

FOREST ROAD STAFFING : NZFP EXPERIENCE

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SUMMARY

This paper emphasises the importance of the separate and distinct functions of planning a roading system and constructing and developing that system. It recommends that personnel with different backgrounds, training and qualifications be used for the two separate functions.

Difficulties exist with training technicians, especially in relation to the New Zealand Certificate qualifications. Mathematics III is found to be unnecessarily difficult. Simple aids for problem analysis it is considered would be more useful than the level of mathematics required to obtain the qualification. No difficulty is foreseen in obtaining suitable personnel for overseer positions from outside the forest industry, in contrast to the almost non-existent resource of suitable technicians.

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A discussion paper for the LIRA Logging Roads  
Standards Project Workshop



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## 1. INTRODUCTION

This paper examines the role of technical staff, i.e. overseer, technician and engineer, in the forest roading scene.

The N.Z. Forest Products Limited situation in relation to these positions is outlined along with resulting benefits.

Some suggestions are made for smaller forest operations.

Lastly, the technical staffing resource is considered along with training and qualifications.

## 2. THE ROLE OF TECHNICAL STAFF

In this context technical staff are those who either hold technical qualifications or those who are in supervisory positions. They include overseers, technicians and engineers.

### 2.1 Overseers

Other titles for these positions are :

- frontline supervisors
- construction supervisors
- foremen

They are the personnel who because of their experience rather than their formal qualifications, hold supervisory positions, closer to the field work site. Their experience would be in the operation of a wide range of road construction plant. They would be competent in the management of plant, labour and the application of sound construction techniques.

Their function is the maximising of output of labour and machinery resources on a short term basis; continually overcoming or sidestepping the myriad of forces that always seem to oppose progress of the work.

### 2.2 Technicians

Other titles include :

- logging planners
- logging surveyors
- logging engineers
- draughtspersons

I believe they are most efficiently employed in the plan formulation stage and in the consequent setting out of the plan in the field. The technician in these terms will be trained to :

- read topographical maps
- interpret aerial photographs
- undertaken comparisons of alternatives
- plan forest harvesting operations

on maps

- perform survey work
- maintain adequate records
- draw engineering and survey plans

### 2.3 Engineer

He sets priorities and has administration and management responsibilities (see Table 9 of "Logging Roads Standards Project" prepared by J.A. Kennedy).

In N.Z. Forest Products Limited operations, this is the first direct line in the family tree linking the daily operational side and the planning technician side. Obviously, this is in a formal sense only. Lateral communication between the planning and operational side occurs at all levels regardless of family tree responsibility lines and this is how it should be.

### 2.4 Management Structure

What I believe is important here is : those who are responsible for planning should not have their thoughts distracted by immediate daily problems that are associated with field operations and vice versa.

If an overseer of operations such as road and firebreak construction, is also responsible for road location then he may rationalise, "I can use my roads as firebreaks", so the roads are located where firebreaks exist, rather than where they will serve their purpose best.

Similarly, a road may be terminated short because it is convenient to transport construction plant away before the end of the week.

Personnel involved with planning must not be distracted by day to day operational problems. They must work from the whole to the part.

Personnel with experience in organising labour, plant and responsibility for day to day problems, e.g. weather change requiring machinery shifts, must not also be considering problems with longer time horizons.

### 3. HOW THESE ROLES ARE MET : NZFP SITUATION

#### 3.1 Background

The scope of our operations is required for perspective.

We maintain some 4000 kms of all weather roads, with the length used in any one year for production purposes being about 1000 kms. Approximately 100 km of road is constructed or upgraded per year.

To control the required construction and maintenance operations, we have 20 overseers responsible for a workforce of 100.

Technicians total 17, including draughtspersons.

Our operations are mainly conducted by our own forces with a contractor supplement. We find this necessary for security and for continuous operation.

#### 3.2 Sequence of Operations

Our operations follow this sequence:

- Foresters detail areas to be harvested.
- Logging planner compiles a harvest plan (normally on a contour map) NOT for a couple of landings, but for a whole area.
- Plan is vetted, often by forestry and logging personnel
- Logging surveyor marks the planned roads and landings in the field.
- roadline salvage crews harvest the merchantable timber off the roadline and landing locations
- Construction crews then form roads and landings along the salvaged strips
- Road metal is applied when and where required.

At this stage, the area is available for harvest operations with maintenance crews ensuring that the facilities remain usable. This is a long chain of events with each operation required to be conducted in chronological order. Consequently, we have to start early, often two years ahead so that areas become available for harvest at the desired time. Problems have also been encountered where log harvest occurs in areas recently constructed on sensitive soils. Large increases in road metal requirements have been observed in these circumstances compared with areas that have been allowed to "weather" before heavy truck usage begins.

