The Labour Situation on Sri Lankan Tea Estates - A View to 2005

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The Labour Situation on Sri Lankan Tea Estates - A View to 2005[1]

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1. INTRODUCTION

The long-term commercial viability of Sri Lankan tea estates is crucial for the industry and also for the country's economy. And yet, five years after the privatisation of management, no clear picture is emerging, and starkly contrasting future scenarios appear to have almost equal validity. There are a great many uncertainties -- possible demand shifts, developments in competitor countries, price and cost trends, technological developments, the level and types of future investment (especially in diversification) and, more generally, the effectiveness of government and management strategies in restructuring the industry. They will all shape the outcome. But the future cost and availability of labour are almost bound to loom large in any economic appraisal, and there is concern in management circles that they could eventually prove to be critical.

Views on the estate labour situation have shifted significantly since the privatisation of management. Some estates have always recorded a labour surplus while others felt threatened with a deficit, but under state management (from 1975-92) the situation had to be accepted as largely intractable.[2] Since privatisation, costs have been increasingly scrutinised and labour availability and labour productivity have assumed much greater importance. A growing number of estates have encountered labour shortages (in the Low Country in particular). Workers' aspirations have been rising; young people are no longer so willing to accept estate employment, and citizenship has opened up the possibility of other off-farm work. Even where labour surpluses exist, regular workers have had to be seen as a resource to be employed productively because the wage bill accounts for two thirds of an estate's production costs and retrenchment is difficult. The extent of these problems and their significance for the industry as a whole remains hazy,

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1 This study was carried out in collaboration with the Technical Assistance Team (TAT) and with financial support of the Royal Netherlands Embassy. The authors would like to express their appreciation for the assistance they have received.

2 *Report of the Presidential Commission on the Tea Industry and Trade*, 1995:17. On state-run plantations, the number of workers and the minimum number of workdays offered were in effect taken as given. Labour costs were basically fixed, regardless of labour requirements or output (World Bank 1993:62) and there was little real incentive to resolve anomalies.

but it is clear that the labour situation has in future to be viewed from new perspectives, in which competitiveness and labour efficiency are the driving force and where worker aspirations and other job opportunities are an accepted part of the equation.

This paper is a preliminary exploration of the current and medium-term labour situation on Sri Lankan tea estates. In large part, it is conceptual and methodological: the aim is to advance our understanding of likely future problems, looking at the changing labour situation in dynamic terms, putting the onus on agribusiness management to take a longer-term perspective and to become more efficient, and no longer assuming that the youth on an estate will in future automatically work there. Particular attention is paid to company strategies, to field and labour management as factors influencing labour demand, and to worker motivation, incomes, standards of living, and alternative employment as the key factors on the supply side. On a broader plane, management attitudes to labour and the status attached to estate work are considered fundamental, and it is argued that image-building is likely to become increasingly important for the estate management companies.

The structure of the paper is the following. Section 2 locates the labour problems of estates in the context of recent developments. Section 3 looks at labour demand. It maintains that, if competitiveness and estate profitability are to be increased (which is an objective of privatisation), then the appropriate norm to use in determining whether in future there are likely to be labour surpluses or deficits cannot be the average level required under present management practices. It has to be appropriately constructed around some notion of efficiency. At the estate level, labour norms have traditionally been used as rules of thumb to prepare financial estimates for fieldwork, but the norms themselves and the way they are used have rarely been scrutinised. Section 3 asks what they would be if the estates were managed efficiently and adopts these figures as targets. Section 4 turns to labour supply in the context of contemporary labour markets. It looks at the implications of alternative supply definitions for labour management in the light of rising worker aspirations and increasing job opportunities. A final section then looks at demand and supply balances; it analyzes the results of a series of simulation exercises designed to signal the possible impact of alternative production scenarios on the future labour situation. It also tries to identify the areas of leverage that may be open to plantation management.

2. BACKGROUND

The Sri Lankan plantation sector has begun to embark on a critical process of transformation. In July 1992, the management of 449 state-owned plantations that had been state-run since the land reform of 1975 was handed over to 22 private sector management companies on a five and a half year lease.[3] Since then, there has been much discussion of their financial status and of the progress that has been made in their agricultural and management restructuring -- about the most appropriate cultivation practices, factory rationalisation and better factory processes, financial and management control systems, estate diversification and asset development, labour relations, debt restructuring, marketing, and the financial viability of companies. Behind all of this, however, lay a fundamental concern with company profitability and with the sustainability of the industry. Labour was seen as a cost, not as a resource to be developed.

After privatisation, improvements were recorded in the agricultural condition of most tea estates; there was an initial increase in output, but average costs of production remained consistently high and -- until late 1995 -- they were above the net sale average. Performance could clearly not be turned around overnight. International tea prices were a crucial exogenous influence, there was arbitrary government intervention (through mandatory wage increases) and short-term priorities prevailed over long-term investment because of the short management lease and the weak financial position of the majority of companies.[4] To firms, this hardly seemed to be an appropriate time to be making concessions to labour.

The fact that the industry -- and with it labour utilisation -- needed major restructuring was nevertheless unequivocal. How it could best be achieved was more controversial, but the government accepted that a strong injection of capital was quite essential and that the privatisation of management should be taken further.[5] Equally clear was that, over the longer-term, success would hinge on the far less publicised, but equally vital need to

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3 Subsequently, some estates that remained under the two state plantation corporations were handed over to another, additional company, bringing their number to 23.

4 In the initial privatisation, companies were given management leases that provided no incentive for investment. There was an increase in the output of made tea, most notably of low growns. But this (which included smallholder production) was also in many ways misleading. Overall, average costs of production were above the nett sale average and a number of companies were only able to survive by borrowing heavily from banks. There were strong pressures to increase the capacity utilisation of newly rationalised factories, relaxation of quality standards with the acceptance of more coarse leaf to achieve this end, and a resulting increase in the production of poor leaf plainer teas (Report... op.cit. 1995).

5 See the Policy Statement by the President on the Occasion of the Opening of Parliament, 6 January 1995:33; and "The Economic and Political Agenda of Sri Lanka", statement by H.E. the President to the Sri Lanka Aid Group Meeting, Paris, 27 April 1995.

improve existing methods of management. Several government reports had stressed that the competitiveness of Sri Lankan tea in international markets was going to depend heavily on the ability of private sector management companies to contain costs of production, to focus their efforts on the better tea land, to revive emphasis on quality teas (to secure higher prices), and to generate a sufficient margin for their own future investment.[6] All this was undoubtedly true. But balancing labour demand and supply, improving the image of estate work, raising labour productivity and building a committed and contented workforce had to be part of company strategies if this was going to happen.

Labour issues had not been ignored: on the contrary, they had been a prominent theme in the on-going discussions. But they had entered, by-and-large, with regard to the lack of labour mobility from surplus to deficit areas (ADB 1993), government imposition of wage rates and the minimum number of work days that was being requested by unions -- basically, as a high cost factor of production that was poorly distributed geographically and of low productivity (World Bank 1993:54) -- or because diversification was necessary to find productive work on the estates that had surplus labour. There was little discussion of labour incentives, of what a typical estate might look like in the early years of the next century, what labour it would need and how it would get it, or of the kind of work and living environment that would be necessary to make estate life more attractive. Human resource perspectives that asked what the workers wanted, what kind of work they and their children were likely to accept in the future, and whether it was correct to keep assuming a resident and largely captive labour force did not appear to be taken up seriously, let alone energetically.

Yet these were already demonstrably crucial issues in many parts of the country. The situation on the ground was rapidly changing and, with the second round of privatisation (with divestiture of shares to the private sector and newly structured companies acquiring a 50 year management lease), the time is now in many ways ripe for a reassessment. Estate development plans, for example, will have to be taken more seriously. Planning has started, but there is little evidence as yet -- at least not publicly -- that the labour market is perceived to be a central issue. Nevertheless, there are clear signals that the existence of an adequate labour supply can no longer be taken for granted in many parts of the country, even in the short- to medium-term. The number of estate workers declined

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6 Report of the Presidential Commission... op.cit. January 1995; Report of the Committee Appointed to Inquire into State Sector Plantations, February 1995.

sharply in the 1980s as a result of the repatriation of most of those who chose Indian citizenship (by as much as 25 per cent).[7] Tea areas that had never known a history of labour shortages are beginning to record them. In Low-Country areas in particular, there are registered estate workers who work for neighbouring smallholders, in gem mines or in boutiques because the day wage rates are higher and because cash payment is immediate.[8] Sri Lankan citizenship (granted to 360,000 estate workers as of January 1986) has facilitated greater job mobility amongst plantation youth, be it to the Middle East, to urban employment or to whatever work is available in nearby villages. Natural attrition will see a further 30,000 experienced workers (or 8-10 per cent of the registered workforce) retire over the next 5 years (ADB 1993, volume II, Appendix 8). And, as in the rural sector more broadly, education and growing awareness of the material benefits of an open economy have begun to permeate the community. They mould aspirations; they shape people's expectations, and they influence views as to what is acceptable employment and what are acceptable standards of living.

Seen together, these are worrying developments. They suggest that, if counter measures are not forthcoming (in some areas almost immediately), tea estates in Sri Lanka could find themselves entering the process of downward transition that other plantation economies, such as those of Barbados, experienced very much to their cost in the 1970s -- with a declining supply of labour, static labour productivity and a shift in the composition of the workforce towards older women. Moreover, the experience of those areas has shown that, once these trends become established, they are extremely difficult to reverse. They could have profound consequences for the future of the Sri Lankan tea industry and indeed for the Sri Lankan economy.

3. LABOUR DEMAND

3.1 Introduction

The history and rationale of the plantation as a farming system has always been such that it is the productivity of land that has been the prime concern. Land was the valuable

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7 The Tea Master Plan was unambiguous that in the 1970s tea was "characterised by an almost universal labour surplus" (CIDA/GOSL 1980, vol.IV:59).

8 Because the smallholder does not have to pay EPF and other benefits, the day wage is higher. At the time of privatisation in June 1992, intake per plucker and yields per hectare on state-owned plantations were only 40% of those on smallholdings (World Bank 1993:59) -- though the working day may also have been longer in the latter case. Labour productivity on the estates was also found to have fallen during the second half of the 1980s, though one sample (see later) suggested that by 1995 this had been reversed.

resource. An abundant supply of cheap labour was arranged and then simply taken for granted. And this has been equally true of Sri Lanka (De Silva 1982; Amerasinghe 1993). Most literature on plantation labour in Sri Lanka, with the notable exception of Sinnathamby and Wickremasekara (1984), takes labour availability and labour productivity more or less as given. The labour an estate requires for its field activities is calculated either uncritically, by rule of thumb (one worker per acre of tea -- said to be the Sri Lankan mean), or, critically, in comparison to lower figures recorded for the industry (often under very different social and physical conditions) in some other part of the world.[9] The relevance of these "norms" for estate development in Sri Lanka remained unchallenged, presumably because, under the state-managed regime, the *status quo* could in practice never really be altered. There was neither policy support nor the necessary funds to view the situation dynamically -- to ask how changes in labour productivity, substantial in-filling or taking "poor" tea lands out of production would affect the labour needs of an estate. It was only when costs of production became critical after the privatisation of management, or as labour shortages emerged, that labour productivity as such began to receive serious attention.

However, to be in a position to estimate if there is (or is likely in future to be) a labour surplus or deficit, there has to be some yardstick against which the labour supply to an estate can be measured objectively. This section is concerned with the definition of such a measure -- with the estimation of labour demand as a dynamic concept that reflects the needs of efficient estate production over the longer-term. It sets out by examining previous approaches in an attempt to identify factors that have to be taken into account. These are then drawn together to define "optimum labour demand". We then attempt to flesh out this skeleton, examining and grouping field activities in tea production using Tea Research Institute (TRI) guidelines as "the best cultivation practices" at different elevations.[10] There is an underlying assumption that, if it has the resources (and if the estimated financial rate of return on the investment is commercially acceptable), a management company will strive to bring its estates as near as possible to a situation of

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9 For an example of the uncritical use of international norms see ADB 1993, Appendix 5. Differences in elevation, slope, climate, agrarian structure, applicable technology and the gender division of labour are not insignificant. The lessons to be learnt from international comparisons are therefore not always quite as clear-cut as is suggested by yield statistics alone.

10 How far TRI guidelines can be said to reflect the best cultivation practices has been questioned in relation to individual activities (for example with regard to alternative drainage systems or fertiliser specifications). However, they provide the one thought-out and internally consistent set of guidelines for tea production that we have available. We will also argue later that most of the modifications in terms of cultivation pactices make little real difference in terms of labour demands per hectare over a five to ten year period. On these grounds, therefore, their use would appear to be justified.

technical and allocative efficiency.[11] Some qualifications to this position will be introduced later.

3.2 Earlier Estimations

There have been several attempts to estimate labour demand on Sri Lankan tea estates, but they have tended to view it (and the assessment of labour surpluses or deficits) as an arithmetical exercise. They have taken the production context as given, and they have proved highly abstract (since labour requirements vary in practice from estate to estate, and indeed from field to field). More crucially, the labour problem has never really been located in the context of management efficiency -- in relation to the best cultivation practices in an area or in terms of the long-term needs of estate development. Nevertheless, these studies help to clarify the task of defining labour demand and they are examined briefly here. Attention focusses on the methodology adopted in the Tea Master Plan (CIDA 1980) and the more recent ADB Report on Sustainable Development (ADB 1993) -- though in neither case was the labour market the main concern or a crucial area of analysis.

(i) The Tea Master Plan

The Tea Master Plan (TMP) was based on data from the mid and late-1970s, soon after the nationalisation of the estates and at a time when seedling tea was still very much in the ascendency. It is therefore in many ways dated, but there are lessons to be learnt from the logic of its analysis. The driving force behind the argument of the TMP was the need to raise the productivity of tea land. Since most of an estate's costs of production had to be taken as more or less given on the state-managed plantations, yield per hectare seemed the one available lever for estate development. Increased yields meant lower unit costs and thus higher producer margins (or at least smaller losses).

The study therefore looked at labour demand in relation to average annual yield. It distinguished between plucking, sundry field labour, factory and other labour and, based on them, it constructed a composite labour demand curve (derived from check roll wage costs and estate physical yield data). It argued that the labour requirements of an estate were by nature fluid, and that they should not be taken as fixed. First, and most importantly, they were found to vary with yield, principally because of the demand

11 Technical efficiency refers to the adoption of the best technical methods to gain the highest level of output, and allocative efficiency to the best allocation of available resources (and adjustments to relative price changes) to achieve that goal.

for plucking labour. Regression equations established a linear relationship between the two at made tea yields from 900 to 2,100 kg/ha.[12] Similar patterns were traced in the relationship between average annual yield and the green leaf intake per plucker (plucker productivity). The underlying message was that the demand for plucking labour gets higher as yields increase, but at a declining rate (because it will also see a concomitant rise in the productivity of labour). Finally, the TMP sounded a warning on the use of *average* data. It pointed to fluctuations in labour demand over the course of a year -- peaking at times when the flush was greatest and when yields were potentially highest (CIDA 1980, volume IV: 59-73). A distinction was also drawn between two classes of estates: those producing high or medium grown teas on the one hand and those with low grown teas on the other. Labour requirements for the latter were found to be roughly 20 per cent higher.

The fact that labour demand varies according to elevation and yield -- and also from year to year, even from season to season -- raises serious questions about the usefulness of any one norm of average labour requirements for the Sri Lankan tea sector as a whole. It also signals the importance of labour management -- a theme that will recur regularly in this study. However, there are definite weaknesses in the TMP's approach when it is viewed in the radically different context of the mid-1990s. First, and perhaps most important, is the fact that the basic production structure is essentially taken as given. It builds on the *status quo* -- on empirically observed ratios. It is not concerned whether the cultivation practices they reflect are good or bad: it excludes replanting labour from the demand analysis which places the focus of concern on short-term efficiency; and it provides no scope for increases in labour productivity as a result of either technical change or improved techniques of management.[13] Second, it is questionable if the centrality of yields in determining labour demand is entirely justified. As far as plucking labour is concerned, it seems broadly right (though improvements in labour management might refine the numbers), but it is much less clear that yield is necessarily a key determinant of sundry labour, especially if maintenance and development activities are carried out in full.[14]

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12 Outside that range, the linear function was found to *overestimate* the labour needed (so that, overall, an exponential equation gave a better fit).

13 The possibility that productivity changes could in principle occur was at times acknowledged (CIDA 1980, volume IV:60), though they were not a part of the model.

14 The weakness of this association between yield and the demand for sundry labour is borne out by a weak correlation coefficient (r^2 = 0.187) in the TMP itself (CIDA 1980, volume IV:65). In the case of factory labour -- where it found no correlation -- it admitted that the link to yields was "a somewhat artificial convention" (*ibidem*:67).

