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Full Length Research Paper

Impacts of outsourcing forestry operations in the hyperinflationary economic environment of Zimbabwe

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Outsourcing forestry operations in a hyperinflationary environment has an impact on labour welfare, quality of work and the environment. The aim of this research was to determine how the current economic environment in Zimbabwe has impacted on the outsourcing of forestry operations. The study was carried out in the Penhalonga Commercial Forest Region (18.52S, 32.40E), north of the city of Mutare, in the eastern highlands of Zimbabwe. The research involved gathering historical data, interviews and direct observations of productivity. To evaluate the viability and sustainability of subcontracting forest operations, contractor productivity and machine availability were assessed as the outsourcing indicators. A comparison of production costs of saw-logs and silvicultural operations between contactors and the forest company harvesting teams were used to determine the effectiveness of outsourcing. Results indicated significant machine availability and productivity among contractors with little or no employee welfare for contractors. The combined volumes produced by contractors met company expectations, even though individual contractors do not meet the targets. Production costs increased every month for both contractors and the forest companies thus defeating the cause of cost cutting for the forest companies. In a hyperinflationary environment outsourcing forest operations can only be a bandage and not a long term solution.

Key words: Outsourcing, timber harvesting, sustainability, productivity, contractor, fixed period employees, permanent employees.

INTRODUCTION

Outsourcing is a management strategy by which an organization contracts out major, non-core functions to specialized, efficient service providers (McLaughlin, 2004). It may be part of a larger strategy to move the organisation to a leveraged business model and focus on core competencies or save net costs. Traditional outsourcing is all about reciprocal and mutually beneficial business arrangements between two parties, a supplier who provides essential services and a client who is thereby enabled to focus on its core activities (McLaughlin, 2004). Contracting out forestry operations in relation to environmental management is a thorny issue for companies concerned with certification. The benefits of certification include sustained forest management and better markets (Upton and Bass, 1995). Contractors are expected to adhere to the stipulated environmental standards. Failure by a contractor to meet such standards leads to the suspension or withdrawal of the certificate from the company (Nussbaum, 2004). Company employees do better than contractors as a result of the training they undergo. Johnsen (2004) characterises the global forestry contracting scene as where entrepreneurs and contractors are in a precarious situation, coupled with poor profitability and difficult recruitment. Harrison and Johnsen (2004) characterises the global forestry contracting scene as where entrepreneurs and contractors are in a precarious situation, coupled with poor profitability and difficult recruitment. Harrison and Kelly (1998) suggested four distinct management rationales for outsourcing. The first, capacity outsourcing is the flexibility to supplement existing capacity in response to changes in demand. The second is specialisation

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subcontracting, where a product or process requires the use of specialised equipment or skills that are not always always needed. Specialisation also refers to concentration on activities the firm has established capability. The third is cost reduction, since contractors often complete tasks at a lower cost. Linked to cost reduction, outsourcing is sometimes perceived as a way of avoiding higher costs of labour unions or expenditure on statutory employee costs such as taxes, super annuation, leave loadings and entitlements. The fourth is market discipline that leads the purchaser to focus on output rather than inputs.

The Zimbabwean forest operations outsourcing scenario is based on the first and third rationales. Between 2002 and 2004, significant socio-economic challenges adversely impacted on the forest industry. The economic environment was characterised by hyperinflation, high interest rates, rising production costs and foreign currency shortages, accompanied by static industrial production and falling employment levels. Such a situation accustomed Zimbabwe's labour force to receiving inflation-adjusted salaries regardless of business performance (Johnsen, 2004), thus excluding productivity as a salary negotiation determinant. These challenges, to a larger extent forced some companies to close down whilst others struggled to survive, hence opting to outsource operations so as to supplement existing capacities. The companies decided to engage a large number of contractors even though set targets could be met by only two contractors who had relatively satisfactory chainsaw availabilities due to experience of high contractor turnover.

