



NEW ZEALAND

## REPORT

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## LABOUR MOVEMENT IN THE LOGGING INDUSTRY - One Region's Experience

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### ABSTRACT

*Analysis of logging manpower data collected by NZFP Forests Limited in the Kinleith region indicates that logging employee turnover averaged 58% per year from November, 1984 to November, 1991. This included loggers who changed crews but still stayed within the local logging workforce. For the same period, 40% of the logging workforce left the NZFP Forests Limited system each year. Just over 58% of all loggers hired stayed in the crew they were hired into for one year, regardless of experience. After 3.5 years, only 13.1% of these loggers remained.*

*On average, 66% of the loggers who changed their jobs to another NZFP Forests Limited crew did not hold a loggers' skills certificate. Of the loggers who left NZFP Forests Limited completely, 73% were non-certificated.*

*At all survey points since 1984, the percentage of loggers leaving the NZFP Forests Limited system was lower for certificate holders than for non-certificate holders.*

### INTRODUCTION

The forest industry has two valuable assets; its trees and its people. There are concerns related to the "people" resource

that warrant further study. The importance of one such issue, turnover, was recognised during the 1984 LIRA Seminar "Human Resources in Logging" (Prebble, 1984). The implications of turnover on manpower predictions and training were discussed by Liley (1984). The author concluded by noting that the current level of turnover was not known with any precision and that an understanding of turnover was fundamental to the development of better recruitment and training strategies.

In 1984, NZFP Forests Limited, started a manpower study where all employees within their logging operations (company and contractor) were surveyed in November and May of each year.

This NZFP Forests Limited manpower survey data base is arguably the most comprehensive and valuable for assessing turnover in the forest industry. Operations covered under the survey comprise approximately 80 logging crews with a total logging workforce of between 350 and 500 loggers that produce around 2.5 million m<sup>3</sup> per annum.

The results obtained from this survey could be expected to reflect the trends experienced by the other employers in the central North Island, but should not be considered an accurate reflection of

trends from the logging sector outside this region.

This report reviews the data collected by the survey and updates results from two earlier LIRA reports (Gaskin, 1987; Bomford and Gaskin, 1988).

## DATA SET AND ANALYSIS

The survey is carried out by the Supervisor responsible for each logging crew who records the following information:

- each logger's name and age
- type of operation performed by crew
- the year in which the employee started working in logging
- number of six monthly periods working for the crew
- level of Loggers' Certification held

The survey also notes those loggers:

- who have left the logging industry
- whose subsequent employment history is unknown
- who have left a NZFP Forests Limited logging crew but are still working in the logging industry
- those who have gone to work for another crew within the NZFP Forests Limited system.

The data set is comprised of some 1500 individual entries spanning the period November, 1984 to November, 1991.

Three ways of expressing turnover are used in this report, the limitations of which are presented in a study by Smith and Wilson (1983) .

The first is a volumetric measure of turnover which treats the data set as a whole. The formula used is:

*Percentage turnover =*

$$\frac{\text{No. exited crew : last 12 mths}}{\text{No. with crew at start of 12 mths}} \times 100$$

There are two key limitations to this measure:

- it is ambiguous, e.g. a turnover rate of 100% could indicate that the entire labour force had turned over once during the period or that half had turned over twice during the period and so on.
- it does not reflect variables such as length of service.

The other two methods are survival rate and retention rate. Survival rate measures the length of time a new employee will remain with a logging crew, using the following formula :

*Survival rate =*

$$\frac{\text{no. of hirings who remained during a period}}{\text{total number of hirings}} \times 100$$

Retention rate expresses the proportion of original members who remain in a crew over a specified time period and uses the following formula :

*Retention rate =*

$$\frac{\text{No. of original crew at last survey}}{\text{No. of crew at very first survey}} \times 100$$

## RESULTS

### Volume of Turnover

Table 1 presents information for the total workforce that was measured at six monthly intervals and used to calculate annual turnover rates.

*Table 1 - NZFP Forests Limited turnover and employment data*

Survey Point	Number in at Survey	Number With L&FITB Cert.	Changed crews or left ie.total turnover	Total turnover per year Percent <sup>1</sup>	Left NZFP Forests system	Left NZFP Forests per year Percent <sup>2</sup>	Mean Age (years)	Mean years in logging
Nov. 84	551	174					31	9
May 85	539	165	162		116		32	9.5
Nov. 85	546	148	153	57.8	116	42.6	32	9
May 86	537	163	176		125		33	9.5
Nov 86	496	155	196 <sup>3</sup>	68.7	120	45.2	32	10
May 87	447	141	200 <sup>3</sup>		144		32.5	10.5
Nov 87	471	157	143	72.7	90	49.6	32	11
May 88	422	141	183 <sup>4</sup>		127		33	11.3
Nov 88	382	188	117	67.3	87	48.0	33.3	11.6
May 89	382	199	88		62		33.2	11.9
Nov 89	421	221	85	45.3	59	31.6	33	11.8
May 90	427	246	100		69		33.2	12
Nov 90	469	253	116	50.9	79	34.9	33	11.9
May 91	486	273	128		83		33	11.6
Nov 91	484	290	72	41.8	56	29.1	33.1	11.6
Averages	470	194	137	57.8	95	40.1	32.6	10.8

