REACHING EXPORT LOG MARKETS BY THE SEA

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Abstract

The forest owner who manages and controls the shipping component of export log operations through to the off shore customer has the ability to vary gross returns by up to 15% per JAS m³. The single biggest cost item in the export process is the sea transport component. The task is essentially one of planning, coordination, communication, information technology and logistics management. Operations run 24hrs per day, 7 days a week, 364 days per year in a continual effort to extract efficiencies, cost savings and profit gains. Successful operators continually refine and improve their systems, forge strong alliances with their customers while gaining commercial intelligence and associated market conditions. Future success and inherent profitability will be dependent on accurate and timely access to market intelligence, multi product distribution to capture vessel configuration and market diversity, quality of information technology and customer supplier relationships.

INTRODUCTION

For a forest owner to maintain a diversified market base through a domestic and export log mix strategy the export log market process requires a considerable depth of infrastructure and expertise. Several key areas of management and operations require a coordinated effort to maintain this type of approach.

In the context of this paper I will avoid some of the more delicate issues - such as why the industry exports logs, the reasons for a having a diversified market mix, access to ready cash, maintaining competiveness amongst our domestic customer base and spreading risk - and concentrate on the ocean based transportation system relative to distributing logs from the forest to the customer.

BACKGROUND

Essentially there are two phases in the process of log exporting:

1 **Land based production and delivery system**

2 **Sea based transportation**

Prior to any commencement of export log production there has to have been some form of sales agreement or commercial commitment, such as a Letter of Credit, (LC) between the seller and the buyer. Typically in New Zealand such transactions are done as LC's, currency in US dollars and units of sale measurement commonly JAS (Japanese Agricultural Standard) cubic metres. Other units of measurement less commonly used are Huber (Turkey), Brereton and Scribner (USA). All these scales are volumetric based systems and are independent of product weight.

Most export sales are in fixed lengths and commonly 2-4 length classes

eg:

'K' Sort for Korea	
Lengths	**%'s by volume**
11.1m	60%
7.4m	20%
5.5m	10%
3.7m	10%

Table 1: Typical 'K' sort log length mix

Regardless of what length or specification the sale agreement has there is a predominance to **long** lengths.

There are a number of reasons for this such as:

1 Increasing the average **mill** log SED when long logs are recut for processing
2 Reducing sweep
3 Providing mill log length flexibility
4 Increasing processing opportunities such as the extraction of other grades

However this tends to be over-ridden by the materials handling factor in ship loading for both vessel turnaround time and stowage efficiency. Long length logs cost less to handle, are generally straighter and stow better than short logs. This does not take away the requirement for some shorter logs to optimise hatch dimensions.

Sales to export customers may be either **FOB** (Free On Board) whereby the **customer** charters the vessel and is responsible for ocean freight costs or **CFR** (Cost and Freight) whereby the **seller** charters the vessel and is responsible for the ocean freight cost.

For the purposes of this exercise we will follow through an example volume from the forest to customer and explore one or two of the logistical challenges facing the forest owner relative to the shipping exercise.

PLANNING

Lets take a CFR sales agreement of say 20,000 JAS m^3 +/- 10% of Korean 'K' sort (probably the most industry recognised export log type) to be provided on wharf ready to be loaded on a vessel with an ahead position of around 6 weeks - 30 'normal' working days. To complete the equation the forest owner goes out to the market and fixes a vessel capable of handling that volume of cargo and essentially guarantees cargo freight to the value of say 20,000 JAS m^3 * US$28/JAS m^3 = US$560,000, or approximately 1 million NZ dollars.

The essence of any export operation is a wood supply system with the fundamental ability to supply an agreed cargo to the customers specifications within a given time frame.

This system must understand and be capable of satisfying some fundamental criteria.