Lack of production capacity led the companies to engage more contractors even though few high producing contractors might meet the targets. They however could leave at any moment for greener pastures. In terms of timber productivity, companies chose to have the 840m3 target surpassed since the volumes produced cover up for company production deficiencies as well as contractor downtime due to low chainsaw availabilities and high labour turn-over. Companies are aware of contractor problems and therefore they employed them in large numbers since their payments are based on volume produced. This included the reduction of trade union subscribing employees (TUSE) and engagement of fixed period employees (FPE) and hiring contractors on whom companies do not incur statutory costs. Outsourcing resulted in the shifting of social obligations of worker welfare and safety from company to contractors (Franklin, 1990) causing contractors to meet the social needs of their workers (Nussbaum, 2004).

The primary aim of this research was to assess the effectiveness of outsourcing as well as its impact on forestry operations in Zimbabwe. The secondary aim was to determine the sustainability of the relationship based on mutual benefits between forest companies and contractors.

MATERIALS AND METHODS

Study area

The study was carried out in the Penhalonga Commercial Forest Region (18.52S, 32.40E), north of the city of Mutare, in the eastern highlands of Zimbabwe. The Forest Companies in this area have been operating for at least 30 years with trade union subscribing employees (TUSE) whilst seasonal workers were engaged during the peak periods for silvicultural operations.

Data collection

To evaluate viability of subcontracting forest operations as well as sustainability, contractor productivity and machine availability were used as outsourcing indicators for a period of seven months. The research also involved gathering historical data, interviews and direct observations of productivity. Harvesting productivity was calculated as timber volumes produced in m³/man-day versus the target average volume of 840m3/month constituting 13% of the companies' monthly total requirement. Individual contractor volume productivity and total volume produced by all contractors were compared against company target volume.

A comparison of production costs/m3 incurred by contractors and the company was done to determine the effectiveness of outsourcing harvesting operations. Labour units per operation were compared for silvicultural operations. Timber company harvesting costs were determined based on Haarlaa (1993):

$$C = TC/V \quad \text{(i)}$$
$$TC = LW + SF + SRM + CF + CRM + CC + Tr + Sp + D \quad \text{(ii)}$$

Whilst contractor production costs were calculated as:

$$C = TC/V \quad \text{(iii)}$$
$$TC = LW + CF + CRM + CC \quad \text{(iv)}$$

Where: C = Costs to produce a m3 in Zimbabwe Dollars (Z$); TC = Total clear-felling costs; V = Skidder Produced Volume; LW = Labour wages; SF = Skidder fuel and lubricants costs; SRM = Skidder repair and maintenance costs; CF = Chainsaw fuels costs; CRM = Chainsaw repair and maintenance costs; CC= Chainsaw consumables; TR = Transport costs; Sp = Supervision costs; D = Depreciation costs

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Contractor productivity was less mechanised and manual, solely depending on chainsaws. Chainsaw availability was determined as well since it affects productivity. Contractor chainsaw availability was monitored for a 5 month period and determined as:

CA = [F/ (C * L * D)] * 100 …….. (v)

Where CA = Chainsaw availability; F = Fuel issued; C = Number of chainsaws; L = Average fuel used per day per chainsaw; D = Average working days per month.

Besides harvesting productivity, silviculture productivity was calculated as area worked/man/day versus target area/man/day for each operation for a period of seven months. Silviculture operations assessed included land preparation, marking and pitting, planting, spot weeding, access cleaning, slashing, 1st, 2nd, 3rd and 4th pruning. Comparisons between contractor and company labour units/ha for each operation were done against the target. The impact of sub-contracting forestry operations on the forest environment was assessed through field observations and environmental audits. In the process, work quality and environmental compliance of both the contractors and the companies were assessed against the standard requirements. The environmental audit adopted from the Timber Producers Federations' guidelines was used to identify deficiencies and non-conformances to set standards (Annon, 2000) for environmental management in forest plantations of Zimbabwe. A total of 120 audits were done with equal audits on each, the contractor and the compliant operation and 2, met the minimum standard whilst 1 denoted that the operation was not compliant at all.