Notes to Table 1 :

- <sup>1</sup> Calculated by dividing sum of "Changed crews or left" (e.g. May, '85 and November, '85) by the mean of "number in at survey" (e.g. November, '84 and May, '85) etc. Includes some logging crews that changed ownership.
- <sup>2</sup> Calculated by dividing sum of "left NZFP Forests Limited system" (e.g. May, '85 and November, '85) by the mean of "number in at survey" (e.g. November, '84 and May, '85) etc.
- <sup>3</sup> Impact of total move to contract logging and termination of short pulp cutting regime.
- <sup>4</sup> Impact of hazardous conditions caused by cyclone Bola. Five crews were also made redundant with an additional two crews being reduced in size due to an increase in average piece size harvested that led to an over-productive capacity.

All crews with a service greater than one year were grouped together giving a usable data base of 82 crews.

The percentage of loggers leaving NZFP Forests Limited each year has been steadily decreasing from a high of 49% per year in 1987 to 29% in 1991. The survey, however, did not establish the proportion of workers leaving the logging industry entirely.

### **Survival Rates by Individual Crew**

Table 2 shows the percentage of loggers employed which remained with a crew over a specified period of time. The time being six month periods up to three and a half years.

Fifty-eight percent of all loggers hired during the past seven years stayed in their crew for one year. Only 13% of all loggers hired lasted three and a half years with the same crew. Although the numbers of loggers starting in new crews has varied in each survey from 1984 to 1991, survival rates have remained fairly constant.

Examples of how individual crews varied in their turnover characteristics can be seen in the following cases:

Crew X had an average yearly turnover of 92% and a survival rate of 25% after one year. This suggests a crew with high turnover.

Crew Y, by contrast, had a survival rate of 15% after six months suggesting a poor survival rate. However, since this crew only recruited three loggers in seven years, this indicates low turnover.

Crew Y, then, retained the majority of its workforce but lost any new recruits early. The result - good turnover rate but poor survival rate. The difference can be illustrated by analysing crew retention rates.

### **Retention Rates by Individual Crew**

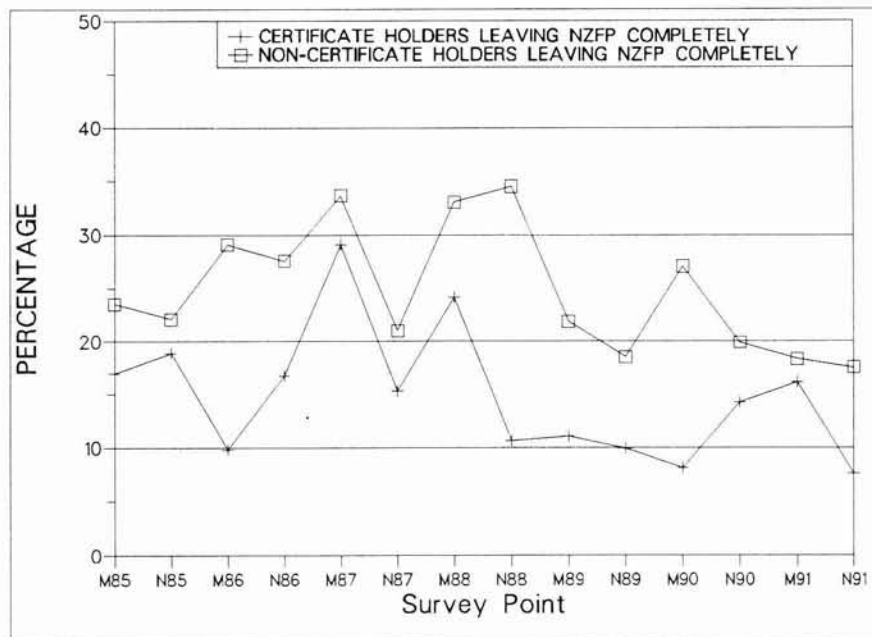
In this analysis, the prime contractor has been excluded. A data base of 32 crews was used, this being the crews employed continuously during the time period November, 1984 to November, 1991 (Table 3).

*Table 2 - Survival rate of loggers hired*

Time (years)	0.5	1	1.5	2	2.5	3	3.5
Survival Rate (%)	90.8	58.1	39.1	27.6	20.4	16.5	13.1

*Table 3 - Number and percent of crews retaining at least two original crew members over time*

Time Period After First Survey (years)	2	4	6	7
Percent of Crews With Some Original Members Remaining	75%	47%	34%	22%
Number of Crews With Some Original Members Remaining	24	15	11	7



*Figure 1 - Turnover and Logging and Forest Industry Training Board certification*

Twenty-two percent of the crews had retained at least one of their original members after seven years (excluding the prime contractor). This illustrates that, along with relatively high turnover (Table 1) and low survival figures (Table 2), only a few crews retain a basic nucleus of employees.

### **The Influence of Skills Certification on Turnover**

The Logging & Forest Industry Training Board (L&FITB) certificate is recognition that a logger has been assessed as reaching a set standard of competency in operational techniques, knowledge and safety awareness.