- knowledge of the resource - *are there available the type of logs pertinent to the agreement?*
- ability to produce to specification - *can the loggers do it, have they the production capability?*
- delivery to the port - *can the roads take it, will the trucking fleet deliver?*
- marshalling and stevedoring *-land storage capacity, delivery schedules, scaling capabilities, information technology to support operations.*

So for this 20,000 JAS m^3 order the customer may require a cargo definition of:

Lengths	% mix	Volume (JAS)	Total load demand (30 jas units)	Delivery loads per day	Ship delayed one week	Ship one week early
11.1m	60%	12,000	400.0	13.3	11.4	16.0
7.4m	20%	4,000	133.3	4.4	3.8	5.3
5.5m	10%	2,000	66.7	2.2	1.9	2.7
3.7m	10%	2,000	66.7	2.2	1.9	2.7
		TOTALS	**666.7**	**22.2**	**19.0**	**26.7**
					86%	**120%**

Table 2: 'K' sort log mix by loads per day demand given variable ship eta times

OPERATIONS

Fundamentally the shipping manager's role is one of logistics management. The key objective is to:

- **distribute logs from port to customer safely, on time, to the customers phytosanitary requirements in an effort to minimise cost and maximise efficiency within operational constraints.**

You might ask well why make such a focus on this aspect of the operation. Simple. In terms of delivering your product to the customer it is the single biggest cost item in the equation. To go back to our sale and to use some current industry averages.

COST STRUCTURE

Example for a 'K' grade type log

Selling price CFR US$90 @ 0.57 ≃ NZ$158.00 JAS/m³

Less direct operational costs	$NZ	% of cost
- Ocean Freight	$49.00	51.5%
Through Port Costs storage, wharfage, marshalling, stevedoring	$14.00	14.7%
- Transport, forest to wharf (120 km @ $0.15/t/km)	$18.00	18.9%
- Logging & Loading (30% hauler @ $19) (70% ground @ $12)	$14.10	14.9%
Costs	**$95.10**	
Gross stumpage to Forest Owner (Not inclusive of forest growing and management costs)		**$62.90**

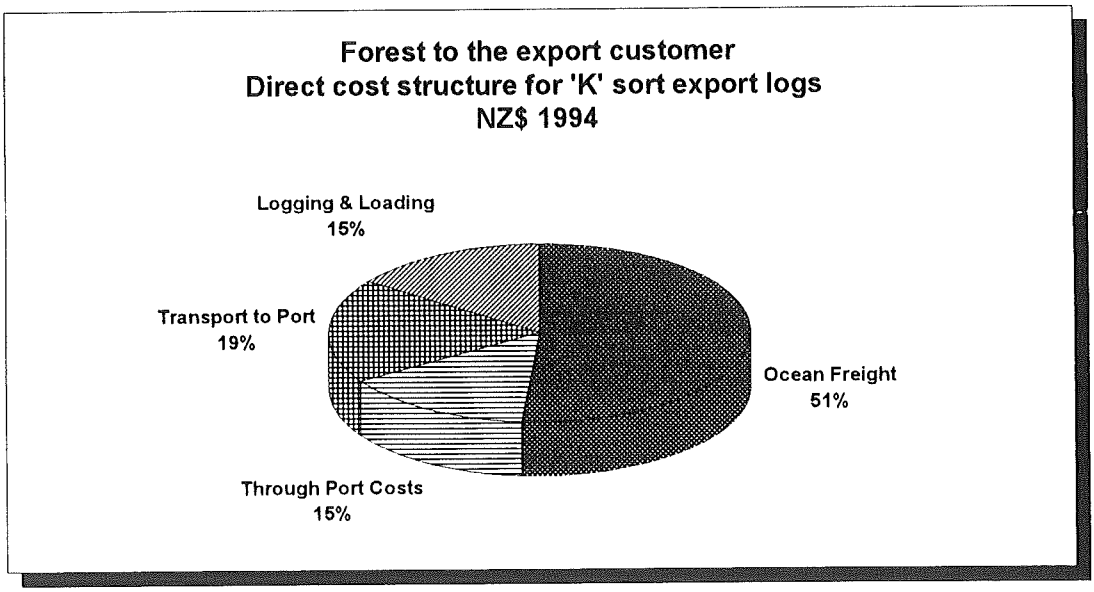

Figure 1: Direct operational cost breakdown
(Source: NZ Forest Industry averages, phone survey, June 1994)

Faced with the prospect of obtaining sea based transportation the shipping manager has an enormous market out in front of him. A brief explanation of the scene.