Evaluation of outsourcing impact on employee welfare was achieved by use of a pre-tested questionnaire. This covered both contractor and company employees. A total of 115 questionnaires were administered at a sampling intensity of 5.7% for company employees and 5.6% for contractor employees. Indicators of employee welfare included access to transport, recreation, loan benefits, income, training and safety. The responses were based on a rating of 1 to 3 where 3 showed employee dissatisfaction and 1 denoted satisfaction with the service provided. The responses for questions on safety were based on a rating of 1 to 4 where 1 denoted respondent was exposed to unsafe working conditions and 4, excellent.

The determination of contractor engagement trends and turnover was used as a measure of sustainability. Historical records were used to establish the engagement and turnover trends. Turnover percentages were determined as:

T = (CL/CW) * 100…….. (vi)

Where T= Turnover of contractors as a percentage; CL= Number of non-operating contractors; CW = Total registered contractors (Haarlaa, 1993)

A contractor monitor was developed to assess current contractor engagement trends and was implemented for ten months. The parameters for this were:

a) Number of contracts valid for a particular month.
b) Number of contractors present and working during the particular month.
c) C = E/A…… (vii)

Where: C = average units per contractor per particular month; E = total number of contractor employees; A = total number of contractors (Haarlaa, 1993).

d) The month the pay rate is increased.

Data analysis

Data were analysed through one-way analysis of variance (ANOVA) and Least Significant Difference (LSD) tests at 95% confidence level using the SPSS package version 10 (1996).

RESULTS

Before we show the impacts of outsourcing of forestry operations it is important to understand the trends in contractors operations. Figure 1 shows the trend in contractor engagement for a period of 8 years. There has been an increase in contractors engaged from 1997 to 2004 from an average of 4 in 1997 to 16 in 2004. However the contractor turnover was 79%. Figure 2 shows that there was a decrease in the number of average contractor employees and contractors during the period of July to April with contractor payment rate only increased twice in July and January by 80 and 90% respectively. Contractor turnover over the same period was 63%. The number of operating and employee contractors fell below the initial figures whilst it floated above on the valid contractors.

Harvesting productivity

Table 1 shows that chainsaw availability for the contractors varied significantly ($P<0.05$). Sawlog volumes produced by contractors significantly differed ($P<0.05$) by contractor and deviated from the target. Contractors Alpha and Echo with the high chainsaw availabilities, produced volumes that did not significantly ($P>0.05$) vary from the target. However, Tango with high chainsaw availability still achieved low volumes. Mean chainsaw availability significantly ($P<0.05$) reduced with time (Table 2) although volumes produced did not significantly differ by month. However, the sum volumes produced by all contractors surpassed the target volumes every month. Chainsaw availability was important for the contractors as a determinant of productivity and sustainability as shown by the correlation between contractor machine availability and timber volumes produced ($r=0.75$, $p<0.05$).

Table 1. Mean chainsaw availability and volumes produced by each contractor.

Harvesting contractors	Mean chainsaw availability (%)±S.E	Mean volume produced (m^3) ±S.E
Alpha	48.60±10.900[a]	560.88±72.02[a]
Echo	53.00±4.660[a]	725.74±108.87[a]
Hotel	25.20±15.460[b]	49.16±32.44[b]
Mike	21.20±10.79[b]	53.85±30.29[b]
Delta	21.40±15.55[b]	27.01±17.12[b]
Charlie	21.30±12.413[b]	22.53±22.05[b]
Tango	50.00±7.470[a]	43.01±29.04[b]
Total Volume produced		1482.18±225.04[c]
Budgeted contractor volume		840.00±41.312[a]

Means down the column with the same superscripts are not significantly different (p>0.05).

Table 2. Volumes produced per month by contractors against target volume.