(ii) The ADB study

The ADB approach was in marked contrast to that of the TMP. It was concerned with the labour demand situation just after the privatisation of management and it looked at the overall crop mix of individual companies, rather than at a tea or rubber estate *per se*. Labour demand in this framework was interpreted in two ways. First, it was determined empirically from the current situation. A multiple regression analysis was used to estimate the number of registered workers per hectare for tea, rubber and other crops based on the companies' registered workforce and their respective cultivated extents. This was carried out for 1990 and 1993, and for all three crops labour needs per hectare were found to have fallen (in the case of tea from 3.1 to 2.85 workers per hectare).[15] Second, it used an international norm -- in the case of tea, 2.5 workers per hectare. The labour demand of each company was then obtained by multiplying their tea extent by the relevant norms i.e. by 2.85 or 2.5 respectively (ADB 1993, Volume II, Appendix 5: 5-13).

Two important lessons can be gleaned from the ADB analysis. First, it drives home the point that, under privatised management, it is company profitability that is ultimately important, not that of individual estates. And, second, through the comparison with lower (internationally derived) norms, it points to the need for higher labour productivity (though it does not really take it up -- for example in relation to yields). These points are well-taken, but there were also serious methodological flaws in the ADB's analysis.

First, it would seem unequivocably wrong to derive an estimate of labour demand from the current labour supply. There is no *a priori* reason why the average number of workers that are currently available per hectare of bearing tea should be in any way related to the labour that is likely to be required at efficient levels of production. Similarly, the international norm that was used lacks any explanation or technical justification.[16] Second, the use of aggregated company data is problematic because companies manage estates at different elevations, with varying agroecological conditions and different labour needs. Again, there would seem no *a priori* reason to believe that an average figure derived from aggregated data from all these different estates (and from the workforce and cultivated extents under different crops) will yield an accurate reflection of the labour that is needed for efficient tea production in any

15 This is taken up in section 4 which looks at labour supply.

16 The reader is referred to Volume 1, para 2.5 and table 2.4, for this explanation (ADB 1993, volume II, Appendix 5:11), where the latter refers the reader back again to the original source (*ibidem*, volume I:38).

given part of the country. And, third, because the approach they adopt can only arrive at an estimate of *average demand*, there is no consideration of seasonality -- a problem later when it comes to assessing if there is a labour surplus or deficit.[17] The practical relevance of these demand estimates must therefore be limited.

So what lessons can be learnt from these earlier analyses? There would seem four main conclusions:

(i) first, they suggest that a blanket norm for the tea industry as a whole is unlikely to be useful, and that clear account must (in particular) be taken of yield and elevational differences;

(ii) second, they suggest that any really workable norm for labour demand has to be constructed from an analysis of the different activities entailed in tea production. It must be possible to trace and understand the assumptions that lie behind whatever norm is selected;

(iii) the productivity of an estate and labour productivity would seem of profound importance -- raising, by implication, the question of management efficiency; and

(iv) it seems important that labour demand is not interpreted too rigidly -- that seasonality and the annual fluctuations in estate production as a result of weather (or in the needed maintenance) are both kept very clearly in mind.

The point that the optimum labour outcome for a company may not be the same thing as optimising the efficiency on all its estates is also a valid one, but it could not be taken further in this study because of the limited resources available. In the following section an attempt is made to build the points that have been made into a coherent model.

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17 Questions can also be raised about the use of registered workers rather the average turnout, the role of casual labour and the use of contract labour. These points will be taken up later in the discussion of labour supply.

3.3 The Optimum Level of Labour Demand

Any estimate of the optimal level of labour demand of a tea estate has to be predicated on some notion of the best cultivation practices at that elevation (or in that agroecological area) -- or on what is referred to technically as a frontier production function. The importance of distinguishing between production conditions in different parts of Sri Lanka is accepted in the literature. Growing conditions are known to have a major effect on the tea that is produced and on the problems of management (Marby 1972; TRI 1995). The central question is "just how much labour is likely to be needed by an estate at a given elevation if it is to be run at optimum efficiency?"[18] At this stage we are concerned only with tea, not with estate diversification.

At first sight, the answer may seem fairly straightforward: you look for the estate with the highest labour productivity (or the lowest labour to yield ratio per hectare)[19] in the locality and you take that as a benchmark, with perhaps some later refinement. Short-cuts of this nature are attractive and might seem intuitively logical, but in practice the results that it gives will not necessarily be meaningful. There are several weaknesses in the reasoning. First, there can be a trade-off with quality.[20] The fact that one estate uses less labour per hectare than another might appear in principle to be a sign of higher labour productivity, but that is clearly not the case if corners are cut and the quality of work is lower. Second, it can reflect a trade-off between short-term and long-term goals. If maintenance and development activities (terracing, pruning, in-filling, replanting) are ignored or minimised, labour needs will obviously be lower and costs of production will fall, but efficiency will be drastically reduced over the longer-term.[21] And, third, and most obviously, after a long period of state management and a short phase of privatised management on short-term leases, there is no basis for assuming that any estate in a given area will necessarily reflect efficient management and sound cultivation practices. There has, therefore, to be some way in which the quality of work, short and long-term perspectives and labour

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18 If an estate fails to meet this norm and needs much more labour, there is said to be an efficiency gap. The assumption is that, as the lagging firm becomes clear about what is needed, improves its management practices and allocates resources accordingly, this gap will gradually close -- or, if this cannot be done, that the gap will remain (for whatever reason) and the estate will run at sub-optimum levels and will require more serious restructuring.

19 Labour requirements can also of course be converted into costs at prevailing wage rates as is the normal practice in an estate's annual estimates.

20 Quality is important because hard plucking and acceptance of coarse leaf can mean a trade-off between quality and quantity that may serve short-term needs of the company (through capacity utilisation in a factory and a higher cash turnover) but cannot be seen as in any sense the best practice in terms of efficiency and longer-term profitability.

21 Actual labour use statistics may also be incomplete at estate level because work given out on contract has not been included. They may refer only to registered labour, giving deflated ratios.

management methods can all be taken into account and drawn more squarely into the equation.

So how else can we arrive at a definition of optimum labour demand? The approach followed in this paper is to estimate estate labour requirements based on the TRI's production guidelines (TRI 1995) and on its subsequent circulars. These are taken to be a statement of the best agricultural practices for any given elevation.[22] The guidelines the TRI specifies for each individual activity at that particular elevation are then translated into labour needs per hectare (LPH), and these are summed to arrive at the LPH that is needed to run an estate efficiently. It is this we take as the basic norm in estimating labour demand. Multiplying this norm by the tea area of any estate at the same elevation gives the number of labour days that are required to run it at optimum efficiency. The applicability of these norms is discussed in a final section which introduces some qualifications.

3.4 Field Activities in Tea Production

Since factory and other staff inputs account for a very small proportion of estate employment (and as the time available for this study was severely limited), this analysis of labour demand focusses mainly on field activities.[23] The labour requirements of a tea estate for green leaf production (Y_{GL}) can be seen a function of four sets of factors:

(i) external factors that are outside the control of company management -- elevation, soil types and microclimate (especially exposure to winds, the level, seasonality and regularity of rainfall and, in Nuwara Eliya especially, the prevalence of mists and frosts);

(ii) factors that affect the long-term agricultural productivity of the estate -- particularly the rate of in-filling and replanting or the replacement of seedling with VP tea;

(iii) management measures that affect current productivity (and short-term profitability) -- encompassing all the other day-to-day fieldwork undertaken on an estate; and

(iv) the effectiveness of labour task allocations, monitoring and incentive structures -- in short, labour management.

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22 TRI labour norms are derived from what they consider to be the best current practices, rather than what might be theoretically optimum, and there is a view that valid options exist in some aspects of cultivation. However, this is not unchallenged, and we have prefered to base the present analysis on a known, widely-understood and widely-accepted set of guidelines.

23 Factory and office staff labour also raise very different issues.

Since external factors cannot -- by definition -- be controlled, optimum labour demand has to be determined separately for estates in different agroecological settings. However, defining homogeneous regions that capture these differences is notoriously complex because the boundaries are invariably fuzzy (and there are some estates -- such as Ensalwatte in the Ratnapura area -- that have divisions at all three elevations).

The task had therefore to be simplified. Two classifications were already available. The first was the regional classification adopted by the Plantation, Housing and Social Welfare Trust (PHSWT) -- which appears to have been largely inherited from the state corporations. On close examination, however, it was found that on the production side -- on the limited elevation, yield and production data that we had available -- there was often as much, if not more variation within its regions as there was between them. The second classification was that used by the Sri Lanka Tea Board.[24] The latter differentiates between six tea producing areas with different growing conditions: Nuwara Eliya, Westerns, Mediums, Uda Pussellawa, Uvas and Low Growns. This classification has been widely adopted as the most appropriate for analysis of economic data (on qualities, sales prices, costs of production and resultant estate profitability). However, it was also too detailed for our needs. It was impractical for a study of labour demand because production guidelines and labour norms had not been sufficiently disaggregated by the TRI, and because there was no evidence from estate estimates or from actual labour use to suggest that average labour demand was so significantly different from one micro area to another.

For the purposes of this study, estates were classified into four broad, aggregated regions based on the Tea Board classification to which TRI norms could be related. The regions were the following:

Wet Up-Country (wu): primarily Nuwara Eliya, Hatton, Talawakelle and Dimbulla but also a number of smaller areas such as Deniyaya (This region will be referred to in the text as the Nuwara Eliya or the Nuwara Eliya/Hatton region);

Intermediate Up- or Mid Country (iu/im): primarily Badulla, Bandarawela, Uda Pussellawa, Maturata and Dumbara (referred to in the text as the Badulla region);

Wet Mid Country (wm): primarily Kandy, Matale, Pussellawa, Nawalapitiya and Balangoda; and the

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24 This was derived from earlier work of C.R.Pannabokke and subsequently adapted for tea by R.L. de Silva.

Low Country (wl): primarily Galle, Kalutara, Kelani Valley, Ratnapura and Kegalle.

There remain variations in average estate productivity within these areas, reflecting (*inter alia*) geomorphology or the age and varietal composition of plant stock, but the detailed disaggregation that was needed to take them into account was beyond the data available.[25] Similarly, what can be achieved on any given estate will always in part be subject to financial and other constraints (the length of the lease, company priorities, capital balances, government subsidies etc.), but again these are not taken up explicitly.[26]

Here, the discussion starts with an analysis of basic parameters. For any agroecological region, green leaf production (Y_{GL}) is said to be a function of initial conditions, labour inputs and labour management or

$$Y_{GL} = f\,[(X,B), (L_p, L_s), (M)] + U \qquad (1)$$

where X and B are initial conditions,

X = encompasses external agroecological and geomorphological factors; and

B = the existing plant stock -- the type and age of the bushes, existing plant densities etc.;

where L_p and L_s are labour inputs,

L_p = the labour used for plucking (including supervision at field level, which is assumed to take account of technique and the quality of leaf accepted); and

L_s = the labour that is used for other sundry activities;

where M = management (technological know-how and resource allocation at the estate level); and

where U = a stochastic or error term (capturing other extraneous variables, such as the weather, the incidence of pests and diseases in a particular year that are not otherwise captured in the function).

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25 If estates have predominantly old bushes or are comprised entirely of seedling tea, this will be reflected in a high labour/yield ratio. However, the reasons for intrazonal differentiation are complex and they are not taken up here. Where these distinctions become important is with regard to management strategy. If the plant stock is well maintained and there is a large proportion of VP teas, then a low labour/yield ratio is likely to be an indicator of good estate management. If the stock is old seedling tea and there are many gaps, it may simply mean that management perspectives are short-term and that replanting and replacement schedules have been cut to a mimium.

26 The ADB report argues, for example, that there are large areas of old seedling tea that, even under good management, are incapable of yielding a crop that is competitive (ADB, Volume II, Appendix 1:1). Ploughing resources into these areas to keep them in optimal condition would obviously not be commercially sensible.

Given the present focus on labour use, it is L_p and L_s that are critical. Conceptually, L_p (the labour needed for plucking) is fairly straightforward: it is a function of yield, labour management in the field and plucking technology.[27] In contrast, L_s ("sundry labour") is a composite term that needs some disaggregation. It is said, for the purposes of this paper, to comprise two categories or groups of activities that we take to be functionally separate -- though in practice some individual workers may do either job. The two categories are (i) labour allocated for maintenance, affecting the short-term productivity of the estate and (ii) labour for development (basically infilling and replacement), which is treated as a capital investment affecting longer-term productivity. These activities can be detailed,[28] but for the purposes of the present analysis it is sufficient to discuss them in aggregate form as two broad composite groups.

3.5 Labour Requirements

3.5.1 Labour requirements under conditions of optimum efficiency

Tables 3.1 and 3.2 provide estimates of the labour required for field activities on Up-Country and Low-Country tea estates if they are managed according to TRI activity and labour norms. No comparable data are available for the Mid-Country.[29] Nevertheless, comparison of these tables shows that there are certain structural elements in common throughout the industry as well as regional differences. As in the TMP analysis, the demand for plucking and factory labour (and in turn total labour demand) emerges as a function of yield at both elevations, with labour productivity rising significantly as the yield increases. A doubling of the made tea yield from 1,250 kg/ha to 2,500 kg/ha raises the plucking labour needed by 17 per cent (and total labour requirements per hectare by 14-15 per cent). The TRI norm for development (at 2 per cent of the planted area replanted each year at a standard labour input per hectare) is also same at both elevations. Overall, labour demand is higher in Low Country areas, though by considerably less than the 20 per cent in the TMP (we estimate by 5-6 per cent). Demand for plucking labour is higher, as is that for factory and "other labour" (under the general charges),[30] but the labour needed for maintenance is in fact marginally lower.

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27 In practice it can also be a function of the availability of labour, but that will be taken up later.

28 Activities involved in maintenance include terracing, the clearing of boundaries and ravines, drain cleaning and repair, weeding, fertilising and mineral applications, pest and disease control, pruning (including bush sanitation, forking, prune cut dressing, thatching and other related activities) and the planting and lopping of shade trees (green manure). Development basically includes nursery development, infilling and replanting.

29 Labour norms per activity for each of these areas were kindly provided by Dr B. Sivaram of TRI, Talawakelle.

30 It is not immediately clear why the demand for factory labour should be higher, though it has been suggested that it is because of the additional hand labour that is required to sift Low Country tea for the Middle East market.

Using these norms, labour demand can be estimated for an estate of a certain anticipated yield at any given elevation -- ideally with some allowance made for seasonality and for the annual yield fluctuations that are caused by weather, though they are not taken into account in the demand and supply estimates in this study.[31] The main reason is that these annual and seasonal variations are extremely difficult to incorporate meaningfully into a generalised estimate of average labour demand, though once a 'typical' pattern of monthly activities has been established, it could in principle be converted into an estimated 'optimum' balance of regular and casual workers -- for example to minimise wage costs.[32] Here, however, the labour required over the course of the agricultural year is estimated in aggregate (in Table 3.1 and 3.2) based on TRI norms. This was then converted into the necessary number of workers/ha. (assuming that on average companies offer 25 days of work per month). The result is a series of norms (for different elevation and yields). For example, for a yield of 2,500 kg/ha. in the Up-Country it would be 2.4 workers/ha. (715.24 divided by 300), and for the same yield in the Low Country it would be 2.5 workers/ha. (753.6 divided by 300).[33]

Table 3.1:
Labour Requirements for Up-Country Tea
(labour days/hectare/year)

Activity	YIELD (kg/hectare)							
	1250	1500	1750	2000	2250	2500	2750	3000
Plucking	349.00	366.00	380.00	391.00	400.00	407.00	413.00	419.00
Maintenance	139.00	139.00	139.00	139.00	139.00	139.00	139.00	139.00
Development	66.50	66.50	66.50	66.50	66.50	66.50	66.50	66.50
Factory	28.27	33.93	39.50	45.20	50.90	56.55	62.21	67.86
Other	46.39	46.39	46.39	46.39	46.39	46.39	46.39	46.39
TOTAL	629.16	651.82	671.39	688.09	702.79	715.24	727.10	738.75

Source: derived from TRI data, Talawakelle

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31 Labour demand can be almost 50 per cent higher in peak months than in the month of lowest activity -- especially in western Up-Country areas (in Nuwara Eliya District). And it is not unusual for yield to vary by as much as 20 per cent from one year to another.

32 Monthly variations in plucking demand can be estimated by translating monthly yield into an annual equivalent and locating it on the aggregate labour demand curve to estimate monthly labour requirements. Examples are given in Appendix 1, but the monthly work patterns it contains are no more than tentative. A second reason is that seasonal and interannual variation are not the main concern of the companies in looking at labour trends. The broader picture is at the moment considered far more important.

33 Few Sri Lankan estates can realistically expect to achieve a regular annual average yield that is above 2,500 kg/ha. in the foreseeable future.