### 3.3 Overseers

These are drawn from crew ranks, i.e. machine operators, etc. consideration is given to :

- length of service
- extent of experience
- temperament
- ability as operators
- initiative
- supervisory aptitude

No formal training, apart from a short supervisors course, has been found necessary. Most operators eligible for promotion have acted as temporary supervisors when their normal supervisor is away. On such occasions, they receive an additional payment for "higher duties". This payment is incorporated in the Timber Workers' Union Award. No significant problems are presented by this arrangement when you have a large stable workforce to draw on.

We have a continuing workforce turnover of under 5% with an average length of service for operators of 11 years. This ensures we have a ready supply of suitable talent for supervision. The average length of service of our supervisors is 19 years.

#### 3.3.1 Advantages are :

- Supervisors are experienced in their work and the work that their crews are expected to perform
- workforce is supervised by their peers which promotes contentment
- a career path is provided for operators which promotes stability.



### 3.3.2 Disadvantages are :

- lack of appreciation in many cases amongst supervisors of the need to record information accurately.
- some operators become too old before they are promoted to supervisors
- most of the supervisors communicate only by word of mouth making written guidelines, etc. ineffective.

### 3.3.3 Availability

I see no extraordinary difficulty for the forest industry in obtaining suitable personnel for supervisory roles as indicated.

## 3.4 Technicians

Staff in this group comprise university graduates and high school leavers. The school leavers are required to study for one of the New Zealand Certificate courses. Engineering graduates normally pursue a course of registration. Again, all have career path opportunities.

For our purposes, there is no ready resource of suitable trained people. Those from the community with surveying experience, best suit our needs and have the most appropriate skills.

This is the area where I believe there is the greatest need for formal training.

## 4. BENEFITS OF NZFP STAFFING POLICY

Many of the benefits of our staffing policy are difficult to quantify, e.g. the benefit of a contented stable workforce.

### 4.1 Background

Our present system exists as it is for historical, commercial, safety and environmental reasons.

When harvesting of the mature radiata crop began it was found that large tractors (D8's) were required for stumping operations. These machines were not readily available. As we had a continuous need for these machines extending beyond their useful economic life, we purchased our own plant. This provided the security of continuous operation allowing the shortest "ahead" position (time difference between completion of construction and commencement of harvest).

If we relied on contract forces entirely, I believe our ahead position would need to be greater for the same level of security. This is similar to a firm having to carry more stock. In our case, the all important requirement is to see that logs keep arriving at the mills. This means that we have to keep providing suitable areas for logging crews, served by functional log haulage routes. In the extreme, if logs do not arrive at the Kinleith Mill a loss of profits in excess of \$1 million a day results.

Own forces also provide security against higher management cost cutting exercises. While machines can be parked up, operators still have to be paid and machines have standing charges. this means that little money is saved, making this option unattractive.

#### 4.2 Examples of benefits of separating Planning and Construction functions

Some years ago, we were constructing establishment roading in an isolated 2000 ha block. Because of technical staff shortages at the time the roadlines were not marked in the field. Where to put the roads was left to the construction supervisor. Normally, an establishment roading density of 15 m/ha is sufficient and adequate. On this block where the roadlines were not surveyed in the field, the resulting road density at establishment was 34 m/ha. It even exceeded the clearfelling road establishment density of 30 m/ha and is over twice the establishment density required. This example highlights the need for personnel on both sides, someone who plans and locates the roadlines according to a system, and someone else who organises their construction.

#### 4.3 Need for Overseers

Obviously, it makes commercial sense to closely supervise machine operations. On a road construction operation, plant can easily be costing \$500/hour. Other constraints such as safety and soil and water considerations also make close supervision of operations a necessity.

### 5. OTHER FOREST MANAGEMENT CONCERNS : Suggestions

Smaller forests in varying localities will be managed differently. Rather than own forces, using contractors will be more attractive. For this type of operation, a commercial concern will either employ a competent

technician to plan and look after the operation, or hire a consultant. Where an enterprise is going to employ their own forces, then I believe an overseer to look after daily hassles will be a worthwhile investment.

#### 6.0 TRAINING FOR TECHNICAL STAFF

The resource pool of suitable trained technicians for harvest planning is non-existent. In our case, we provide inhouse training along with a requirement to study for one of the New Zealand Certificate qualifications.

Some of these courses are somewhat demoralising. Our technicians study by correspondence. Much of the course work is irrelevant and some is unnecessarily difficult. Maths III is an example of this. Many students find this subject a stumbling block. Possibly it is used as a weeding out process. If so, then again this is unnecessary when the resource is almost non-existent.

The level of mathematics required for Stage III will almost never be required of a technician. Should it ever be required then the services of an Engineer or consultant could be employed.

We find that the level of mathematics required in the New Zealand Certificate of Surveying papers to be appropriate.

While becoming involved in complexity and degrees of difficulty, these courses miss simple useful aids, for example nowhere in these courses is assistance provided in comparing alternatives such as checking first that all alternatives are viable. Understanding simple concepts like this is far more important and useful than dexterity with more complex mathematics.

These problems do not exist with overseers. A ready pool exists outside the forest industry in the contracting scene. This pool will be tapped when forests grow closer to harvest time.