Month	Mean chainsaw availability (%)± S.E	Target (Mean volume ±S.E (m^3))	Actual (Mean volume ±S.E (m^3))
Aug	54.833±8.846[a]	800.00±0.001[a]	1700.88±376.02[b]
Sep	43.170±4.770[b]	840.00±0.001[a]	1860.74±298.87[b]
Oct	37.000±13.392[c]	840.00±0.001[a]	1680.16±132.4[b]
Nov	32.833±14.901[c]	900.00±0.001[a]	1320.85±130.59[b]
Dec	15.000±7.367[d]	820.00±0.001[a]	1240.01±197.82[b]
Jan	19.8200±8.438[d]	860.00±0.001[a]	1314.53±262.95[b]
Feb	26.6000±7.322[d]	820.00±0.001[a]	1360.00±125.07[b]

Means across the row with the same superscripts are not significantly different (p<0.05).

A comparison of production cost and the budget showed deviations with increasing costs during the study period (Figure 3). Companies incurred significantly (P<0.05) greater deviations from the budget. The contractors' production costs were significantly lower (P<0.05) than the budget even if the environment was hyperinflationary.

Silviculture productivity

In access cleaning and second pruning operations both contractor and company employees performed below (p<0.05) the budgeted labour units (Table 3).

Impact of forestry operations on environmental management

The results of harvesting and silviculture audits carried out on both company and contractor operations shows that company employees scored higher in terms of knowledge on the harvesting plan, felling operations, extraction operations, work quality and slash management (p<0.05) than contractor employees (p<0.001). Both company and contractor employees had reasonable knowledge of environmental awareness (p<0.05).

In marking and pitting, contractors scored significantly below (p=0.037) the reference score and did not have silviculture plans for their work with, company employees higher production costs compared to the contractors with having a significantly (p<0.05) higher score in planting operations. However, on weeding and pruning operations, both scored significantly (p>0.05) above the reference target. In the felling operations, contractors failed to meet the standard as a result of haphazard felling thus damaging the surrounding environments. In all other harvesting operations, contractors met the environmental standards.

Impact on employee welfare

There was great variation in monthly incomes permanent company employees ($400000/month), company fixed period workers (FPW) ($230000/month) and contractor employees ($150000/month) during the first five months

Table 3. Mean labour units/ha/operation against the target.

Operation	Company (Mean LU/HA) ± S.E)	Contractor (Mean LU/HA) ± S.E)	Target (LU/HA)
Land preparation	1.94±0.58[a]	3.52±0.11[a]	2.00[a]
Marking and pitting	6.08±0.25[a]	6.89±0.35[a]	8.00[a]
Planting	3.03±0.58[a]	3.21±0.78[a]	4.00[a]
Spot weeding	4.01±0.98[a]	3.93±0.86[a]	4.00[a]
Access cleaning	3.52±0.68[a]	3.83±0.65[a]	4.00[b]
Pruning 1st	2.61±0.88[a]	3.23±1.04[a]	3.00[a]
Pruning 2nd	2.82±0.55[a]	2.80±0.09[a]	3.00[b]
Pruning 3rd	3.60±0.63[a]	3.82±0.77[a]	4.00[a]
Pruning 4th	3.46±1.65[a]	3.56±0.55[a]	4.00[a]
Slashing	3.82±0.82[a]	4.03±0.05[a]	4.00[a]

Means across the row with the same superscripts are not significantly different ($p<0.05$).

of the study period.

Company permanent and fixed period employees (FPE) were more satisfied ($p<0.05$) with transport, recreation, financial and funeral assistance than contractor employees. In addition company permanent employees were more satisfied ($p<0.05$) with their access to employment benefits and training, than FPW and contractor employees. In terms of safety, company permanent employees had more knowledge and safety standards ($p<0.05$) than FPW and contract employees with FPW having higher ($p<0.05$) safety standard than the contractor employees.

DISCUSSION

Although internationally outsourcing, in its myriad permutations, has been practised successfully (McLaughlin, 2004) it has not been the case in Zimbabwe's forestry contracts. There was an increase in the number of contractors engaged each year (Figure 1) with very high turnover and reduced capacity for contractors to carry out their work. Though there was an increase in the trend, there was a turnover of 79% during the same period indicating that most contractors do not stay longer. Similarly, current contractor engagement trends show fewer actively working contractors against those with active contracts with a turnover of 63%. The decrease in contractors and contractor employees from July (Figure 2) shows that this relationship is unsustainable in the long run. The drop in working contractors from 10 to 5 in December was because most contractors failed to operate with the existing payrate due to the production costs and inflation. The payrate increase in January did not attract all registered contractors to work and those who returned were coming only for two months. During the same period the contractors had started losing employees as low wages increase high labour turnover (Franklin, 1990) hence the exodus of contractors from July to December and the sudden increase in January as the contractor payrate did not keep pace with inflation. The implications of a high contractor turnover are its impact on long term quality of work as new contractors need to be oriented when the skilled leave for greener pastures.