Table 3.2:
Labour Requirements for Low Country Tea
(labour days/hectare/year)

Activity	YIELD (kg/hectare)							
	1250	1500	1750	2000	2250	2500	2750	3000
Plucking	357.00	375.00	388.00	400.00	409.00	416.00	423.00	428.00
Maintenance	137.38	137.38	137.38	137.38	137.38	137.38	137.38	137.38
Development	66.50	66.50	66.50	66.50	66.50	66.50	66.50	66.50
Factory	36.21	43.45	50.70	57.94	65.18	72.42	79.67	86.91
Other	61.30	61.30	61.30	61.30	61.30	61.30	61.30	61.30
TOTAL	658.39	683.63	703.88	723.12	739.36	753.60	767.85	780.09

Source: derived from TRI data, Talawakelle

3.5.2 Actual levels of demand

The concept of "optimum" labour demand as defined so far is based on the assumption that allocative efficiency is the key criterion and that management companies will strive to achieve the best cultivation practices on every tea estate and on each estate in its entirety. In practice, such a rigid assumption is quite unrealistic. The schedule of proposed activities -- and the labour norm that is derived from it -- has to make sense not only technically, but also financially. And in many cases, the financial rate of return on such a strategy would prove to be unsatisfactory. Some qualification to our earlier position is therefore necessary. In this section we try to take this into account. Two variables are emphasised because of their likely affect on actual labour demand: maintenance and development, and the number of workdays a year that are in practice offered. These are then combined to derive a more realistic set of norms. First, we argue the case for greater qualification.

(i) Maintenance and development

Though there seems little dispute about the technical logic of replanting very old and depleted tea land, there has been considerable debate about the financial sense and the potential rate of return. The Tea Master Plan (1980, vol 1:9) took the view that the most important management failure in the Sri Lankan tea industry lay in the mistaken belief that replanting would result in higher yields and higher rates of return than (block) infilling and rigorous maintenance.[34] It is argued that the latter would be more profitable, even over a thirty year period (*ibid.* vol.2:112), and that the so-called 'optimum target' of 2 per cent of the tea area replanted p.a. (a norm that had never actually been met) would

34 Replanting had been advocated in the Tea Commissioner's Report of 1968.

almost certainly be at the expense of increased productivity on existing stands (*ibid.* vol.1:9). Replanting was therefore seen to be a low investment priority -- no matter how technically desirable. It was ranked in importance after increased fertiliser application, infilling, new planting and then factory development.

The ADB report of 1993 adopted a similar position on the commercial viability of replanting (particularly in the light of the financial constraints of the new management companies). It was considered to be completely non-viable in most Mid-Country areas; costs were estimated to be 15 per cent higher over a 6 year replanting cycle (in constant prices) in Up-Country than in Mid- or Low Country areas and, even in the Low Country (where yields were expected to be higher) the longer-term financial rate of return (FROR) was estimated to be below 9 per cent -- despite fairly optimistic assumptions about eventual yields. Much improved management and labour utilisation were considered essential if the FROR was to be higher (ADB 1993: vol.II, appendix 1). In comparison, the cost of (block) infilling was found to be 15 per cent lower than that of replanting in Low and Mid-Country areas and almost 32 per cent lower in the Up Country (*ibid.*: table 1.3). Amerasinghe (1993:7) also found that there was no direct correlation between profit margins and the rate of tea replanting. There is therefore a fairly substantial body of evidence to suggest that the labour requirements that have been given for replanting are likely to err on the high side,[35] though assuming substitutability between replanting and in-filling in terms of labour utilisation may mean they are more realistic.[36]

Nor is it necessarily in the interests of a management company to adopt a blanket policy on the maintenance and up-grading of entire estates. Many estates contain not only good yielding fields but also very low yielding ones -- and also good yielding ones with low rates of returns because they are achieved with high costs of production. A simple cost-benefit analysis would very quickly show that it would never pay to treat all fields equally or to try to get all the fields on an estate to the same condition. Indeed, in many cases, the quickest way to raise the average yield of an estate is to take marginal land out of production -- to concentrate on the good (profitable) tea land. Nevertheless, low yielding, but mature tea is kept in plucking because of management inertia ('because it is there'), because it may provide some net revenue and increase the utilisation of factory capacity,

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35 Although it could be said to reflect uncertainties associated with the short-term lease more than specific financial judgements on the returns to replanting, the proportion of immature tea on tea estates is well below that which would apply if the TRI norm had been adhered to. It reflects an overall replanting rate of 0.6% - 0.7% p.a. , primarily in Up-Country areas.

36 The TRI norms do not itemise infilling as such and we have therefore combined replanting and infilling in terms of labour demand under one category "development".

or because alternative land uses offer no greater financial benefit over the short- to medium-term.[37] There are also at times very real, physical constraints on the increased productivity of tea lands. The Land Commission of 1987, for example, attributed much of the low productivity of mid-grown tea to the cumulative effects of soil erosion -- a phenomenon which will not be easily reversed over the short- to medium-term (GOSL 1990:79).[38] As a result, maintenance and other cultivation practices that may appear technically optimum are unlikely to be fully adhered to in practice because it would not make commercial sense. Norms applied to the whole area may, as a result, be slightly inflated -- though the necessary adjustments on this score could not be taken into account in the broad compass of this study. One implication of cutbacks is a lower labour demand and that norms are if anything slightly too high.

(ii) The workdays offered

Technically, the number of workers that are needed to provide a given number of labour days over the course of an agricultural year depends on the the number of days work that are offered to each worker. At present it varies by task, as well as by region. Table 3.3 shows the average number of days actually offered on the tea estates of the eleven companies that made 1995 monthly production reports available for the study: it shows (i) that at all elevations more days of work are offered to pluckers (whose working day is anyway longer) than to other field workers, and (ii) that the number of days offered is inversely related to elevation.

Table 3.3:
The Average Number of Work Days Offered in 1995, by Activity and Elevation (responding tea estates)

Region	Plucking	Sundry fieldwork	Weighted average
N. Eliya (wu)	281	255	272
Badulla (iu)	292	269	284
Mid-Country	294	280	289
Low Country	301	281	294

Source: Monthly Progress Reports of responding management companies

37 The definition of "uneconomical" or "marginal" tea land is problematic precisely because of the possible commercial logic of plucking low grade but mature tea land (especially in periods of high prices). Unprofitable tea may be kept in production because yields are relatively good and there is just inadequate monitoring.

38 There may also be pressures in the other direction leading to increased labour demand. If replanting is undertaken, the ratio of seedling to VP tea will begin to fall, and it will feed on into a need for more frequent plucking rounds (and shorter pruning cycles) from the fifth year onwards.

Assuming any one figure for the number of days work that are offered a year over the tea sector as a whole therefore leads to distortions -- particularly in assessing the current labour situation (legal minimum requirements on privatised estates becoming perhaps more of an issue in future). There are also three assumptions that lie behind this analysis that are important for the discussion of demand and supply balances over the longer-term:

(i) there is an assumption in the arithmetical nature of our earlier exercise that more labour days/worker means an increase in labour productivity -- which may not be true in the short-term (especially if the minimum number of days to be offered is legally and politically determined);

(ii) there are assumptions about the equality and substitutability of labour between plucking (primarily female) and sundry (primarily male) work as and when it is necessary -- that one requirement of labour efficiency is an erosion of the traditional gender division of labour on tea estates; and

(iii) there is an assumption that labour demand takes conventional forms -- and not, for example, the allocation of a field to a worker and his or her family on contract plucking.

The latter two assumptions could not be elaborated further in considering labour demand. The first will be taken up later.

Table 3.4:
AVERAGE LABOUR NORMS/HA
(estimated from TRI breakdowns)

1% replanting

Yield (kg/ha)	UP COUNTRY			LOW COUNTRY		
	23 days per mth	24 days per mth	25 days per mth	23 days per mth	24 days per mth	25 days per mth
750	2.00	1.92	1.85	2.02	1.95	1.88
1000	2.08	1.99	1.92	2.11	2.03	1.94
1250	2.16	2.07	1.99	2.20	2.11	2.02
1500	2.24	2.15	2.06	2.29	2.19	2.10
1750	2.31	2.22	2.13	2.36	2.26	2.17
2000	2.37	2.27	2.18	2.43	2.33	2.23
2250	2.43	2.33	2.23	2.49	2.30	2.29
2500	2.47	2.37	2.27	2.54	2.43	2.34
2750	2.51	2.41	2.31	2.59	2.48	2.38
3000	2.56	2.45	2.35	2.63	2.52	2.42

Source: based on TRI norms

So how can these qualifications be incorporated into the estimation of demand? The method we have adopted has been to locate individual estates in Table 3.4 on the basis of average yield, the number of work days offered and an appropriate rate of replanting (usually 0 per cent or 1 per cent -- see Section 5). The corresponding norm is then read off as the relevant demand norm for that estate. The applicability of the norm to the whole estate area could not be circumvented, and it is simply assumed that the error is fairly consistent across estates. This procedure is elaborated further in Section 5.

4. LABOUR SUPPLY

4.1 Introduction

Concern has been expressed in management circles about the limited labour available on estates in many parts of the country and about the possibility that labour supply problems could rapidly escalate. Labour seems equally uncertain of what the future will offer them -- because privatisation itself involved a period of uncertainty and because the limited work programmes since the 1992 privatisation have often meant less work available. The situation is therefore in many respects in a state of flux and confining our assessment to the current situation runs the risk that it will fail to signal problems that are around the corner when it is precisely these that are most relevant to company management and to policy-makers. It is extremely important, therefore, to look not only at the present situation, but at what is likely to be experienced in, say, ten years time. But, first, are the initial concerns correct and are they representative? Has the labour supply to tea estates been declining so markedly? If so, has the problem been widespread? And is it likely to get worse or to improve in the foreseeable future?

The answer to these basic questions is not always easy. Certainly, there has been a significant decline in the number of tea estate workers in recent decades.[39] Three discernible factors have played a part in it. The repatriation of workers who chose Indian citizenship under the terms of the Indo-Sri Lankan Agreement of 1964 has accounted for the largest reduction in numbers, albeit with significant elevational differences and with varied implications for the local labour situation in different parts of the country.[40] There

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39 On SLSPC estates, for example (those of one of the two State Corporations), between 1982 and 1988, the resident population declined by 21%, from 178,666 to 141,337 (SLSPC, *Statistical Report and Analysis of Social Development 1980-90*, Colombo 1991, Table 17 p.20).

40 On this see, for example, G.H.Pieris, "Changing Prospects of the Plantation Workers in Sri Lanka" in S.W.R. de A. Samarasinghe and R.Coughlan (eds) *Economic Dimensions of Ethnic Conflict*, London, Pinter Publishers, 156-193; and the Tea Master Plan, 1980 vol.II chapter 6.

was also, second, some internal migration from estates to the Northern and Eastern Provinces (and, to a much lesser extent, to Kurunegala and Puttalam Districts), largely for reasons of security (from the Sabaragamuwa and Southern Provinces in particular).[41] And, third, after the privatisation of management in 1992, general musters (in practice basically roll calls) enabled companies to weed out the names of non-existent (or "phantom") workers that had bloated the earlier wage bills of the state corporations -- and which had depressed the earlier figures of average labour productivity (ADB 1993).

Today, these processes have by-and-large worked themselves out and other, hitherto less noticed developments have begun to push to the fore. Worker attitudes have been changing, and estate work is increasingly seen by plantation youth as a low status occupation. Since the second wave of economic liberalisation in 1989, more jobs have become available outside the estates, and Sri Lankan citizenship has made some of these jobs more accessible to the estate population. They have also created new opportunities for the poor households in adjacent villages. Thus, whereas thirty years ago plantation workers were of necessity almost entirely confined to estate employment (Pieris 1993:161) -- and many villagers were forced to accept it through abject poverty -- there is now increasingly an "exit option" (albeit one of varying importance in different parts of the country). These developments and the various factors that influence them can have adverse effects for estate management. For example, what is going to happen to estate labour supplies if the Sri Lankan economy grows rapidly? Equally, what will happen to those who remain? Will they be by-passed by higher rates of growth, or will they also benefit?

The structure of the discussion is the following. First, attention is turned briefly to earlier estimates of labour supply in the Sri Lankan tea sector, paying particular attention to the problems of definition. This is followed by an examination of the current situation. Section 4.4 turns to future supply and to factors that are likely to influence it -- to demographic trends, turnout rates, workers' aspirations and alternative employment and the estate's package of incentives.

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41 There was also a trickle of in-migration to estates throughout the 1980s (possibly of earlier migrants who returned to marry), but their numbers fell over the decade. On SLSPC estates, an in-migration of 6,154 (or 3.4% of their population in 1982) had declined to 2,882 (or 2% of a smaller population in 1988) (SLSPC, *ibidem*, table 20:.22).

4.2 Earlier Estimations

The availability of labour was already seen to be a key parameter for the tea sector in the late 1970s (TMP 1980, Volume II, chapter 6) -- principally because of the exodus of labour through repatriation to India. A similar concern can be found in the ADB Report, (ADB 1993 vol.II: Appendix 5), and it has been a recurrent theme in other plantation economies, such as for example Malaysia (Tiffen and Mortimore 1990). Perceptions of the problem have changed, but labour supply has proved in practice a persistent theme, and in Sri Lanka methodological issues in its measurement have become clearer as a result of earlier analyses.

One is the appropriate definition of labour supply for the purposes of the industry. The TMP estimated labour availability in the late 1970s using the definition that was used at that time by the JEDB and SLSPC (the two state-owned plantation corporations) -- namely resident and non-resident registered workers plus employed casual labour (*ibid.*, Volume IV:73). The ADB, in the early 1990s, used the number of registered workers -- which was the "core workforce" or the category of full-time workers most immediately available, though it was clearly a very incomplete measure of total labour supply.[42] Other issues to emerge were the accuracy of the reported data on labour numbers (especially on casual labour), the availability of a potential non-estate labour force, and the importance of turnout rates.[43]

Differences in definition and the decision as to which is the more appropriate remain an issue, if only because the ground situation has changed quite remarkably. Significantly, both the TMP and the ADB report were focussed on the labour situation at the time of their analysis. They equated the labour supply available to an estate with some definition of the labour force it already employed (whether 'registered' or 'registered plus casual'), not with a wider labour pool that was potentially available. And when it came to measurement, they defined away other sources of (resident or non-resident) labour, either because they did not perceive it at the time to be of great importance or because (in the case of village labour especially) they considered it too difficult to quantify. However, the result of this omission was that the relative attractiveness of estate work as against alternative employment was overlooked, and there are no conceptual bearings that could point to additional labour supplies where there are found to be shortages.

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42 The intake of casual workers to supplement numbers or to meet peak seasonal demand was, even at that time, fairly significant in most of the tea-growing areas.

43 Another issue was labour management, a theme that will be taken up later.

A second definitional issue that has become clearer is the importance of turnout. Though it was not taken into account in the quantitative analysis, one practical point that the TMP brought out was the low daily labour turnout on tea estates. The implication here was that, if labour supply was to be diagnosed accurately from the point of view of the industry, then it was the number of workers that turned out for work that should be taken as the benchmark, not the number registered by the estate and who appeared officially on the books (TMP 1980, vol.IV:77). The ADB Report took no account of turnout, a lapse for which it has subsequently been criticised.

However, the ADB study did bring out the importance of disaggregation. This was particularly relevant in the context of the ADB's own work, given its analysis by company (because a company invariably had estates in some areas with a high labour/ha. ratio and in others with a low one -- making average figures difficult to interpret). In the process, it brought out significant regional variations in the pattern of labour supply.[44] It recognised the fact that estate labour supply was often intimately linked to the proximity of villages and that village labour could supplement the apparently inelastic supply of resident registered workers. And it also indicated that there were difficult questions surrounding substitutability or segmentation of the labour force on mixed (tea and rubber) estates (ADB 1993, vol.II, appendix 5:5), a point that bedevils any labour supply analysis of tea estates in the Low Country.

Clearly, then, the appropriate definition of the labour force is itself an issue, and it is has to be the starting point in analysing labour supply. It is to this that we now turn.

4.3 The Current Supply Situation

The labour supply situation on Sri Lankan tea estates is difficult to generalise because of the variation that exists, not only from estate to estate, but even from division to division. Nevertheless, a number of broad structural trends can be identified and they are the subject of this section. The discussion first looks at definitions. It then examines current trends. Section 4.4 then goes on to look at the factors that are likely to have a major influence on future labour supplies.

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44 The TMP recognised the importance of elevational differences (TMP 1980, vol.IV, table II-6-2: 79), though it did not take them much further when it came to the discussion of labour supply.

4.3.1 The definition of labour supply

Though an estate workforce may seem in principle to be a fairly straight forward concept, defining it in practice can prove quite complex, and the choice of definition will have serious implications for an analysis of labour supply. Trade-offs emerge between the breadth of definition -- how far it captures the potential labour force (a dimension that is particularly relevant in a long-term perspective) -- and the number of assured daily workers (which is more important for a company in the short-term). But, clearly, there is a range of options.