A link between loggers attaining a loggers' certificate and the increased likelihood of being retained within a crew was suggested by Bomford and Gaskin (1988).

The majority of turnover that occurred comprised non-certificated loggers. On

average, 65.9% of loggers who changed jobs to another NZFP Forests Limited crew did not hold an L&FITB skills certificate. Of the loggers who left NZFP Forests Limited completely 72.6% were non-certificated.

Figure 1 shows that at all survey points since 1985, the percentage of certificate holders leaving NZFP Forests Limited has been lower than non-certificate holders. Therefore a link exists between loggers holding a certificate and their lower likelihood of leaving NZFP Forests Limited. No relationship was apparent between holding a certificate and changing crews within the NZFP Forests Limited system.

Table 4 shows that within the sample, the proportion of loggers holding a L&FITB certificate increased from 27% in November, 1985 to 60% in November, 1991. It also shows that longer service employees have a greater propensity to be certificated. This is particularly noticeable with loggers having three and more years of service.



Table 4 - Length of service and skills certification

Service time in one crew (years)	Percentage in each service category that have certificates						
	Nov-85	Nov-86	Nov-87	Nov-88	Nov-89	Nov-90	Nov-91
1	31	29	37	48	46	54	57
1.5	38	33	32	64	75	59	65
2	29	29	40	59	58	64	68
2.5	10	10	21	50	64	83	71
3	36	0	47	56	61	64	80
over 3	40	40	40	58	67	75	78
Certificate level of the total workforce	27.2	31.4	33.4	49.6	52.7	53.9	59.9

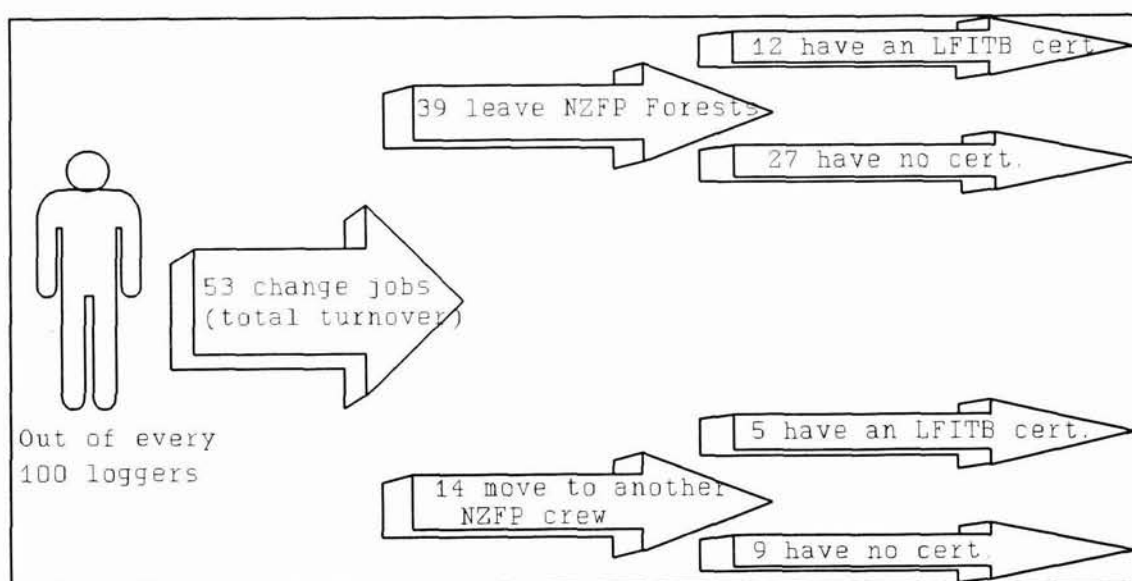


Figure 2 - Summary of annual manpower turnover

## DISCUSSION

Three major operational changes have occurred since the commencement of the survey which may have had an impact on turnover. The first was the conversion of the NZFP Forests Limited company logging crews to contract and, secondly, the conversion of the contract short pulp programme to long pulp in 1986. Thirdly, cyclone Bola in March, 1988, resulted in most crews being

redirected into clearfell windthrow salvage operations which resulted in some thinning crews being terminated due to over-productive capacity. The hazardous conditions encountered in windthrow salvage may also have placed additional stress on loggers leading to a decision to seek alternative employment.

Figure 2 summarises the average labour turnover within the NZFP Forests Limited workforce since 1984.

## CONCLUSIONS

The logging work force in the NZFP Forests Limited Kinleith region has been very mobile since 1984 with an average total turnover per year of 57.8%. Approximately 40% left the NZFP Forests Limited system completely and about 18%

moved from one NZFP Forests Limited crew to another.

It is not known what proportion of loggers left NZFP Limited system left logging completely.

At all survey points since 1984, the percentage of loggers skills certificate holders leaving NZFP Forests Limited system was lower than that for non-certificated loggers.

Just over 58% of all loggers hired were retained in the crew they were hired into for one year, regardless of experience. After 3.5 years, only 13.1% of these loggers remained in the same crew.

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