Tolppa (2004) stated that to maintain efficiency, contractors should spend their time working with machines and not on them. The wide range of sawlog productivity by contractors (Table 1) is a result of use of chainsaws that were beyond their lifespan. Delaney (2004) stated that uptime counts for business hence in order to produce, contractors must have high uptime (chainsaw availability) because income is only generated when machines are running. The fall in chainsaw availabilities from August to December (Figure 2) was indicative of low payrate to an extent that contractors could not service or replace old machines thus affecting productivity and sustainability of the outsourcing relationship. The increase in payrate in January was not realistic enough to benefit the contractors meaningfully. This is confirmed in Figure 2 which had an increase in contractors present in January with only 12 valid contracts showing that other contractors were not attracted by the payrate increase. During that period, companies should have increased their payrates or simply adjusted them to inflation figures so as to make the relationship with contractors sustainable. Comparison of production costs showed that companies incurred significantly higher costs to produce one cubic metre of sawlogs compared to the contractors and they exceeded their targeted costs (Figure 3). This was due to the heavy mechanisation by companies where the costs of machine maintenance were raised by inflation whereas contractors operated below the budget because of manual operations which are task based. From this analysis it seems cheaper to use contractors. This is supported by Norin

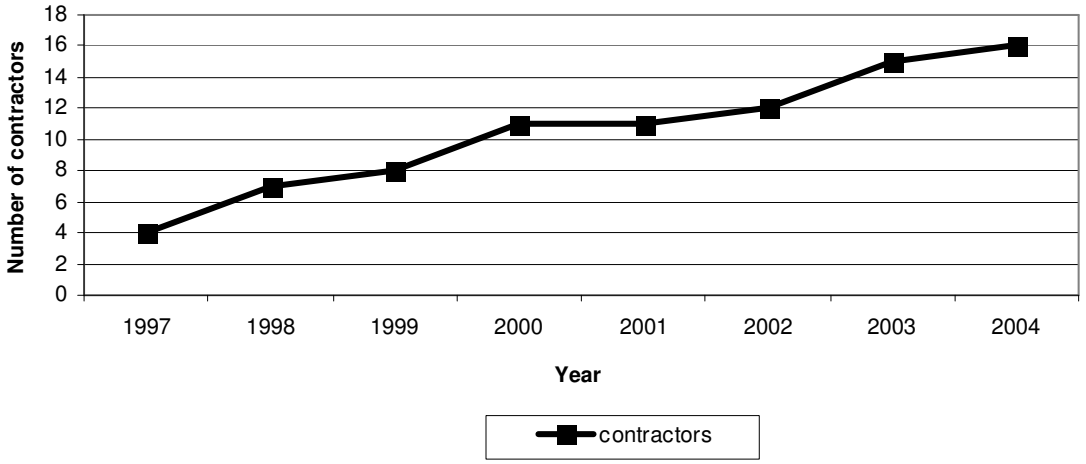

Figure 1. Contractor trends from 1997-2004.