Based on our discussion of earlier studies, five definitions or categories of an estate's current labour supply can be identified, reflecting what might technically be seen (from a management standpoint) to be successively increasing degrees of assured labour availability, or degrees of "capture":

(a) the total population of the estate (or the estate population and its surrounding villages) -- the pool from which labour is likely to be drawn over the short- and medium-term;

(b) the present or projected population of working age (from 16 to 59 years) from within the same population -- the potential current workforce;

(c) registered workers plus the (resident and non-resident) casual workers who can be called on when needed -- the TMP definition or the immediate available workforce;

(d) those workers (whether resident or non-resident) who are registered on the estate payroll as full-time employed (the ADB definition) -- in a sense the "core" labour force of the estate; and

(e) the number of workers -- whether from (c) or (d) - who actually turnout for work on a given day.

A management company will naturally want to be sure that it has an adequate labour force, and in this perspective category (e) is the narrowest and surest of these definitions; it is the most relevant to management in a short-term perspective. If the turnout rate is low and labour supply is a problem, then the most immediate practical option open to the company is to get more registered and more of the immediately available casual workers to turn out for work. On the other hand, as the turnout gets higher, and as the number in category (e) gets closer to that in either (c) or (d), the problem changes. It becomes one of absolute numbers, of making estate work more attractive to those in category (b) who

are not in (c) or (d). The total population (a) is broader still, and it is only really relevant for estimates of demographic change and of the need and cost of various services (via the ratio of dependents/worker). What these distinctions show, however, is that -- assuming for the moment that labour shortages do exist -- they reflect a range of problems that are likely in practice to require very different kinds of solutions.

Taking account of these factors, two sets of definitions will be used as measures of labour supply in analysing the current and projected situation on tea estates:

(i) In analysing the current situation:

(S1) the registered and casual labour force that was available to the estate as of 31 December 1995 (the immediately available workforce); and

(S2) the actual labour turnout -- defined as (S1) multiplied by the average annual turnout for any given estate (or if it is not available, the relevant regional average); and

(ii) In analysing future supply:

(S3) the estimated turnout (at 1995 turnout rates) in the year 2005, based on the average net growth in the estate workforce;

(S4) the same estimated turnout, assuming a 2 per cent p.a. loss of labour to outside employment; and

(S5) the same estimated turnout, assuming a 2 per cent p.a. loss of labour but a 90 per cent turnout rate.

However, before looking at the demand and supply balance, some attention must be given to recent trends and to factors that will influence labour supply over the next ten years. Quantitative projections are temporarily deferred to Section 5.

4.3.2 Current labour supply estimates

Just how important it is to select the right definition of supply can be seen from Table 4.1 which refers to the estate sector as a whole. It shows that, whereas there has been a modest (3 per cent) increase in the total estate population since the privatisation of management, and a more substantial (7 per cent) growth in the population of working age, there has been a significant reduction in the number of both registered and resident workers (-20 per cent and -17 per cent respectively). This was offset to some extent by the use of more casual workers -- both resident and non-resident (up 12 per cent from

just under 40,000 to just under 45,000) -- though it was from a very small base. The evidence in Table 4.1 therefore confirms that there has been a decline in the immediately available workforce -- whether because the number of jobs has diminished or because people have chosen to turn to other work (or because of both).

Table 4.1:
Alternative Definitions of Estate Labour Supply:
all estates, 1992 and 1995

Definition of labour supply	1992	1995	Change (%)
Total estate population	838,518	862,191	+12.8
Estate working population*	481,656	516,010	+7.1
Registered and casual	367,176	305,648	-16.8
Registered workers	327,176	261,020	-20.2
Resident workers	301,448	249,145	-17.4
Average daily turnout (reg'd)**	n.a.	193,155	n.a.

Source: compiled from estate census data, PSWHT
* The working population has had to be taken as 15-59 because of the data classification employed. It excludes estate staff.
** Estimated for 1995 from monthly progress reports of 214 responding estates from all three elevations

Figures for tea are difficult to compare in quite the same way because many estates in the Low Country have a mix of tea and rubber, because there have been changes in the area under tea, and because a number of shifts have taken place from mixed to tea-only estates. To circumvent these problems, Table 4.2 is expressed in terms of workers per cultivated ha. of tea.[45] In contrast to the broader picture for the estate sector, it records a negligible (+0.4 per cent) increase in the estate population per cultivated hectare, but confirms a sharp (-15 per cent) decline in the registered workforce, and more especially the non-resident workforce (which, although much smaller, declined as in the broader picture -- in this case by a fifth). This was again offset to some extent by a rapid (15 per cent) increase in the supply of casual labour, and more especially non-resident workers -- confirming what Jayaweera (1991) has referred to as 'the casualisation of labour' (albeit again from a relatively small base). The picture with regard to tea estates would therefore appear to have followed that of the estate sector in general. However, when these aggregate figures are broken down by agroecological region, the picture is much more differentiated.

45 This information is derived from the TAT database and from the Monthly Progress Reports from the individual estates of eleven management companies.

Table 4.2:
The Labour Supply on Tea-Only Estates, 1992 and 1995
(per cultivated hectare)

Category	1992	1995	Change (%)
Estate population	4.76	**4.78**	**+ 0.4**
Registered workforce	**2.81**	**2.39**	**-14.9**
* resident	2.56	2.19	-15.5
* non-resident	0.25	0.20	-20.0
Casual workers	**0.33**	**0.38**	**+15.2**
* resident	0.30	0.31	+ 3.3
* non-resident	0.04	0.07	+75.0
Total workforce	**3.14**	**2.77**	**-11.8**
* resident	2.86	2.50	-12.6
* non-resident	0.29	0.27	- 6.9

Source: Compiled from estate census data, PHSWT

The disaggregation is given in Table 4.3 which confirms significant regional variations in labour supply to the tea sector. First, the estate population per cultivated hectare emerges as highest in the Up-Country (and more particularly in the Wet Up-Country -- the Nuwara Eliya/Hatton Region -- where it would appear to have risen over the period), and by far the lowest in the Low-Country, though there appears to have been some increase even in the latter. When it comes to the registered workforce, there has been a decline in all areas. However, in the case of the Low Country the number of tea-only estates in the sample was small (N=27). It was therefore decided to augment it by a three stage procedure. [46] The result was that the sample was widened to include tea production on mixed (tea and rubber) estates. This increased the sample size, but it created other problems because labour requirements per hectare are significantly lower for rubber than they are for tea, and because a looser definition of "uncultivated land" and "other crop" production was adopted in the 1995 PHSWT survey than in 1992. Adjustments had therefore to be made to the data in this enlarged sample to make it comparable with other areas. The Low Country data in Table 4.3 are therefore, strictly speaking, constructed on a different basis from those in the other regions and are less reliable, though we believe them to be reasonably indicative of recent trends. Turning back to the resident and non-resident components of the registered labour force in Table 4.3 as a whole, both would again appear to have declined in all parts of the country.

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46 The steps taken were the following: (i) the sample was confined to the same estates in both years (to preclude area changes brought about by a different sample composition), bringing the number of estates in the Low Country sample to 60; (ii) labour requirements for rubber and other crops were excluded from the labour force using the average norms of the ADB report (to give an indication of the magnitudes of labour available for tea production); and (iii) labour was then allocated per category from the residual tea population in the same proportions as were observed in the total sample population. The procedure adopted is likely, if anything. to overstate the labour that is available for tea production. Data was cross-checked with data from Monthly Progress Reports and from Company Sale Documents wherever possible.

Table 4.3:
The Labour Supply on Tea-Only Estates, 1992 and 1995 by Agroecological Region (per cultivated hectare)

Region / Category	N. ELIYA (WU)		BADULLA (IU)		MID (WM)		LOW (WL)	
	1992	1995	1992	1995	1992	1995	1992	1995
Estate population	**5.00**	**5.18**	**4.63**	**4.64**	**4.58**	**4.13**	**2.89**	**3.18**
Registered workforce	**2.91**	**2.52**	**2.71**	**2.32**	**2.96**	**2.15**	**2.09**	**1.93**
* resident	2.85	2.48	2.37	2.05	2.47	1.79	1.17	1.07
* non-resident	0.06	0.04	0.34	0.27	0.49	0.36	0.92	0.86
Casual workers	**0.27**	**0.32**	**0.39**	**0.44**	**0.36**	**0.42**	**0.24**	**0.31**
* resident	0.26	0.25	0.33	0.38	0.30	0.33	0.17	0.22
* non-resident	0.01	0.06	0.06	0.06	0.07	0.08	0.07	0.09
Total workforce	**3.18**	**2.84**	**3.10**	**2.76**	**3.32**	**2.57**	**2.33**	**2.23**
* resident	3.11	2.73	2.70	2.43	2.77	2.12	1.34	1.29
* non-resident	0.07	0.10	0.40	0.33	0.56	0.44	0.99	0.94
No. of estates	92	96	85	71	35	37	60*	60*

Source: Compiled from estate census data, PHSWT

* For definition of this sample of mixed (tea plus tea and rubber estates) and explanation of the methodology used in obtaining it see footnote 7.

The number of casual workers per cultivated hectare emerges as relevant, but relatively small in all areas (11-15 per cent of the workforce) but as also having increased in all areas since the privatisation of management. Resident casual labour/ha. is found to have risen everywhere with the exception of Nuwara Eliya/Hatton (where it remained more or less the same), while non-resident casual (village) labour rose in all regions except Badulla/Uda Pussellawa, where it was again unchanged. Looking at the pattern overall, the picture that emerges is one of a declining workforce -- of a declining (but still large) workforce per cultivated hectare in Nuwara Eliya and Badulla (declining by 11 per cent over the period 1992-95), of a sharp decline (of 23 per cent) in the Mid-Country tea areas, and of a modest decline (of less than 5 per cent) in the Low Country where it was already at low levels. It is also noticeable that, while the non-resident workforce appears to have risen slightly in Nuwara Eliya, it has declined elsewhere, suggesting very little recent success in attracting more villagers to estate work (though the Sinhalese non-resident component is already substantial in many Low Country estates).

In the remainder of this section we ask whether the broad trends that we have observed are likely to continue and, if so, whether they are likely to continue at the same rate or to become more pronounced.

4.4 Future Labour Supply to the Plantations

This section looks at factors that will influence the availability of labour to the tea industry over the medium-term. It considers a number of partly interrelated issues: demographic factors, turnout, worker aspirations and the growth of alternative employment, and the package of incentives.

4.4.1 Demographic factors

The labour supply on Sri Lankan plantations will not be adversely affected by demographic factors over the short- to medium-term. On the contrary, numbers will increase. A marked improvement in vital statistics has been recorded since 1978, partly as a result of better reporting. Marriages have been more delayed in many estate areas,[47] family planning has been more widely adopted and health and welfare standards have improved (SLSPC 1991). The Crude Birth Rate has fallen sharply from 33/000 population in 1978 to 16.9/000 in 1995, and the Crude Death Rate to 6.1/000. The Infantile Mortality Rate -- widely recognised to be a particularly sensitive index of prevailing social conditions -- has fallen significantly (from 81.9/000 live births in 1978 to 21.6/000 in 1995) and there is some evidence of declining morbidity (SLSPC 1991). However, the net effect of all these developments is unlikely to have any significant impact on longer-term labour supply: the resident workforce will continue to grow, though at a decelerating rate, and as morbidity falls it should also become less important as a cause of low daily turnouts (though the change will not be great).

No formal demographic projection was undertaken to confirm this view because it did not appear to be necessary. For the purposes of labour supply estimates from now until, say, the year 2010, the picture seems fairly clear.[48] The total resident population of the estate sector as a whole (including the JEDB amd SLSPC estates that have not been privatised) is estimated by the PHSWT to have been 862,191 as of 31 December 1995, of which 516,010 were of working age. Taking account of new entrants and of natural attrition -- i.e. retirements and deaths amongst those who were (or would have been) of working age -- a preliminary estimate was made of the likely resident workforce at various points

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47 There is evidence of a shift towards later marriage amongst women in the plantation sector, reflecting the exceptionally high female participation rates in the plantation labour force and changing aspirations, but also a lack of housing and an apparent shortage of employed men of marriageable age -- men, it seems, are unlikely to marry until they find employment that offers them sufficient income to support a family (LJEWA/AAFLI 1996).

48 The age structure of the present and future working population to 2010 is not significantly different from that of the population at large, though there are less in the 40-59 year age bracket. There is also a significantly smaller proportion over 65 years of age -- 3% compared to 6% in the total population in 1990-91 and slightly more in the 0-4 year old category (DCS 1993:16).

in the future.[49] These figures are approximate. However, assuming for the moment that there is neither in- nor out-migration, the exercise suggests that the resident population of working age will increase by roughly 11 per cent over the period 1995-2000, by a further 6-7 per cent between 2000 and 2005, and then peak at around 620,000 around the year 2010.[50] Though the estimate is crude, these figures are believed to be of the right order (*cf* TAT 1991).

Table 4.4:
Population Projections by Region 1995-2010
(in thousands)

Region	1995	2000	2005	2010
Nuwara Eliya/Hatton (wu)	164	182	194	197
Badulla/Uda Pussellawa (iu/im)	145	160	172	175
Mid-Country (wm)	71	79	84	84
Low Country (wl)	59	66	70	70
Other	78	86	92	94
Total	516	573	611	619

Source: Estimated from PSWHT data
Including non-privatised estates

Regional disaggregation of the data reflects more or less the same picture. Table 4.4 gives estimates of the resident population by region using the same procedure for the period 1995-2010.[51] In all regions the resident population is found to increase over the next ten years, before levelling out to peak around 2005 in the Mid-Country and Low Country and somewhat later (around 2010) in Nuwara Eliya/Hatton and in Badulla. These estimates confirm the point that, if the labour supply to tea estates has been declining (or is likely in future to decline over the next 10-15 years), demographic factors cannot be listed as a contributory factor.

4.4.2 Turnout

As we have already noted, when it comes to gauging the labour supply situation, it is not simply the size of the workforce that is important, but the number of workers that turnout

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49 Retirement is defined as having reached the age of 60. No consideration was given to retirement as a result of disability or injury, though the numbers falling into that category are likely to be relatively small.

50 The death rate of the estate population of working age was taken to be 3/1000 p.a., but the estimates are not sensitive to any likely variation. For comparative purposes see also TAT 1991 which gives population projections for SLSPC estates from 1988-98.

51 Region specific death rates were applied in these estimates for the period 1995-2000; they were assumed to decline to 3/1000 by 2005 and then to remain there. However, the results did not prove to be sensitive to the death rate applied when rounded to the nearest thousand.

for work on any particular day -- and of course how efficiently they work. In this section, we are concerned with the first of these elements -- the average turnout. Two measures have been identified to capture different aspects of the problem: (i) the (registered and casual) workforce as a proportion of the estate (and ideally the nearby village) population of working age -- the relative attractiveness of estate work compared to other options; and (ii) the percentage of that regular (committed) workforce that actually turn out for work. Past studies have focussed almost exclusively on the latter (in as far as they have seriously looked at it at all). But, if the allegations of labour shortages are correct (and Table 4.3 suggests that supply may be tight, at least in certain areas), then the willingness of people to take up estate work (as caught by the first of these measures) can be taken to be a point of almost equal importance. In some areas (or on some estates) getting people into estate work may be the crucial issue; in others the daily turnout may be the major problem, while in others both problems may be applicable. But there would seem no good reason why the discussion of turnout should be confined to the narrower conventional definition if we are looking at options for the future.

Table 4.5 contains evidence on both these dimensions, as well as their combined effect, with regard to resident labour in the four main agroecological regions that were outlined earlier.[52] In the higher elevations (Nuwara Eliya/Hatton and Badulla) well over 90 per cent of the resident population of working age were found to have been engaged in estate employment in one form or another in 1995, though the composition varied. The ratio of registered:casual workers was much higher in Nuwara Eliya/Hatton.[53] In the Mid-Country, the proportion engaged in estate work was lower (84 per cent), while in the Low Country it was very much lower (at 73 per cent). Moving down in elevation, the proportion of the resident working population who were involved in estate employment can be seen to gradually decrease and these differences then appear to have been heightened by differences in the average daily turnout.[54] The latter was again found to be highest in Nuwara Eliya/Hatton and lowest in the Low Country, with the others in between.

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52 The student population has been excluded.

53 It has been suggested that historical factors, and more especially the pressure of unions to have workers registered in Up-Country areas whether they were employed or not, have had an influence on these figures. If this was the case, and we have not been able to confirm it, it is also hard to assess its importance.

54 There is considerable variation in turnout rates from estate to estate within individual regions. However, an ANOVA test showed that the differences between these four regions were statistically significant at the 99% confidence level. The modes and frequency distributions were clearly different in each case.

