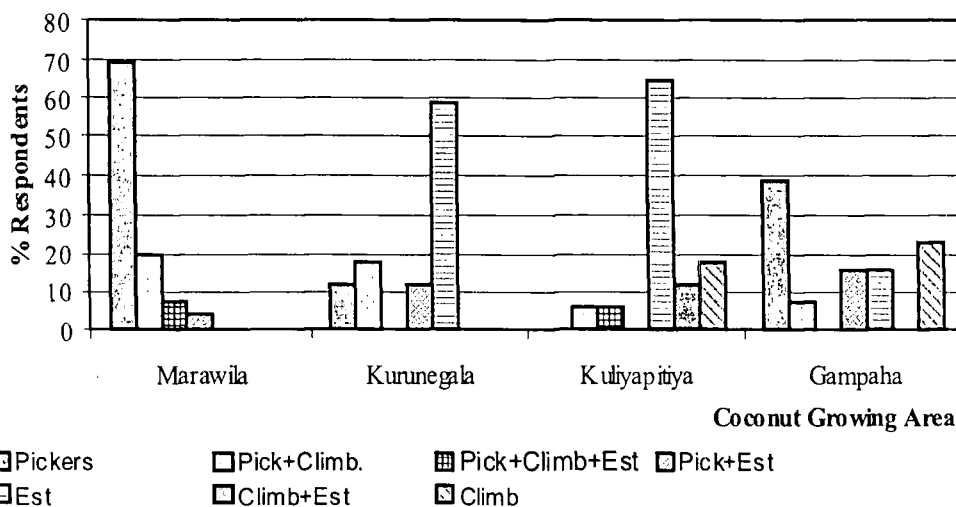


Fig. 6. Activity wise shortage in each region

¹ MD means man days while WD refers to women days.

smallholdings (Dissanayake, 2005). This would mean that the majority of the coconut growers have to pay higher rates for labour.

Activitywise labour shortage in each region

The regional variations in labour shortage for different kinds of activities are shown in the Fig. 6. In Marawila and Gampaha regions, the highest shortage is for skilled labour such as picking by both bamboo poles and climbing. Around 70% of the respondents experienced a shortage for picking by bamboo poles and around 18% for both by pole harvesting and climbing. Altogether in Marawila

Picking both by poles and climbing being skilled activities are paid higher wages. Other activities are paid comparatively low wage rates and among them manuring is fairly highly paid. It implies that skilled labour is highly paid compared to unskilled labour. This pattern is observed in all the regions. In the Kurunegala region, manuring is less paid compared to the other regions. It is observed that two third of the used labour in this region for manuring is female labour which is cheaper than male labour.

Table 4. *Variation of Wage Rates in relation to Activities*

Activity	Marawila RS/MD	Kurunegala RS/MD	Kuliyapitiya RS/MD	Gampaha RS/MD
Picking	619	771	610	647
Climbing	858	805	903	1141
Nut Collection	216	268	185	202
Weeding	194	163	216	209
Manuring	354	198	353	421
Fencing	216	203	317	247

Source: Labour survey (2005)

around 88% of the respondents experienced a shortage for harvesting. In Gampaha region the corresponding figure is 69%.

In Kurunegala, around 29% of the respondents had shortage for skilled labour while in Kuliyapitiya region it was around 23%. Kuliyapitiya and Kurunegala regions experience a notable shortage for labour required for estate work while other two regions do not.

Wage rates

Wage rates are not consistent with respect to each activity. It is expected that skilled labour is highly paid compared to unskilled labour. Table 4 consists of average wage rates in each region for different activities.

Labour turnover

A labour study conducted in two villages in Laguna in Philippines by Cornista (1984) revealed that the labour availability is worse-off among the coconut actors. In those two villages, coconut labourers were relatively young with an educational attainment of below elementary level. It shows that educated and skilled (experienced) work force does not remain in coconut sector as they have more opportunities. In a developing economy it is expected to have the mobility of agricultural labour to the industrial and service sectors. Fig. 7 describes the reasons for labour turnover in each region.