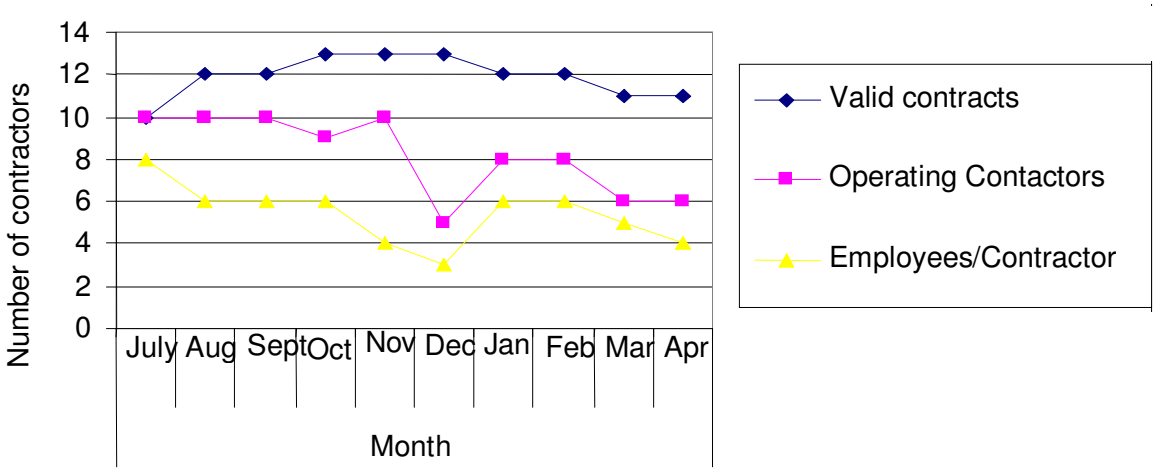

Figure 2. Contractor engagement during the study period.

(2002) who stated that contractor engagement is based on lowest production costs per cubic metre of timber. From November to February, production costs increased while the payrate was static resulting in contractors and their employees withdrawing from work.

Although the payrate was higher than contractor cost of producing 1 m^3 throughout the whole period, the contractor costs do not include indirect costs like pensions, social security, paid vacation, protective clothing, workers union contributions hence in the long run the payrate is not attractive. The difference between companies costs and contractor costs and between companies and payrate shows that it is viable for companies to outsource because they can get the work done at a cheaper cost. This is strengthened by Norin (2002) who stated that contractors and companies are "always on a price rut" and contracts are always based on lowest cost with attitudes towards contractors being rigid and dictatorial however when contractors realise that they cannot negotiate they tend to withdraw their services. Silvicultural operations are less mechanised and contractors generally meet the production targets (Table 3). However, sustainability of contract is hindered by seasonality of silviculture operations.

In both harvesting and silviculture operations, contractors failed to produce plans of action to minimize environmental impacts because most contractors are semi-literate and do not have the requisite management and technical skills to manage the forestry contracts. Most contractors gained their experience while on the job. However, in all the other silvicultural operations the contractors managed to meet the required environmental standards. In felling operations contractors did not have the initiative and skill to develop new methods but kept to the basics to meet the minimum standard with emphasis on meeting their production targets since they were paid