Table 4.5:
The Proportion of the Resident Estate Population of Working Age that Regularly Turns out for Work (1995)

Region	Percentage of the 16-59 age category			Average daily turnout	Av. workers per 100 in 16-59 cat.
	Registered	Casual	In estate work		
Nuwara Eliya/Hatton (wu)	88.1	9.2	97.3	79.0	77
Badulla (iu/im)	78.8	14.2	92.9	74.0	69
Mid Country (wm)	70.1	14.0	84.1	73.0	61
Low Country (wl)	60.6	12.3	72.9	69.7	51

Source: Estimated from PHSWT data and from 1995 Monthly Progress Reports of responding companies.

Combining the two effects (in the final column of Table 4.5), we find over the course of 1995 that for every 100 people of working age (16-59) resident on the plantations, 77 turned out for work on average on a daily basis in Nuwara Eliya/Hatton, 69 in Badulla, 61 in the Mid-Country and a disturbingly low 51 in the Low Country. Moreover, looking at Table 4.5, it is clear that the reasons for these figures were varied. In Nuwara Eliya the proportion of the labour force of working age involved in plantation work was high. In Badulla, the involvement in estate work was lower: if there was a turnout problem it would appear to have been primarily a problem of daily turnout, though there was either some leakage to non-estate employment or more unemployment. In the Mid-Country, both elements appear to have been important, with the balance tending to swing towards the greater relative attractivenss (and presumably the greater availability) of non-estate employment; and, in the Low Country, daily turnout and other employment both appear to have been serious problems. These contrasting situations would therefore seem to reflect different kinds of labour supply problems. It is not possible to provide a similar analysis with regard to non-resident labour.

There was also a (sometimes quite marked) monthly variation in turnout data which is not captured by the table -- reportedly a consequence of festivals and the seasonality of alternative village work (Sinnathamby & Wickramasekara 1984:93; 1995 Monthly Progress Reports). Evidence on this is limited, but it would seem to suggest that, particularly in the Mid- and Low Country, turnout is heavily influenced by the agricultural calendar and by seasonal labour demand in the peasant sector. There is also some evidence to suggest that turnout tends to be higher for resident than for non-resident workers, and higher for women than for men.[55] Sickness, maternity leave, domestic

55 Important here is that, whereas the timing of many of the activities on an estate that have traditionally been male tasks can be rescheduled to at least some extent, this is simply not possible for plucking. The evidence comes from Monthly Reports from a small number of estate. Few companies report this data on a resident/non-resident and on a gender basis.

difficulties, weather conditions and social obligations appear to have an influence on daily turnout rates as well as the availability of alternative employment in nearby areas, but no quantitative assessment of these factors is possible from the materials available.

However, we will argue in the following sections that turnout (in both the senses in which we have used it) is in large part a function of the way workers see the relative attractiveness and rewards of estate employment and the facilities it offers as against the other options that they have. The factors shaping these perceptions are complex (combining worker aspirations, community concepts of status, and perceptions -- whether right or wrong -- of the available alternatives). The package of incentives offered (including cash incomes, housing, welfare and a range of other facilities) would seem to be of major importance -- if only because it is one of the few variables that can be directly influenced by management -- but we will argue later in Section 5 that they can only be part of the answer.[56]

4.4.3 Worker aspirations and the availability of alternative employment

Though they are clearly relevant, the aspirations of a workforce are extremely difficult to assess and to interpret meaningfully when it comes to their implications for future labour supply. On the one hand, there is a practical, if easily overlooked distinction between what individuals might like and what most of them can ever realistically hope to achieve in the short- to medium-term. School leavers today are often better educated than their parents and higher aspirations in themselves may be enough to take young people out of the estates. But if alternative jobs are not readily available, many of these people will also in pracice be survival-oriented and reluctant to leave and to risk the opportunities they already have (WUSC 1996). Nor are an individual's aspirations necessarily static; perceived priorities are influenced by the availability of work (on and off the estate), while others who have left and found their aspirations unfulfilled have eventually returned with a different perspective on estate employment.

There is also evidence to suggest that job preferences -- amongst the young in particular -- are not always so rational. Attitudes and aspirations can be affected in practice as much by hearsay, peer group values and community perceptions of 'status' as by any

56 Interesting here is the relatively low priority that the TMP gave to housing which was seen to offer low returns (TMP 1980, vol.I:25)

reasoned individual assessment of the alternatives available.[57] Social pressures are important, and they have proved extremely influential in determining labour supply to plantations in other parts of the world. In the Caribbean, for example, there was always a social stigma attached to the acceptance of plantation employment, because of its past association with slavery and indentured labour, and because of the highly regimented nature of the work, authoritarian patterns of labour management and the poor quality of estate life. Young people left the estates in droves to find other jobs, rejecting it -- despite palpable improvements in many areas -- because it constituted an unfashionable lifestyle and because of the loss of dignity that they associated with plantation work.

The relationship between worker aspirations and labour supply is therefore much less straight forward than is sometimes implied and it has to be treated with care. The historical heritage in Sri Lanka has not (to date) resulted in outright rejection of estate work on the part of youth on anything like the scale of Malaysia, Jamaica or Barbados (and we suspect there may be some generalised overstatement of what is actually happening). However, the past clearly does play a role in influencing attitudes and in shaping aspirations and status concerns of the existing labour force, especially of the young. Moreover, it seems reasonable to conclude -- based on experiences elsewhere -- that attitudes will become more unfavourable unless steps are also taken to change the estate image quite radically. There is clear evidence of a stigma attached to estate work amongst many of those resident on plantations or in adjacent villages (Kurian 1983; De Silva 1989; WUSC 1996).

(i) Background

Whatever the effects of history on attitudes in the plantation community, they are bound to have been affected profoundly by more recent developments since liberalisation of the Sri Lanka economy in 1977/78. Like most of the rural population, estate workers were by-passed by material benefits of the so-called 'open economy'. Pieris (1993) has pointed out that in the immediate post-liberalisation period, they were seriously hit by food subsidy reforms and the effects of rising inflation. The rice ration was removed; a household at (or even slightly below) the average level of estate earnings was ineligible for foodstamps, and estate workers had little access to the employment (and other benefits) of the deregulated economy. Poverty on the estates appears to have declined in

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57 There is ambiguity in the Sri Lankan estate literature regarding this concept of 'status'. It is frequently used in the conventional sociological sense, implying a culturally determined phenomenon -- the esteem or social standing attached to an individual or an occupation. But it is also used as a pseudonym for wealth -- higher status implying better living conditions, higher income and more material goods. As a result, implications of 'status' are sometimes hazy. Would better living conditions and more material possessions in themselves increase social status ? We suspect it would.

the second half of the 1980s, but there was no palpable improvement in real consumption expenditure (World Bank 1994);[58] average per capita monthly income was found in 1990-91 to be lowest in the estate sector (DCS 1993),[59] and since 1991 real minimum wages of estate workers have in fact declined (CB 1996).[60] Minimum wages are admittedly not the same thing as average wages, but in the primary sector there are grounds for believing that there will be a strong positive correlation between the two.

Work on the estates is also physically demanding (often on steep slopes and in inclement weather) and it entails relentless monotony; housing, welfare facilities and other amenities have seen little improvement or may even have declined since 1992 (Casperz *et al.* 1995), and there are very few minor 'luxuries'. In the process of privatisation and the reorganisation of management there have also been nagging fears of job insecurity in many areas. It is perhaps not surprising therefore that young people have reacted as they have, that they aspire to easier, more regular and better paid jobs, better living conditions and higher social status than their parents, or that the latter want a better life for their children. As people become more informed about life outside the estate through television and from individuals who have migrated to work elsewhere, and as they become increasingly aware of the possible material gains of the open economy, it is almost inevitable that it will be increasingly reflected in their aspirations. The more relevant question is whether they will act upon it, how it will be translated in terms of future labour supply, and what can be done to relieve the social pressures that underpin it.

(ii) Worker aspirations

In the course of this study, we met regularly with the view that estate youth were no longer prepared to work as their parents had, particularly (but by no means only) in Low and Mid Country areas, that their aspirations were now higher, and that this was becoming a major cause of labour shortages. We have no reason to doubt this point, but we feel it may be misviewed. In many respects (as we have already argued) it would have

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58 The World Bank Poverty Assessment Report found that, because there was more equalisation of incomes (the gini coefficient declined marginally from 0.24 to 0.20), the incidence of poverty on the estates had actually decreased -- on a head count basis from 14.3 % in 1985/86 to to 12.6% in 1990/91 (World bank 1994:7-8). However, it also found that mean consumption had fallen from Rs 763/per capita/mth in 1985/86 to Rs 750/per capita/mth in 1990/91 (in 1990/91 prices).

59 At Rs 514 per capita per month, they were found to be 16% below average rural incomes and 27% below those in the urban sector (DCS 1993).

60 In more recent years, the Real Wage Index for workers in agriculture under the Wages Board Ordinance has again deteriorated; it rose by 20% between 1986 and and 1993, only to fall by 16% between 1993 and March 1996 (Central Bank 1996: Table 52).

been more surprising if young people had not been eager to find better jobs and for the glamour that is likely to be associated with a more cosmopolitan lifestyle. That is not the point. More important is how they are responding. What survey evidence there is (and it is admittedly limited) paints a more nuanced picture.

Of profound importance here (or so it seems to us) is whether it is push or pull factors that are the most crucial influence -- whether the main cause for policy concern is internal or external to the estate. Many young people on estates in Badulla District, for example, told the interviewers on one survey that they felt the estates offered no future. In the tea sector as a whole there is evidence that 60-70 per cent of the un- and underemployed are in the 16-29 year age group -- concentrated mainly in Nuwara Eliya and Badulla Districts but also, to a lesser extent, in Kandy and Kalutara (LJEWU/AAFLI 1996; WUSC 1996).[61] One third of tea estate workers were found to have worked for 15 days a month or less during the period June-August 1995, and 60% of these were in the 16-29 year age groups (LJEWU/ÁAFLI 1996).[62] Following the privatisation of management on a five year lease, companies cut back on estate activities and reduced the work available, and it has been the inexperienced estate youth who have in general suffered. Many of them were therefore, in fact, looking for work both on and off the estate (Silva and Gunawardena 1995: WUSC 1996). In addition, there are almost everywhere strong push factors related to the nature of estate work and the lifestyle that goes with it, and there are feelings of physical insecurity in Low Country Tamil estate communities. In the latter area in particular, the (lower) average monthly incomes of tea workers are easily compared to higher daily wages offered by other jobs; there are fewer possibilities of self-employment in vegetable cultivation, dairying or petty trade (Sinnathamby 1993:41), and the advantages of estate work are often less immediately apparent than in other areas. This is in stark contrast to the common management view that the real problem when it comes to labour supply is the 'pull' of outside employment, and it raises a question as to what would happen if more work and more challenging work were to be increasingly available on the estates themselves.

This is reinforced by the apparent vagueness in the aspirations of estate youth reported in a survey in Badulla District which does not appear to be untypical -- young males want to be drivers or security guards, girls to be seamstresses or dressmakers (or go to the

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61 Trust data puts the figure at 50% for the estate sector as a whole in 1993 (PHSWT 1995:7).

62 Even prior to privatisation, Jayaweera and Sanmugam found that 83% of women in the 15-24 year age category were unemployed in resident labour households in a case study in Kalutara District (Jayaweera 1991:9).

Middle East as housemaids), those with secondary education to take up teaching (WUSC 1996). As elsewhere, the parental ideal is for the status and security of government service (though that would seem likely in time to become increasingly scarcer). Aspirations are gender stereotyped; few young people appear to have plans other than to leave the estate, and there seems to be little interest in acquiring skills that require either substantial apprenticeship or long-term training (WUSC 1996). Young people want a job off the estate, and they want it as as soon as possible, but not necessarily -- nor indeed typically -- because they have defined career ambitions.

Concrete evidence in this area is extremely limited and the picture that has been presented is at best impressionistic. However, it does seem to suggest that the situation at the moment is in flux and that, for the time being at least, attitudes and developments on the estates are important in shaping the aspirations of youth. Moreover, at least in Badulla, there were also many workers who were clearly conservative: they valued the EPF, relative job security and housing facilities on estates, and they were reluctant to abandon them. No firm conclusion can therefore be drawn from the material on workers' aspirations.

(iii) Alternative employment

In principle, all estate children have access to primary education and to higher grade schools in their close vicinity. In practice, most estate schools struggle to provide education to grade V and beyond. The proportion of the school-going population in higher grades in the estate sector is far less than in the remainder of the rural or in the urban sector, and educational levels are generally acknowledged to be low. Some 81 per cent of the estate population in the tea sector who were of 15 years and older were found in one recent survey to have had grade VII education or less, 53 per cent grade IV or less (LJEWU/AAFLI 1996). These are disturbing figures; they could be misleading because of the much lower educational achievement amongst older workers (and more especially women workers), but if two thirds of the more qualified were concentrated in the 14-29 age group, they would account for less than 15 per cent of the total number in that category.

The significance of this point is that it places a serious constraint on the kind of work available to estate youth (NORAD 1988). Educational entry requirements to craft level training programmes are normally grade VII or grade VIII; few are in the Tamil medium,

and it is rare for estate youth to attend them (Casperz *et al.*1988; WUSC 1996).[63] Young married women are often constrained by family responsibilites, cultural attitudes, and by the fact that they are more likely to have the option of regular estate work and to be pressured into taking it.[64] As a result, the majority of those seeking outside employment appear to be young men looking for unskilled jobs, most of which are poorly paid, low status and in the informal sector, entailing long hours of work.[65] The jobs available in this category tend to be region specific (vegetables, gem-mining, smallholder tea production, domestic work etc) or else in the general trade sector (wayside tea boutiques, retail stores, labouring etc). Work in garment factories or in the Middle East is also cited as being available for women. Table 4.6 gives some indication of the numbers involved for the estate sector as a whole for 1993. It shows that some 16 per cent of the resident population of working age work outside the estates, concentrated primarily in Mid and Low Country areas.

Table 4.6:
The Employment Status of Resident Workers by PHSWT Region:
All Estates, 1993 (percentages)

PHSWT Region	Employment status			Number
	Permanent	Casual	Off-estate	
Galle	68.0	10.7	21.3	20,481
Ratnapura	69.4	7.8	22.8	42,159
Badulla	76.8	12.6	10.6	60,343
Kegalle	58.7	15.3	26.0	21,853
Kandy	70.4	6.3	23.3	43,784
Hatton	82.1	5.3	12.6	75,293
Nuwara Eliya	82.0	7.8	10.2	75,911
(Total number)	(257,280)	(29,091)	(53,453)	339,824

Source: PHSWT, 1995:8
N.B. : the regions in this table do not correspond with those used in Section 3.

It is impossible to gauge the quantitative importance of alternative sources of employment but, in the context of the present study, there would seem an important analytical distinction to be made between local jobs (where the workers commute from the estates)

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63 There is also evidence that vocational training programmes have had limited success in helping those who graduate to get regular and remunerative employment (Kelly 1994; WUSC 1996).

64 One concomitant of high female participation rates has been the tendency for an elder child (normally a daughter) to stay at home to look after non-school age children. Even where creches exist this practice is often continued on less accessible divisions or because creches are considered inadequate. It has also been claimed that increasing numbers of young unmarried women are moving out into domestic work. We have been unable to check this.

65 Given their limited experience and the exigencies of the current security situation, they are also frequently open to exploitation as a source of docile and cheap labour that is relatively disciplined and less subject to absenteeism because they are likely to have less contact with their surroundings (WUSC 1996).

and out-migration (to cities or even to foreign employment). The significance of this is that, while the former implies outside work, the person may not be lost to the estate as a potential worker. There are registered and casual workers, who work with local tea smallholders on a daily basis (and who are regularly cited as a problem by management), for example, in the Gongola/Deniyaya area. Many of these estates can no longer count on the 'captured' labour force that they had enjoyed in the past. But the movement is not necessarily out of tea nor indeed out of the area. There is also oral evidence to suggest that those who look for work with tea smallholders are in general not the most productive or the most fully utilised workers on any given estate. It has been argued that the most efficient workers are likely to work full-time on the estate, to secure overkiloage and to have higher monthly salaries, whereas slower, less productive workers can only make up the monetary shortfall by turning to work on smallholdings where day rates are higher (because there is no EPF) and where they can work longer hours. If this is true, and workers turn to smallholder employment not because it is inherently more attractive, but because of some perceived immediate need for cash or because work arrangements on the estates are found to be too constraining, then this is not necessarily a workforce that is lost for ever.

The case of the garment factories is an in-between case, although it does seem on the whole to have involved commuting. There is some ambiguity about the number of operating factories and the number of jobs that have been created under the 200 Garment Factories Programme. However, evidence suggests that 32 factories were established in tea growing districts of which 10 were in the Up-Country, 8 in the Mid-Country and 14 in Low Country areas (BoI 1993; CCC 1994). Somewhere between 13,000 and 15,000 direct jobs are likely to have been created; with priority formally being given to Janasaviya recipients, the number of openings for estate workers may have been much smaller as a result, though it could have been significant in relation to the (roughly) 30,000 young estate women in the 19-24 year old age group. However, it is unlikely that such jobs will increase in number significantly in the foreseeable future, and these are unlikely to be lifetime jobs. What happens after work in these factories -- and more particulary whether the women return to work on the estates -- is still unclear.