Low wage rate in estate work is a major cause for labour shortage in all the regions. Non-farm employment opportunities provide them with higher

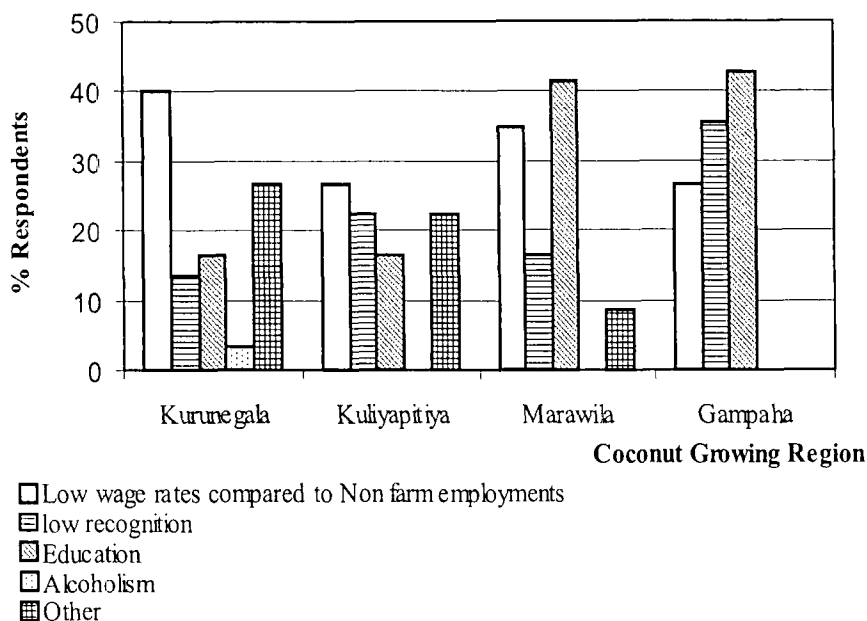


Fig. 7. Reasons for labour turnover from cultivation sector

wages. Improvement in the education level is a cause for moving away from estate sector. This is a notable cause in Marawila and Gampaha regions. Poor social acceptance of estate manual labour workers is one of the major causes for poor participation of young generation. There is seasonality in labour availability in Kurunegala and Kuliyaipitiya regions during the paddy harvesting and sowing times. A deep attitudinal change is needed to improve the young generation's participation. If cost effective machineries can be introduced it will help to attract young generation.

Labour use pattern in different regions

The efficiency of agricultural labour has become a critical issue in many countries. Poor labour productivity is a cause for increased cost of production. A study conducted by Sivaram (1996) on productivity improvement and labour relations in the tea industry in South Asia revealed that the productivity of a tea estate depends on the levels of labour utilization and the labour per unit area appropriate to the different levels of yield. He found that this requirement varies from country to country as well as district to district within the same country.

Similarly, for a well-managed coconut estate, labour productivity is an important factor for cost minimization. Table 5 shows the labour – land ratio of each region.

Irrespective of the region, highest labour requirement is for weeding and lowest requirement is for climbing. Although weeding is a labour intensive activity, this is being partly mechanized by the wide use of grass cutters especially in medium and higher income home gardens. Average labour requirement for a well-managed acre of land⁸ is 15 man-days in Marawila region and 14 in Kurunegala region. It has a lower value in Kuliyaipitiya region, which is 11 man-days and highest is for Gampaha region, which is of 22 man-days. Machinery use may reduce the total man days required.

Machinery use

Machineries are a substitute for manual labour. When machinery use is economical it can be used as a solution for labour shortage. Table 6 shows the machinery use of respondents in each region.

⁸ A land which practice all the activities mentioned in the table.

Table.5 *Labour –Land Ratio in each Region*

Activity	Marawila MD/Acre/Y	Kurunegala MD/Acre/Y	Kuliyapitiya MD/Acre/Y	Gampaha MD/Acre/Yr
Picking	1.40	0.89	1.34	1.75
Climbing	0.41	0.37	0.53	0.36
Nut Collection	1.69	2.35	2.02	4.18
Weeding	3.95	4.46	2.75	8.69
Manuring	2.20	2.44	1.83	1.46
Fencing	0.64	1.36	0.43	1.05
Contour drains	0	0.61	0	0.57
Husk Pits	3.58	1.26	0.69	3.6
Pest	0.90	0.95	1.83	0.93
Irrigation	0.66	0.17	0	0
Total MD/Ac/Yr*	24.47	19.17	18.36	22.59
Total MD/Ac/Yr **	15.43	14.24	11.43	22.02

* Including all the activities

** Except animal husbandry and intercropping

Source: Labour survey (2005)