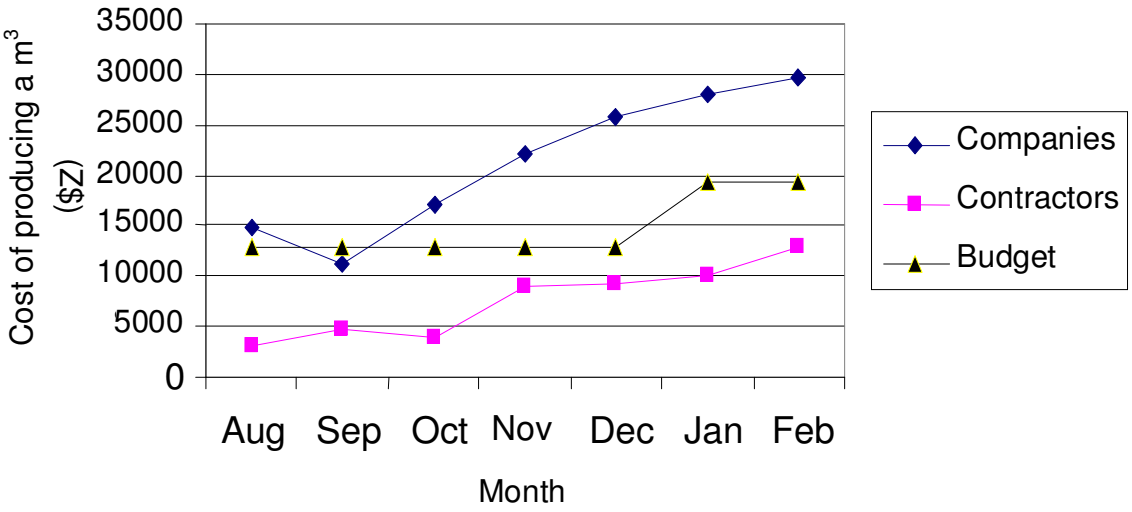

Figure 3. Increase and variation of the production costs from the budget.

on volumes produced and not environmental management. In extraction operations, they met the requirement because they exploit using low impact draught power and manual methods (Evans, 1992). The impact of outsourcing on employee welfare is a cause for concern since it is an indicator for both productivity and sustainability. The low amounts of money paid to contractors by companies caused contractor employees to earn less than company permanent workers because their income was paid on a task rate basis unlike company employees who had a fixed monthly income despite work output and salaries were determined by unions. This is supported by Pitcher and Smit (2003), Lang (2000) and Bethelem (1999) who observed that the move from direct employment to contracting results in a decline in wages. Therefore in order to hire and retain good workers a contractor must pay higher wages than comparable union rates (Stenzel, 1985).

Although contractors were offered recreational facilities and accommodation, the difference was evident as permanent workers had better facilities than contractors. In addition to wages, most companies provide a range of benefits including pensions, housing, subsidized meals, medical facilities and schooling. Contractors have a low capital base, hence cannot afford to give their employees such benefits because they are not factored in the pay-rate. Pearce (1993) argued that the disparity in conditions of service between contract and permanent employees doing the same job causes tension and stress, with little teamwork between the groups. A number of contractors remain in the partnership due to desperation or anticipation that things might improve with time but however, most contractors or their employees are characterized by absenteeism from work. The lack of training among contractors, confirms that outsourcing contributes little to building people-embodied skills that are necessary to sustain production. This leads to what is termed as 'hollowing out' of the organization, referring to the loss of skills, loss of corporate memory and weakened innovative capacity (Benson and Ieronimo, 1999). Contract workers often receive little or no training from either their contractor or host firm and are required to undertake and pay for skills training themselves.

There is evidence, especially in skilled blue-collar trades, that firms that outsource are reluctant to invest funds in training contractor employees (Gryst, 1999). There is little incentive for firms to pay for or provide the training as it defeats the purpose of outsourcing. Poschen (1997) stressed that the safety and health situation was a problem among the self-employed, farmers and contractors. Contract employment relationships create stress with potentially serious effects on safety (Kochan et al, 1994) and because outsourcing is associated with low safety standards it increases the risk of occupational accidents with adverse occupational health and safety (OHS) effects on all workers. However, environmental and social issues are addressed if companies are prepared to pay but most income is not there to pay for the safety, environmental and social issues (Scotcher, 2000).

There is need to ensure that social and labour aspects are adequately covered in the definition and practice of sustainable forest management seeking active participation of employers, workers, contractors, local communities and other relevant groups (SLD, 2001). Inadequate remuneration (Lang, 2003) and few opportunities for skilled labour or anything more than seasonal employment are some of the strongest criticisms (Carrere, 1999; Dos Santos et al, 2003) as is the indiscriminate dismissal of workers and the impact this has on community stability where local workers have few other options for subsistence.

Conclusions

The study reveals that it is viable for the companies to continue outsourcing because the production levels and environmental concerns were to a large extent addressed. However, the outsourcing relationship lacks mutualism as companies are aware of the problems contractors have and do not address them. Instead of engaging fewer contractors they can adequately pay and assist with capital, they go around the problem by engaging a lot of contractors who are poorly supported.

However it did not prove viable to the contractors as they were constantly under-equipped, encountered low machine availabilities, experienced high labour turnover and high production costs. Contractor employee welfare was compromised. Contractors could not grow in business because of low remuneration despite their ability to produce and be environmentally compliant.

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