Migration away from the estates appears to have been largely to domestic work, to informal sector jobs in urban centres and to jobs abroad. These are again very varied. However, there appear to have been a number of socio-economic and security factors that have influenced individual decisions and attitudes. One pattern seems to be that

when young people leave the estates and discover what they can realistically earn and what it costs to live outside -- particularly in Colombo, this also leads to a reappraisal of their situation. The wage they receive is rarely enough to rent a house, to support a family or to live the independent life that they had once imagined (WUSC 1996). Their dilemma is also exacerbated (for the time being at least) by the difficulties of being an out-station Tamil in urban centres in the current security situation, where they are denied easy lodging facilities and where they are continually prone to suspicion.[66] Delays in the issue of identity cards appear to have made this worse. There are also at times fears of moving freely in the continuing climate of communal uncertainty.[67]

In the case of Middle East employment, the picture is unconvincing. Though there clearly have been migrants from the plantation sector (De Silva and Gunawardena 1995; WUSC 1996), we were unable to find evidence of increasing numbers.[68] The fee demanded by brokers is high for estate workers (as indeed it is for most others); estate workers without ID cards cannot (legally) acquire passports; there may not be the same push from estates as from poor village communitiies (there is work for women on tea estates), and it has been suggested to us orally that brokers may be disinclined to accept plantation women because of possible problems of acceptance amongst other workers.[69] This is hard to assess, but the picture that emerges does not suggest that this is likely to become an important source of employment for estate women in the next few years. More generally, long-term jobs off the estate would appear to have been relatively limited (WUSC 1996; LJEWU/AAFLI 1996).

The key question, then, is whether these trends are likely to continue, and whether the outflow of labour will increase as the economy picks up, ethnic tension eases and ID papers are available. Any answer to this must be largely speculative. Nevertheless, it seems clear that more opportunities are likely to be created and that where possible they will no doubt be taken up -- even if they are largely manual jobs in the informal sector. Elsewhere, preferred claimants are likely to be those who are better qualified and skill requirements are likely if anything to rise. It seems unlikely therefore that there will be a

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66 The WUSC report (1996:26) gives the impression that, were it not for the current security situation, the out-migration from estates in Badulla District would have seen a sharp increase.

67 The largest movement out of the estates between 1992-95 appears to have been in Galle District and to have been Sinhalese labour, for whom little of this applies (LJEWU/AAFLI 1996).

68 The CARE Study (Silva and Gunawardena 1995:30) found 1472 people in the Middle East from 27 estates. We could find no corroboration of outfows on this scale.

69 Many women appear to prefer to work as domestics abroad, not only because it is better paid, but because the nature of the work is more inclined to be overlooked by neighbours who are dazzled by the glamour of foreign employment.

flood of outmigration, at least not in the short-term. But much is also likely to depend on the thinking of estate management and on what the estates can offer. Push as well as pull factors still appear important.

(iv) The incentive package

A central factor in these developments will be the incentive package that is offered: labour supply will be in large part a function of the motivation and the incentives provided by estate work compared to those from other forms of employment. This is not the subject of the present study and it is touched only in passing. However, some comment is warranted. Wage rates and real household income will clearly be an important component.[70] On the other hand, Central Bank data shows that wages account for a growing proportion of total costs of production and of the price of tea ex-Colombo, and that the latter has been getting closer to its price in the London auction. So, while there will certainly be scope for real wages to increase with higher labour productivity, it is difficult in the short-term to see them rising sufficiently fast to counter the gathering momentum of this movement of workers away from conventional estate work. Indeed, we will argue in Section 5 that, over the medium-term, other factors will be crucial. Tangible incentives such as cash incomes, the available work and consequent job security, pensions, housing and the availability of other social and welfare facilities will have to be augmented by qualitative changes -- in management attitudes, motivational incentives, physical security, the nature of estate life, and, in a wider sense, some notion of a culturally acceptable standard of living for the work that is done. These issues, we will argue, are to a considerable degree open to influence as part of management strategies in exchange for productivity increases.

5. THE DEMAND AND SUPPLY BALANCE

The workforce on Sri Lankan tea estates is stable, experienced, skilled in its area of tea cultivation and in turn relatively committed -- a point that does not appear to have been adequately appreciated in discussions on costs of production.[71] It has been in stark contrast to the situation on newly privatised tea estates, for example, in Tanzania -- which have had an average labour turnover in the range of 30 per cent a year (Faber 1995) -- or

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70 Significantly, only 11% of youth and women interviewed in the Badulla survey said that salaries were low (WUSC 1996:29). The physical nature of the work and poor living conditions were felt to be more important.

71 It will be argued later that significant labour productivity gains can be made by better labour utilisation even at contemporary skill levels.

to the widespread recent experience of plantation sugar cutting (Sajhau and Von Muralt 1987). The vast majority of Sri Lankan workers have been brought up on a tea estate; they have been employed in tea all their working lives, and they have acquired relevant knowledge and skills almost as a matter of course. However, if the labour situation deteriorates, if the low status that is associated with fieldwork is not reversed, and if the industry is forced to rely on an increasingly transient and marginalised labour force -- which is not impossible in some areas -- management companies could find to their cost that estate work is not always as "unskilled" as they have in the past supposed. It may become only too clear in future that it would have been preferable to have done more to retain their workers (particularly the most productive workers) rather than having to embark on the continual training of an uncertain and increasingly transitory workforce.

But the key question, of course, is whether problems of labour supply will reach such extreme proportions in the foreseeable future in Sri Lanka. Is there really anything to worry about? And, if there is, then what can be done to avert it? The discussion in this section revolves around three main elements: (i) the current labour situation; (ii) the likely labour situation in the year 2005; and -- in brief -- (iii) the scope for management to influence these trends over the medium to longer-term.

5.1 Current Trends

This section briefly reviews past trends in the labour situation on Sri Lankan tea estates as recorded in earlier studies, and then looks at the current position within that broader perspective.

5.1.1 Results of earlier studies

The TMP found in the late 1970s that labour supply exceeded projected productive labour demand in all the tea producing districts of Sri Lanka by a considerable margin (TMP Vol.IV:75).[72] However, even at that time, labour shortages were beginning to appear in a number of localised areas, reflected in less frequent plucking rounds, serious spot shortages of plucking labour and postponement of some of the less immediate

72 Deficits were only encountered on 2 of the 154 estates in its sector-wide sample, with 2 others fairly close (TMP vol.IV:75).

estate maintenance activities (*ibid.*. Vol.II).[73] The fact that the tea estate which recorded the largest labour shortfall at that time (Hemingford) had the most improved yield was taken to be indicative of constraints that might emerge as the tea industry expanded. But, impending shortages (if they were to occur) were considered to have more to do with standing labour practices (and the limited incentive packages that could be afforded under conditions of poor labour utilisation and low labour productivity) than with physical numbers *per se*.[74] The inefficiency with which labour was used, low productivity, male worker underutilisation and limited labour mobility (which together translated into shortages in individual estates) were seen to be the main contributory factors (*ibid.*:82).[75] At the time when the TMP was prepared, the wider implications of off-farm employment were not yet apparent, and repatriation was seen as the principal ingredient that would influence future labour supplies. Shortages were anticipated in areas where repatriation was greatest, particularly those remote from Sinhalese villages which lacked access to supplementary labour (TMP 1980, Vol. II:78).[76]

The ADB Report -- just after the privatisation of management in 1992 -- found that (of the regions it adopted) Hatton and Nuwara Eliya had a chronic labour surplus (+16 per cent and +15 per cent respectively on their 'international norms', and +5 per cent and +3 per cent respectively above the national average). Only Kandy on international norms (-3 per cent) and Kandy, Badulla and Ratnapura (-17 per cent, -7 per cent and -4 per cent respectively) relative to the national average were found to have a labour deficit. Using their international norm of 2.5 workers per hectare) for tea, the ADB Report concluded that "in almost all cases, when individual estates are compared to this norm, they are in a situation of surplus-labour" (ADB 1993, vol.II, Appendix 5:12). The labour situation was again presented as basically a function of labour utilisation and labour productivity, but

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73 Sinnathamby and Wickramasekara (1984) found that, of the estates they sampled in 1980, 45% reported labour shortages resulting in loss of yields.

74 More specifically, it maintained that "the productivity and labour supply statistics indicate the key to adequate tea sector labour supply lies much more in the realm of improved labour utilisation practices brought about by institutional reform and revised practices than it does in concern for the replacement of the existing labour force" (TMP 1980, Volume IV :77).

75 The problem was also seen to be in part a matter of peak rather than simply average labour demand, and attention was also drawn to the low levels of turnout.

76 Difficulties were envisaged in Up-Country areas. In the Mid- and Low-Country, where Sinhalese (resident and non-resident) labour was available there was seen to be much less of a problem. There was thought to be substantial scope for maintaining high labour supplies. In fact -- as we shall see -- it has been precisely in these areas (and more especially the Low Country) that there has been most cause for concern.

the fact that it had changed so markedly since the TMP was not just methodological (though it was that as well) -- it was indicative of the potential volatility that existed in the labour supply situation.

The ADB study (*ibid.*:13) argued the case for a plan for the rationalisation of labour which would comprise a combination of measures:

- mobility of labour to even out major surplus/deficit variations within and between estates (initially in the same region, and at first between contiguous estates) -- though it was recognised that in the longer-term this would provide no real solution (*ibid*:11);
- natural attrition, through retirement and incentives to encourage early retirement;
- redeployment of surplus labour (defined as 5 per cent or more than requirements) on agricultural and non-agricultural diversification activities; and
- training and skills development to enable surplus workers to find employment off the estates.

While these recommendations might have done much to ease some of the immediate short-term problems of management companies and to have created job opportunities, it is doubtful if they would have done much to improve the relative attractiveness of estate life or -- in the contemporary context -- to help workers on the estate over the longer-term.[77] Certainly, today, proactive strategies, rather than reactions after the event, would seem more effective. But are labour surpluses the major problem, as the ADB supposed, or are the indications of labour shortages a sign of things to come?

5.1.2 The present situation

To assess the baseline (December 1995) labour situation on tea estates, a number of alternative definitions of demand and supply were adopted -- partly in an effort to incorporate criticisms that were indicated earlier. The current labour situation was estimated for each of the 258 tea estates on which we had comparable data. The results

77 Survey findings of the ADB found that the most favoured incentive to encourage labour mobility was the provision of land for housing and a private garden plot (Vol.II, Appendix 5:15).

were then aggregated by the same agroecological regions as were used in Section 3 and expressed in terms of the percentage of estates in each of three categories:

(i) estates within plus or minus 10 per cent of balanced demand and supply (referred to as "balanced" estates);

(ii) those with over 10 per cent more than the balance (called "surplus estates"); and

(iii) those with labour shortfall of more than 10 per cent below the balance (which were categorised as "deficit estates").

The use of a 10 per cent cut-off point is arbitrary and is admittedly generous (indeed, many surplus or deficit estates in the ADB study would have fallen within this category), but given the limited accuracy of the data, the inherent problems of seasonality and concern with the severity of supply problems it was nevertheless considered to be justified. The use of one average figure for a region as a whole was rejected because of the intraregional variation from one estate to another, and the distribution of estates over three categories was instead preferred.[78] The definitions of demand and supply used in this exercise were given earlier, but they are repeated here for convenience:

On the supply side

S1 = the total workforce of the estate as of 31 December 1995 (both registered and casual);[79]

S2 = the actual workforce (defined as the total workforce multiplied by the average daily worker turnout over the course of 1995);[80]

S3 = the estimated turnout (at 1995 turnout rates) in the year 2005, based on the average net growth in the workforce;

S4 = the same estimated turnout, assuming a 2 per cent p.a. loss of labour to outside employment; and

S5 = the same estimated turnout, assuming a 2 per cent p.a. loss of labour but a 90 per cent turnout rate.

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78 The problem was seen to be more one of gauging where the balance lay over a large number of estates in a given region, with often very disparate conditions, rather than deriving one average figure that could in some sense categorise the whole region. The latter was considered unrealistic.

79 The December 1995 workforce was obtained from Monthly Progress Reports of management companies or from PHSWT surveys.

80 Average turnout was taken from the Monthly Progress Reports for estates where they were available. In other cases the average for the region was taken from Table 4.5.

On the demand side: D0 = the labour required at the current (1995) yield based on TRI norms, assuming 23 days of work/month in the Up-Country (wu and iu) and 24 days of work in Low and Mid-Country areas, and assuming no replanting;[81] and

D1 = labour required at the current yield based on the same norms and days of work offered per month, but assuming 1 per cent replanting.[82]

The results of this exercise are recorded in Table 5.1. Cells which account for more than the majority of estates are shaded for illustrative purposes.

Table 5.1:
The Labour Situation on Tea Estates, 1995 (by region)
(percentage per category)

Definition	N.Eliya (wu)	Badulla (wi)	Mid-Country	Low-Country	All Regions
S1.D0					
Surplus estates	95	87	83	89	89
Balanced	5	13	17	4	10
Deficit estates	0	0	0	7	1
S1.D1					
Surplus estates	90	71	79	81	80
Balanced	9	29	21	11	19
Deficit estates	1	0	0	7	1
S2.D0					
Surplus estates	48	23	19	26	31
Balanced	45	41	50	37	44
Deficit estates	8	36	31	37	25
S2.D1					
Surplus	37	9	15	22	21
Balance	47	38	44	22	41
Deficit	16	53	42	56	38

Several interesting features emerge from the table. First, it becomes clear that where labour shortages exist they are very much a function of turnout (confirming the patterns presented earlier in Table 4.5). The results suggest that it is rarely the case that there is simply not enough registered and casual labour to do the work available. Taking the total

81 The average number of days of work offered in a given region was estimated from the Monthly Production Reports on individual estates. It was a simple arithmetic average and, although variations were observed within each region, the differences between regions were found on an ANOVA tests to be statistically significant. The corresponding demand norm was read from Table 3.4, rounded to one decimal place, applying Up-Country norms to both Nuwara Eliya/Hatton and Badulla and Low-Country norms to both the Mid- and the Low-Country (further differentiation, as we have seen, being unavailable). Though Table 3.4 shows that the differences in regional norms are not large, this procedure will tend, if anything, to slightly overstate the labour demand in Badulla and Mid-Country.

82 In no region did estates approach a replanting rate of 2% p.a.: the alternatives of 0% or 1% encompassed the range of work actually encountered.

workforce of individual estates, and assuming that there is no significant development work (case S1.D0), nine out of ten estates recorded a labour surplus (slightly more in Nuwara Eliya/Hatton, slightly less in the Mid-Country), and it is only in the Low Country that pockets are found with an absolute deficit. Even if the estates were to undertake a modest programme of development (case S1.D1), the labour situation is not significantly altered. The vast majority of estates remain either in surplus or balanced.

The key factor is the proportion of these workers who actually turn out for work and their current labour productivity.[83] If we move down the table and adopt actual turnout (S2) as the measure of labour supply, then the situation is immediately different. Even with no development (case S2.D0 -- which is perhaps the nearest to reality), the dominant category in the classification is one of labour balance, though a significant proportion of deficit estates appear in all the regions except Nuwara Eliya/Hatton. That balance (or near balance) stands out as the norm is of course not surprising, because companies have had to work with the labour resources they inherited and they are all surviving. What the deficits suggest, therefore, is that many estates cannot be carrying out the full range of cultivation practices included in the TRI norms. They are reducing plucking rounds, cutting corners in maintenance -- or offering plucking and other activities out on a contract basis (which does not appear in estimates or Monthly Progress Reports and are therefore not captured in the exercise). Presumably, if these considerations were taken into account, more estates would be in balance -- which is what would be expected in the current situation under fairly typical conditions. However, the fragility of the present labour situation in estates outside Nuwara Eliya (and even on some in the Nuwara Eliya/Hatton region) is highlighted by the changes that appear under the assumption of modest development (comparing case S2.D0 with case S2.D1). This suggests that, with the exception of the Nuwara Eliya/Hatton region, many (if not most) estates could have some difficulty implementing an optimum system of plucking rounds, a full programme of maintenance and even a modest programme of development with the labour they now have at current levels of labour productivity and at current levels of turnout.

The baseline position would thus appear to be that -- while the recent past has often seen almost minimal maintainance and little long-term development, with labour surpluses and

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83 The number of workers needed to undertake a certain required number of labour days is taken to be a measure of labour productivity.

consequent un- and underemployment in many parts of the country (case S2.D0) -- the situation is highly sensitive to the work programme adopted by companies and to worker turnout (case S2.D1). At the same time, it is clear that there are strong regional variations, with far more labour surplus estates in the Nuwara Eliya region and with incipient labour shortages (and often large potential shortages) on estates in other parts of the country. It is therefore evident that there are problems, and that they could prove to be constraints if companies look to embark on elaborate estate development programmes at current levels of turnout and of labour productivity. So what are the prospects for the future?