Table 6: *Machinery use by the respondents in different regions*

Activity	% Machinery Use			
	Marawila	Kurunegala	Kuliyapitiya	Gampaha
Picking	-	-	-	-
Climbing	-	-	-	-
Nut Collection (transportation)	87	57	83	83
Weeding	50	30	60	34
Manuring	15	5	23	4
Contour drains	-	50	100	-
Husk Pits	36.36	89	88	67
Pest	-	-	0	-
Irrigation	67	-	40	-

Source: Labour survey (2005)

About 50% of the respondents in Marawila region use machineries for weeding. This is 60%, 34% and 30% respectively in Kuliyapitiya, Gampaha and Kurunegala regions. Machinery use for husk pits in Kurunegala and Kuliyapitiya regions is 89% and 88% respectively. In Gampaha region 67% and in Marawila region it is 36%.

Use of machineries for contour drains is 100% in Kuliyapitiya and 50% in Kurunegala. The level of machinery use is not much different in all the regions. Husk pits are rarely practiced in Gampaha. Nut collection is a manual activity and supported

by machineries in transporting nuts within the estate to make them into a heap.

Labour costs

Number of man-days required, frequency of practicing and wage rates affect the labour cost in a given holding. Table 7 shows the labour costs incurred in each activity as a percentage of total labour cost and its regional variation.

In Kurunegala district, the highest proportion of the labour cost is for nut collection and weeding. In

Table 7: *Proportion of labour cost for each activity from the total labour cost⁹*

Activity	Kurunegala	Marawila	Kuliyapitiya	Gampaha
Picking	15.83	26.44	30.40	20.3
Climbing	4.45	5.35	6.90	3.41
Nut Collection	28.99	12.95	13.22	19.03
Weeding	27.46	18.99	17.54	32.3
Manuring	14.82	23.22	20.31	9.75
Fencing	4.82	0	4.36	13.45
Contour drains	0.00	0	0.00	0.51
Husk Pits	1.72	6.98	2.35	0.69
Pest	1.25	2.64	4.65	0.4
Irrigation	0.08	1.12	0.27	0.16

Source: Labour survey (2005)

⁹Out of the total labour cost, cost incurred in each activity is taken as a percentage of the total labour cost.

Marawila, it is for picking followed by manuring. The majority of the respondents in Marawila region practice manuring and it would be a cause for this. Kuliyapitiya region shares commonalities with the Marawila region. In Gampaha it is for picking and nut collection. Generally weeding, picking, nut collection and manuring are the activities for which a considerable amount of costs are incurred. Therefore, mechanization possibilities should be explored for these activities.

CONCLUSIONS

A substantial percentage of respondents in Kuliyapitiya and Gampaha regions experienced an acute shortage of labour, 23% and 21% respectively. It is around 10% in Kurunegala region. Shortage is not severe in Marawila region which may be due to the availability of refugees in some areas of the region. An acute shortage for skilled labour necessary for harvesting of coconuts, both climbers and pole harvesters, is observed in Marawila and Gampaha regions despite the fact that a higher wage is paid. This is partly because of the new generation is unwilling to take up this job due to social stigma. Irrespective of the region, there is a significant draw back in young

generation's participation in the labour force. Highest drawback is in Kuliyapitiya region. Low wage rates, high education level and poor social acceptance were the causes for labour mobility from cultivation sector to other sectors. A deep attitudinal change should be introduced to the younger generation to promote their participation in cultivation labour market. Incentive systems have to be introduced to the plantation sector to minimize the labour turnover. A programme has to be initiated to train a new generation of coconut harvesters and to provide an insurance scheme for them or a company can reintroduce coconut harvesting as a recognized commercial service.

In Kurunegala and Kuliyapitiya regions unskilled labour is of highly scarce compared to other regions. Skilled labour is highly paid compared to unskilled labour and it is frequently of contract type. Activities involving skilled labour are male dominated while activities involving unskilled labour are female dominated. This means that the employment opportunities in the coconut cultivation sector unequally empower the men and women in terms of earning possibilities favouring the men. A disparity exists between male and female wage rates. It is likely to be that the small holders have to pay higher wage rates compared to estate sector.

Husk pits, contour drains and weeding are the activities with a greater tendency to be mechanized. Innovative cost effective mechanization technology should be invented to reduce the dependence of manual labour in cultivation related activities.

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