5.2 The Labour Situation in 2005: alternative scenarios

Given the range and the nature of the variables involved -- management strategies, yield increases, mechanisation, diversification, labour productivity, turnout rates, the growth of alternative job opportunities and the rate of out-migration -- that are likely to influence labour demand and supply, even over the medium-term (to, say, the year 2005), it is impossible to project or to predict the outcome with any real certainty. What can be done is to develop a better grasp of the main parameters -- to compare alternative scenarios. This section discusses the results of six simulation exercises that look at the possible labour situation in the year 2005 based on alternative assumptions about the possible future developments on tea estates. They were designed to gain a better understanding of the potential impact of changes in what seem to be some of the key variables.[84]

5.2.1 Inertia: the no-growth scenario

The starting point was to ask what would happen from a labour standpoint if present tea cultivation practices and management systems were allowed to continue more or less as they are throughout the course of the next decade -- if the tea area remained as it is, if yields, labour demand and labour productivity were unchanged, if there is no significant change in technology and no marked outmigration. The result of this simulation is not presented in tablular form because it is fairly transparent.[85] In purely numerical terms, the net increase in the workforce would be such that there would be no major shocks in store

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84 The simulations repeated the demand and supply exercise described in the previous section changing the relevant definitions as indicated in the text (and as summarised in Appendix 2).

85 The natural increase in the workforce would be entirely offset by a 2 per cent p.a. rate of out-migration, and the increased labour requirements of improved management would either have to be absorbed by what is currently a labour surplus or constrained by the limited available labour.

in terms of labour availability (though difficulties would remain in those areas where serious labour shortages are already recorded). An out-migration of 2 per cent p.a. produces simulation results for 2005 that are basically the same as -- or mildly less favourable than -- those in Table 5.1.

Nevertheless, some qualitative remarks seem warranted about likely implications of this outcome. It would seem reasonable to contend for example that, if the Sri Lankan economy boomed (generating a much higher demand for unskilled non-farm labour) and if the ethnic conflict was resolved (resulting in greater geographic mobility for the estate population), then -- on the arguments of Section 4 -- a stagnant estate sector could find itself ill-positioned (financially and strategically) to retain its labour. In all probability, the ability of companies to respond quickly and effectively to the short-term consequences would over time decline,[86] and there would be a serious risk (under conditions of inertia) of even higher out-migration by a growing and increasingly demotivated and disaffected workforce that could not be afforded additional incentives, that find that they continue to have insufficient work, and who see no improvement in their status. A steady outmigration of 3 per cent p.a. would create difficulties on most estates, and it would probably see a marked ageing of the workforce (as in much of the Caribbean) because it would invariably be the young who would be the first to leave. But what would happen if estate production were to do somewhat better?

5.2.2 Modest growth

If we assume that the Sri Lankan tea estates are soundly managed and record a steady, but unremarkable improvement in yield and in labour productivity -- that, over the decade from 1995-2005, average yields increase by 25 per cent, plucking, maintenance and development are undertaken in line with TRI norms, that 25 days of work are offered and fulfilled a month, but that there is no change in plucking technology -- then the situation is already different. The results of this scenario are shown in Table 5.2. In this simulation S3 is the 2005 workforce at 1995 turnout rates, and S4 is the same workforce assuming a 2 per cent p.a. movement of estate workers to alternative employment over the course of the intervening decade.[87]

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86 The one clear exception might be the Nuwara Eliya region, though there would also be areas elsewhere that would retain sufficient numbers.

87 Development activities are held constant at the equivalent of 1% replanting, partly because any significantly higher rates are considered to be unrealistic, but far more because of the assumed substitutability of plucking and sundry labour raised in section 3.5.2. The structure of our model raises problems at high levels of development, pointing to the need for more sophisticated modelling that was outside the scope of this preliminary study.

Comparing S3.D1 with case S2.D1 in Table 5.1, yields a quick indication of likely changes in the labour situation as a result of this improved management package. It will be seen that, if there is no out-migration (S3.D1), then the labour situation improves compared to the current situation -- because of the increased workforce as a result of natural growth and the increase in labour productivity.[88] The shaded area of case S3.D1 in Table 5.2 is almost the mirror image of case S2.D1 in Table 5.1, the current (and stagnant future) situation.

Table 5.2:
The Projected Labour Situation on Tea Estates in 2005 (by region)
-- modest growth (% per category)

Definition	N.Eliya (wu)	Badulla (wi)	Mid-Country	Low-Country	All Regions
S3.D1					
Surplus estates	89	50	56	44	64
Balanced	10	44	29	41	29
Deficit estates	1	7	15	15	7
S4.D1					
Surplus estates	24	5	10	22	15
Balanced	57	40	33	22	43
Deficit estates	19	55	56	56	42

If we assume that there is a 2 per cent p.a. out-migration of registered and casual workers -- of the immediately available workforce -- (case S4.D1), then the labour situation remains more or less the same as in the baseline picture (S2.D1) of Table 5.1 in all regions except the Mid-Country, where a far larger proportion of the estates move to a labour deficit. This suggests that, while other estates may already be recording labour shortages,[89] there are a considerable number in the Mid-Country that are particularly

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88 As noted earlier, the structure of the model is such that raising the number of labour days offered per month implies increased productivity (the number of labour days that is required per hectare is divided by the number of days offered to obtain the necessary number of workers, and hence the more days work offered per worker the higher the worker's productivity). The assumpton of the model at this point is that each individual worker puts in the required amount of work.

89 Many estates in Badulla and the Low Country (and indeed also in the Mid Country) would already be in deficit even if the work programmes were smaller and if yields were lower (see case S2.D1 in Table 5.1). They are estates with almost no manoeuvrability if there is steady out-migration.

borderline and where estate improvement programmes are especially vulnerable to labour loss as a result of out-migration. If the Sri Lankan economy booms in future (as was envisaged earlier), it seems the Mid-Country estates in particular will be severely hit. On the other hand, estates that are more productive, that secure higher yields and offer more employment are likely to be in a better position to retain their labour.

5.2.3 Strong growth

But what would happen if these estates produced even better results -- if they generated higher levels of output and higher labour demand. Table 5.3 contains the same assumptions as the previous table, except that average estate yields are assumed to be 50 per cent higher than in 1995.

Table 5.3:
The Projected Labour Situation on Tea Estates in 2005 (by region) -- under strong growth assumptions (% per category)

Definition	N.Eliya (wu)	Badulla (wi)	Mid-Country	Low-Country	All Regions
S3.D1					
Surplus estates	85	46	51	41	60
Balanced	13	46	34	44	32
Deficit estates	2	9	15	15	8
S4.D1					
Surplus estates	20	5	9	22	13
Balanced	55	34	21	19	37
Deficit estates	25	60	70	59	50

Interestingly, from the point of view of the labour supply situation, increased yields do not appear in themselves to be of such major importance (presumably because the slope of the plucking labour demand curve is in practice relatively flat) -- despite the emphasis placed on yields in the literature and in the earlier discussions on demand.[90] Comparing the results in this table with those in Table 5.2 (the modest growth scenario) reveals little significant difference -- with the sole exception of the Mid-Country if there is out-migration

90 It might be argued that the strong growth scenario is not strong enough, and clearly there would come a point when growth would tell. However, we would argue that increasing average yields by 50% over the next decade would in practice make major demands on estate management and on labour (unless poor-yielding land was taken out of production to achieve this aim, which is again a different scenario).

(S4.D1), where there is a sharper slip into deficit.[91] As in the earlier scenarios, a substantial proportion of deficit estates are recorded when there is steady out-migration. On the other hand, however, there would be more employment created, and company profitability should in principle put them in a better position to offer additional work incentives and to retain their labour.

The remaining simulations examine what happens when the underlying assumptions are changed in the modest and strong growth scenarios.

5.2.4 Modest growth with low labour productivity

The fourth possibility that was explored assumed the modest growth scenario (described in Section 5.2.2), and asked what would happen if these yield targets were achieved without any significant increase in labour productivity (over and above that which will come almost automatically with increased yields).[92] It was assumed that the labour force on the estates was largely unmotivated -- that, while workers might be offered 25 days of work a month (as a legal requirement), they would in practice only manage to perform the same 23 or 24 days of work that they did in 1995 within a longer span of time. In this case, the work that remained would require the employment of additional labour (with clear financial implications in terms of the cost of production, though that is not the main focus in this analysis). The results of this simulation are shown in Table 5.4.

Table 5.4:
The Projected Labour Situation on Tea Estates in 2005 (by region)
-- modest growth and low labour productivity (% per category)

Definition	N.Eliya (wu)	Badulla (wi)	Mid-Country	Low-Country	All Regions
S3.D1					
Surplus estates	74	38	48	41	53
Balanced	23	42	33	44	34
Deficit estates	3	20	19	15	13
S4.D1					
Surplus estates	12	4	8	19	9
Balanced	43	26	21	19	30
Deficit estates	45	70	71	63	60

91 This would seem to suggest that most of the estates that were borderline in other regions would already have slipped into deficit, even with modest growth, and that many estates were either borderline or had a substantial labour surpplus.

92 This is over and above the implicit rise in plucking productivity that comes with higher yields.

Comparing the outcome of this exercise with results of the higher labour productivity assumption in Table 5.2, there can be seen to be (predictably enough) a deterioration. In the case of no out-migration (S3.D1), however, relatively few estates are pushed down from the "balanced" to the "labour deficit" category, with the marked exception of the Badulla region -- where the proportion of estates in deficit almost trebles (from 7 to 20 per cent). Labour productivity would therefore seem to be a particularly relevant issue in much of the Badulla region.

If out-migration is also brought into the picture (S4.D1), then the situation deteriorates sharply everywhere except in the Low Country -- presumably because in the Low Country the few estates with a sufficiently large workforce to withstand low productivity (in terms of worker numbers) also have enough labour to withstand out-migration (in other words, they are very much labour surplus estates). In other areas, out-migration again emerges as problematic in the Mid-Country and Badulla, but also to a growing extent in the Nuwara Eliya/Hatton region. The combination of a modest growth programme, continuing low labour productivity and steady out-migration therefore emerges as a bad scenario from the standpoint of labour supply -- and one that would seem vulnerable to an up-turn in the economy that would spur out-migration.

5.2.5 Strong growth, low labour productivity but high labour turnout

If serious programmes to up-grade and improve the agricultural side of Sri Lankan tea estates are likely to generate the kinds of labour supply problems that surfaced in previous simulations, then the question arises as to what could be gained by improving the turnout or by improved technology. The first was explored by asking what would happen if average worker turnout could be raised to 90 per cent (marginally below the highest recorded in 1995). This was explored in what, from a labour supply standpoint, would seem to be a potentially problematic (high growth, low labour productivity) scenario -- where average yields increase 50 per cent but where labour productivity remains as it is today. The results of this simulation are shown in Table 5.5.

What it reveals is that, if labour could be retained to work on the estates and there was no out-migration (S3.D1), then in 2005 there would no longer be a problem of a labour deficit, with the exception of a relatively small number of Low Country estates. Even in

the case of modest out-migration (S2.D1), the outcome that emerges is better than that in any other scenario -- though sizeable problems are still encountered (in Badulla in particular, but also in the Mid- and in the Low Country). If the low management assumption is dropped (an option that is not shown here),[93] then the situation improves -- and improves markedly in Badulla, again suggesting that labour productivity may be a particularly sensitive variable in the Badulla region.

But why should a resigned and partly disgruntled workforce, that is unhappy with the low status of estate work and the poor standard of living it affords, turn out more regularly on a daily basis to solve the labour problems of companies? Clearly, there would have to be other assumptions implicit in this scenario that would influence worker motivation if it was ever to be viable -- assumptions involving major changes in incentive structures. This, however, is a problem that we will return to later.

Table 5.5:
The Projected Labour Situation on Tea Estates in 2005 (by region)
-- strong growth, low labour productivity but
high labour turnout (% per category)

Definition	N.Eliya (wu)	Badulla (wi)	Mid-Country	Low-Country	All Regions
S3.D1					
Surplus estates	91	74	85	85	83
Balanced	8	26	15	7	15
Deficit estates	1	0	0	7	1
S4.D1					
Surplus estates	37	34	25	41	31
Balanced	51	40	54	37	46
Deficit estates	12	36	21	22	23

93 The percentage of deficit estates that results when the low labour assumption is removed (the working assumptions being a 50% increase in yield, application of TRI norms with 1% replanting p.a. and a 90% turnout) is the following: Nuwara Eliya 5%, Badulla 12%, Mid-Country 15% and Low Country 15%.

5.2.6 Strong growth with improved plucking technology

Finally, the potential impact of technological change was estimated by assuming a strong growth scenario and 25 days of work a month,[94] but increasing average plucker productivity to 30 kg/day (for example through the introduction of shears or, if the terrain is suitable, through some degree of mechanisation). A 30 kilo a day norm would be highly competitive in the South Asian context -- it would be higher than North India -- though it would not be particularly exceptional in Africa (Faber 1995; Koning 1995). The outcome of this exercise is shown in Table 5.6.

This exercise shows a significant improvement in the labour supply situation, even with out-migration (case S4.D1). Some estates, particularly in the Mid- and Low Country, remain cause for concern, but the exercise demonstrates quite clearly that the estate labour situation is highly sensitive to changes in plucking technology.

Table 5.6:
The Projected Labour Situation on Tea Estates in 2005 (by region)
-- strong growth with improved plucking technology (% per category)

Definition	N.Eliya (wu)	Badulla (wi)	Mid-Country	Low-Country	All Regions
S3.D1					
Surplus estates	99	91	85	85	92
Balanced	1	8	15	7	7
Deficit estates	0	1	0	7	1
S4.D1					
Surplus estates	80	41	35	41	54
Balanced	19	53	50	44	39
Deficit estates	1	7	15	15	7

Again, however, a basic question that underlies the option is whether these changes in technology (and particularly plucking technology) would be acceptable to workers and could be effectively implemented. Experiments have been carried out, and several unsuccessful attempts have been recorded -- for example to introduce plucking shears.[95]

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94 It is assumed that in practice this option could not be applied without a relatively high degree of worker motivation.

95 Similarly, in the Cameroons the introduction of new technology and an increase in the daily norm from 26 to 32 kg. of green leaf per head proved difficult and it generated considerable resentment (Konings 1995).

The incentive structure and motivation to radically overhaul existing practices and raise labour productivity would therefore have to be a demonstrable part of any such strategy.

5.3 Future labour supply and possible management responses

This section is in two parts. First, it asks what conclusions can be drawn from the simulation exercises that have been presented, and it then briefly discusses some of the implications of these lessons for future management strategies.

5.3.1 Results of the exercise

The simulation exercises that have been presented suggest that, from the standpoint of labour supply (though not necessarily from that of either profits or their wider economic viability), Sri Lankan tea estates can probably continue very much as they are to the year 2005 -- providing there is no great surge of out-migration in search of other jobs. However, even if this could be achieved (and the outflow of labour could be stemmed where there is an anticipated deficit), perpetuating the current state of affairs is an unconvincing objective; profitability would continue to hinge more on windfall prices than on lowered costs (because there would be no pressure to the contrary) -- resulting in further slips in competitiveness. In terms of both company profitability and worker motivation, the estates would probably be confronted with recurrent problems. Nor would this outcome be any more attractive from a broader policy standpoint, since one of the principal aims of the current privatisation exercise is to inject dynamism into the sector, to make it efficient and competitive, and to build profitable enterprises that offer meaningful employment well into the twenty-first century. Maintaining the *status quo* would be in almost every sense a second best solution.

But, if change is necessary, what would it imply for the estate labour market? Interestingly, looking ahead to the year 2005, the workload associated with sound cultivation practices and with a modest tea development programme was not found *in itself* to create a serious labour shortage, other than on a relatively small number of (mainly Low Country) estates that are today already in trouble (*cf.* case S3.D1 in Tables.5.2 and 5.3). The natural growth in the workforce, supplemented by the improvement in labour productivity that is implied in the norms adopted, were found to be sufficient to offset the increase in labour demand. Even at current levels of labour

productivity, very few estates were found to be in a much worse position -- to be relegated from the category of 'balance' to that of labour 'deficit' (*cf.* case S3.D1 in Tables 5.3 and 5.4). The implications of this, however, are quite far-reaching. From the standpoint of the companies, it means that -- if labour productivity can be raised and there is no real out-migration -- then there will be no serious labour shortages (other than on those estates that we referred to earlier). For labour, on the other hand, the prospects that emerge are much less optimistic. They mean that the increased investment in tea and more efficient management promised with longer-term leases are not necessarily going to provide an answer to (seasonal or persistent) un- and underemployment -- though higher labour productivity might mean higher real wages for those who are employed. Many workers (and especially young workers) may in future have very good reason to look for jobs elsewhere.

A great deal is therefore likely to depend on the policies that management companies adopt towards their labour. All the simulations show that the cumulative effect of a projected annual out-migration of even 2 per cent can place major constraints on the options that are open to companies in their estate development (*cf.* cases S3.D1 and S4.D1 in Tables 5.1 to 5.5), with the exception of much of Nuwara Eliya/Hatton.[96] They also suggest that, in general, policies that affect the supply side of the labour availability equation -- those relating to the rate of out-migration, turnout rates and to a lesser extent labour productivity -- are likely to have much more influence on the labour situation than those that affect the demand side, unless widespread innovations can be realized in terms of plucking technology (*cf.* Table 5.6). And even the latter is likely in practice to hinge heavily on the concurrence of labour. The differences in the simulation results that were obtained by changing the assumed growth in average yield -- between the modest growth and the strong growth scenario (*cf.* Tables 5.2 and Tables 5.3) -- proved to be relatively minor. And indeed past experience has shown that, for the companies, estate labour demand has tended to be far more adjustable (or more malleable) than the available labour supply.[97]

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96 It would be roughly comparable to the task of embarking on a greatly expanded workload with the existing labour supply, but with an ageing workforce using norms of nationalised estates as their benchmark, and with a loss of many, potentially more innovative young people to outside work.

97 Contrary to findings of the TMP, average yield did not emerge as a major determinant of the labour supply situation. One reason for this is that the plucking labour demand curve (and as a result the aggregate labour demand curve) implicit in TRI norms is much flatter than which was found in the TMP.

However, our findings also show considerable regional variation in the predicted labour situation and in the underlying causes of labour shortages when they do occur. Tables 5.2, 5.3 and 5.4 suggest that the Mid-Country is likely to be particularly vulnerable to out-migration and the Badulla region as a whole to low labour productivity (see Table 5.4), whereas the labour situation in the Nuwara Eliya/Hatton region only emerges as a serious problem in the most difficult of circumstances -- where there is a marked increase in yield, low labour productivity and high out-migration (Table 5.4). In much of the Low Country, labour shortages seem almost endemic where there is out-migration (Tables 5.2 to 5.4). Nor do differences in the relative distribution of surplus, balanced or deficit estates appear to be in any sense the whole of the story. It was noted earlier (in section 4.4.2) that, judging from current experience, labour shortages can rarely be put down to any one explanation, the causes tending to differ from one region to another. Where they occur in the Nuwara Eliya/Hatton region (wu), for example, they are likely to be the result of a low turnout rate amongst an estate's registered workers.[98] Those who fail to turn out may take on other day work (for example on vegetable plots or in casual urban employment) but, by-and-large (as far as we can tell), they are likely to remain on the books of the estate as long as possible. The same seems to be true in part for the Badulla region (iu/im), though in the latter there was found to be more use of casual labour, more youth unemployment and more leakage of the estate working population to off-estate jobs.[99] In the Mid Country, the leakage to alternative work would appear a greater problem (again with more reliance on casual labour), and in the Low Country low turnout and leakages both appear severe. The accessibility and relative attractiveness of alternative employment appear therefore to become increasingly an issue as elevation falls. This suggests that the nature of the management problem will also vary from region to region -- though that may prove less true over the medium- or longer-term. By 2005, the unattractiveness of estate work could become a serious problem in all parts of the country if the Sri Lankan economy expands and geographical mobility becomes easier.

What these regional differences seem to suggest therefore is not that labour availability only needs to be looked at in certain areas, but that some areas (and some estates)

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98 Within the (wu) Nuwara Eliya region there were individual estates that reported a 1995 average annual turnout of registered workers between 55% and 65% (for example Hellbodde and Hayes).

99 The causality was found to be unclear here. The data that we have suggests that the higher proportion of casual work may have been both a cause of un- and underemployment on labour surplus estates and a result of management strategies to attract outside labour where there were labour shortages. On the whole, in Badulla, however, the former would appear to have been predominant and in the Mid Country the latter.

should be high priority when it comes to new management policies. We would argue that the country's growth potential, worker aspirations, and the recent history and experience of plantation economies in almost all parts of the world point to labour motivation and better labour management as crucial ingredients in management strategies.

5.3.2 Management priorities

Though the aim of this paper was to clarify the current and foreseeable labour situation on Sri Lankan tea estates, comment seems warranted on the leverage open to management. We have expressed concern that, over the next ten years, demotivation and the out-migration of workers will pose a threat to the industry. Malaysian experience since the early 1960s has demonstrated forcibly that a sustained GDP growth rate of 6-8 per cent p.a. creates considerable demand for unskilled jobs in other parts of the economy and that it can see a sharp decline in the workforce available to estate production.[100] And Malaysian experience (if more acute than many) is not exceptional. It reiterates an almost universal trend in plantation economies (Sajhau and Von Muralt 1987; Tiffen and Mortimore 1990; Faber 1995), and there are no *a priori* grounds to assume that the Sri Lankan experience will be any different -- a point that would seem to be confirmed by our simulations.

But, if this is likely to be the case, can anything be done about it? And what kind of management response will be most effective? This is a complex issue. However, a number of brief observations can be made based on the foregoing discussion. First, while the discussion in this paper was deliberately confined to tea production, the future of the plantation sector clearly lies with diversified companies and not with traditional monocrop tea production and processing. This trend is already visible: firms are taking over estates not just because of their potential for tea or rubber, but because of the potential they offer for a much broader range of activities -- including, for example, recreational facilities and the production of vegetables. In Malaysia, Guthrie (the largest 'plantation' company), has moved heavily into oil palm, density planting of rubber for fibreboard and for furniture, polymers, margarine and vanaspati production for direct retail distribution, as well as into property development. They point to the earlier experience of agribusiness concerns in

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100 The Malaysian economy grew on average by 6.5% p.a. in the 1960s; 7.9% in the 1970s and 6.2% over the period from 1980-93 (World Bank, *World Development Report*, 1982 and 1995) with a sharp decline in the availability of local plantation labour. It was forced to rely increasingly on foreign labour from Bangladesh and Indonesia. Whereas in 1985 Guthrie employed no foreign workers, they comprised 35% of its workforce a decade later. It would take 1-2 years to train a skilled tapper, and they would return home after 3 years.

Taiwan and Korea, and they argue that such companies have to diversify, to invest downstream in value-added activities and to see agro-related activities as a totality if they are to show sustained profitability. In the case of the Sri Lankan estates, the scope for diversification within the tea industry itself may be rather more limited, but it is clearly augmented by diversification into other activities.

Moreover, if this can be achieved, then the corporate image of the company also changes -- it is no longer a plantation company in the traditional sense, offering "plantation work"; it offers the estate workforce (and others) the prospect of more employment, and of a potentially much wider range of more attractive, more skilled and in turn better-paid jobs. However, the point we want to make here is simply that discussion of the labour situation, labour attitudes and of the future prospects for both labour and for management companies is in many ways artificial when it is confined (as it has been in this study) to the present context. These factors are interrelated and they are influenced by company strategies. The moot point remains of course as to why the youth in estates that signal a danger of labour shortage should suddenly decide to act differently just because there is a stated change in long-term company perspectives -- why they should be prepared to wait in the belief that a company will eventually invest and diversify its activities or that they would get the jobs? Any viable strategy has also therefore to be one that appeals to workers in the short-term.

Though few of the Sri Lankan companies have had much experience in managing 20,000 or more workers, it is clear that most could reasonably expect to raise labour productivity through a number of relatively simple innovations. Better labour utilisation,[101] better monitoring of fields in relation to the planning of labour use,[102] adjustments in plucking norms and other incentives on a field by field basis using pre-agreed criteria,[103] concentrating on the best tea land, the introduction of contract work (or even contract farming),[104] and the introduction of new plucking technology[105] are all cases in point in

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101 The amount of time spent by pluckers walking to and from fields and later waiting for weighing is one example. Gunawardena (1993) found in a time use survey of three estates that on average between one hour twenty five minutes and an hour and three quarters a day were spent walking to and from fields and between 50 minutes and an hour and twenty minutes a day were spent simply waiting for weighing. Simple costing would almost certainly have shown that providing transport arrangements and enabling pluckers to weigh their own tea (subject to aggregate checks at the factory) could have worked to the benefit of both the firm and of individual pluckers.

102 Cost/yield monitoring and accounting of individual fields and planned labour schedules in relation to the findings has already been tried on a number of estates with some success.

103 This is a common phenomenon in the sugar industry in south and central America, and it was practiced in the Sri Lankan tea industry prior to nationalisation.

104 On the use of contract farming on newly privatised tea estates see Faber (1995).

this regard. How such changes can be implemented and gain worker and union acceptance is more complicated though, intuitively, it would seem that if they could be shown on a pilot basis to offer tangible pecuniary gains then the task would be likely to be easier.

However, none of these developments would in themselves address working conditions or the inherent nature of estate life. *Ad hoc* responses to labour grievances and to labour shortages, once they have already occurred, are unlikely to revise worker attitudes, and when a company is in problems it is unlikely to be in a position financially and strategically to change its course easily. This seems to us to suggest the importance of a long-term perspective, not only of where the company is going (of the diversified corporate image that was mentioned earlier), but of what an estate and estate work will have to look like in 2005 if it is to become attractive to workers. Several possible ingredients -- minimum housing and health standards,[106] small gardens or green areas, sports fields (or volleyball courts), well-stocked shops, private vocational schools linked to estate work (as in Tanzania and Zimbabwe), and worker consultation at field level (the breakdown of authoritarian structures) -- have already been voiced in the literature and, in some cases, here in Sri Lanka.

Arguably, these different elements will all have to be orchestrated -- to provide a corporate vision of the future as well as short-term gains -- if labour is to be retained over the longer-term in the tea sector as a whole.[107] All this implies costs, and how to realise such a vision is itself a major issue that requires serious further research. But, in our view, the starting point has to entail a radical change of perspective; it will require a longer-term and a much broader perspective on the part of management, and a concerted effort to change worker attitudes about estates as a place to work and live, to inject motivation and to build collaboration in a joint endeavour that effectively serves the self-interests of both the companies and workers.

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105 Several companies are currently experimenting with the use of shears, though there have been difficulties with worker acceptance (see also Konings 1995 on the case of the Cameroon).

106 Health related absences are recorded as one of the single most important causes of low daily turnout rates.

107 Perhaps less so in Nuwara Eliya and some parts of the Badulla Region, though it is hard to see how radical changes could take place elsewhere without affecting the Up-Country.

APPENDIX 1: Estimated Seasonal Distribution of Labour Demand

(in labour days, based on TRI norms at 2500kg/ha yield)

UP COUNTRY (Western Region)													
(wu)	Norm	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A PLUCKING	407	28.5	32.6	36.6	40.7	40.7	40.7	28.5	24.4	32.6	32.6	36.6	32.6
B 1 Terracing	2.50				0.6	0.6				0.6	0.6		
B 2 Weeding	30.00	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
B 3 App. Fert. Unpruned	18.80	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
B 4 App. Fertilizer Pruned	3.75	0.3	0.3	0.3	0.3	0.3	0.3		0.3	0.3	0.3	0.3	0.3
B 5 Foliar Application	15.00	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
B 6 Pruning	13.80				3.5	3.5				3.4	3.4		
B 7 Mossing & Ferning	3.75				0.9	0.9				0.9	0.9		
B 8 Burying Prunings	25.00				6.3	6.3				6.3	6.3		
B 9 Draining	5.00				1.3	1.3				1.3	1.3		
B 10 Shade	10.00		0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
B 11 Supplying Shade	2.50				0.6	0.6				0.6	0.6		
B 12 Blister Blight Control	9.00		0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
B FIELD WORK	139.1	5.7	7.4	7.4	20.5	20.5	7.4	7.0	7.4	20.5	20.5	7.4	7.4
F REPLANTING	66.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
TOTAL LABOUR DAYS	612.6	39.7	45.5	49.6	66.8	66.8	53.6	41.1	37.3	58.6	58.6	49.6	45.5
Field workers/ha/mth		1.6	1.8	2.0	2.7	2.7	2.1	1.6	1.5	2.3	2.3	2.0	1.8
Other workers (fac,general)		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total Workers/ha/mth		1.9	2.2	2.3	3.0	3.0	2.5	2.0	1.8	2.7	2.7	2.3	2.2

UP COUNTRY (Eastern Region)

(iu/im)	Norm	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
A PLUCKING	407	28.5	28.5	36.6	36.6	40.7	40.7	32.6	32.6	32.6	32.6	36.6	28.5
B 1 Terracing	2.50			0.8	0.8	0.8							
B 2 Weeding	30.00	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
B 3 App. Fert. Unpruned	18.80	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
B 4 App. Fertilizer Pruned	3.75								0.8	0.8	0.8	0.8	0.8
B 5 Foliar Application	15.00	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
B 6 Pruning	13.80			4.6	4.6	4.6							
B 7 Mossing & Ferning	3.75			1.3	1.3	1.3							
B 8 Burying Prunings	25.00			8.3	8.3	8.3							
B 9 Draining	5.00			1.7	1.7	1.7							
B 10 Shade	10.00	1.7			1.7	1.7					1.7	1.7	1.7
B 11 Supplying Shade	2.50			0.8	0.8	0.8							
B 12 Blister Blight Control	9.00	1.5			1.5	1.5					1.5	1.5	1.5
B FIELD WORK	**139.1**	**8.5**	**5.3**	**22.8**	**26.0**	**26.0**	**5.3**	**5.3**	**6.1**	**6.1**	**9.2**	**9.2**	**9.2**
F REPLANTING	**66.5**	**5.5**	**5.5**	**5.5**	**5.5**	**5.5**	**5.5**	**5.5**	**5.5**	**5.5**	**5.5**	**5.5**	**5.5**
TOTAL LABOUR DAYS	**612.6**	**42.5**	**39.3**	**65.0**	**68.2**	**72.2**	**51.6**	**43.4**	**44.2**	**44.2**	**47.3**	**51.4**	**43.3**
Total workers/ha/mth		1.7	1.6	2.6	2.7	2.9	2.1	1.7	1.8	1.8	1.9	2.1	1.7
Other workers (fac,general)		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total workers/ha/mth		2.0	1.9	2.9	3.1	3.2	2.4	2.1	2.1	2.1	2.2	2.4	2.1

LOW COUNTRY	Norm	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A PLUCKING	**416**	**37.4**	**33.3**	**35.4**	**33.3**	**35.4**	**35.4**	**33.3**	**33.3**	**33.3**	**33.3**	**35.4**	**37.4**
B 1 Fencing Pruned Area	3.33				0 8	0.8				0 8	0.8		
B 2 Weeding	30.00	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
B 3 App. Fert. Unpruned	16.50	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
B 4 App. Fertilizer Pruned	4.95	0.5	0.5	0.5	0.5	0 5	0.5		0.5	0.5	0 5	0.5	0 5
B 5 Foliar Application	6.60	0.5	0.5	0.5	0.5	0 5	0.5	0.5	0.5	0.5	0 5	0.5	0 5
B 6 Pruning	18.20				4.5	4.5				4.5	4.5		
B 7 Mossing & Ferning	4.95				1 2	1.2				1.2	1.2		
B 8 Burying Prunings	33.00				8 3	8.3				8 3	8.3		
B 9 Draining	6.60				1 6	1.6				1 6	1.6		
B 10 Shade	10.00			1.1	1.1	1.1	1.1	1.1		1.1	1.1	1.1	1.1
B 11 Supplying Shade	3.30				0.8	0.8				0.8	0 8		
B FIELD WORK	**137.4**	4.9	4.9	6.0	23.3	23.3	6.0	5.5	4.9	23.3	23.3	6.0	6.0
F REPLANTING	**66.5**	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
TOTAL LABOUR DAYS	**619.9**	47.9	43.7	46.9	62.2	64.2	46.9	44.4	43.7	62.2	62.2	46.9	49.0
Field workers/ha/mth		1.9	1.7	1.9	2.5	2.6	1.9	1.8	1.7	2.5	2.5	1.9	2.0
Other workers (fac,general)		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Total workers/ha/mth		2.4	2.2	2.3	2.9	3.0	2.3	2.2	2.2	2.9	2.9	2.3	2.4

APPENDIX 2 : Overview of the Assumptions Used in the Six Simulation Exercises

Cases	Table no.	Yield increase			Lab. prod.		New Tech.		Turnout	
		0	25%	50%	High	Low	Yes	No	1995	90%
Baseline scenario	-	x				x		x	x	
Modest growth (MG)	5.2		x		x			x	x	
Strong growth (SG)	5.3			x	x			x	x	
MG & low labour productivity	5.4		x			x		x	x	
SG & high labour turnout	5.5			x	x			x		x
SG & new technology	5.6			x	x		x		x	

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