International Vessel Types

- Tanker
- Gas Carrier
- Reefer
- Container
- Chip vessels
- ** **Dry Bulk Carriers**. - where the forestry scene fits.

Dry Bulk Vessel Classes

- **Cape Size** = 80,000 metric tonne+ Dead weight
  - Iron Ore
  - Coal Grain
  - Salt
- **Panamax** = 50-80,000 metric tonne Dead weight
  - Bauxite
  - Phosphate
- **Handsize** = 10-50,000 metric tonne Dead weight
  - Forest products
  - Scrap
  - Steel

The transport mode can be either liner, whereby a regular service is provided between fixed port at fixed times (eg. a timetable bus service) or tramp whereby vessels ply between different port reacting to cargo availability (eg like a taxi company).

The bulk of New Zealand log trade is through the tramp mode facilitated by four main methods:

1. **Time charter - fixed period**
2. **Consecutive voyage charter**
3. **Contract of affreightment**
4. **Spot fixture.**

In the general process of fixing a ship the order of activity goes something like this:

1. **Fix customer/cargo requirements, sales agreements, commercial details**
2. **Contact brokers**
3. **Market offers**
4. **Enter negotiation**
5. **Agree on main terms**
6. **Fix charter party details**
7. **Post fixture work.**

CARGO PLANNING

Things to consider in the total equation when planning for a ship are the customers, grade requirements, load and discharge ports and stowage characteristics.

Let us focus on one or two of these considerations to put some numbers on the effect of inadequate planning, supply of non-conforming product and some sub standard operational performance.

1. Log Supply

- Length %'s - short lengths can be frequently at the sellers option. For example K11m could be a minimum of 50% with the balance between the other three lengths. If for some reason all are produced at 3.7m this would have a significant impact on the ability to store tonnes in the same space.
- Sweep. Ever tried to put a banana down a tube?
- Nodal swelling - storing air
- Taper - eg Hawkes Bay logs
- Regional and within forest density variations - trees are a biological product

Often the forest has little control over the type of produce sent to an export sale other than conforming the physical dimensions of the log to the customers specifications.

2. Ship loading issues

- Stevedore performance. Low crane skills, inadequate butting causing broken stowage
- Discharge port sequence
- More than one customer
- Customer requirements, eg all shorts below deck, reduce above deck cargo capacity

Factoring these two variable sources into the planning exercise requires a dedicated effort and the ability to make last minute operational changes in order to optimise performance. To extract the best scenario for the shipper these planning and operational functions require close communication and operational flexibility.

Profitability for this operation is best summed up by achieving in the following core areas.

- Ability of the Log Marshaller to feed log loading bunks
- Ability of the Stevedore to provide the ship loading service
- Maintaining order of log stow to sequence to match discharge port requirements
- The reduction of broken stowage, ie waste space. Getting the length mix, hatch dimensions, customer lot equation right.
- Meeting contract requirements that do not place the LC conditions in jeopardy
- Optimise the vessel capacity

The effects of inadequate and superior performance can be summed up in the following table.

	NZ$			
	Contract	**Less 10%**	**Plus 10%**	
Volume	**20,000 jas**	**18,000 jas**	**22,000 jas**	
Sale Price	$158.00	$158.00	$158.00	
Ocean Freight	**$50.00**	**$55.56**	**$45.45**	
Other costs	$46.10	$46.10	$46.10	
Gross Stumpage	**$61.90**	**$56.34**	**$66.45**	
Variation in $ per JAS		**($5.56)**	**$4.55**	**$10.10**
		91%	**107%**	**$222,222**

Table 3: The effect of sub-optimal stowage on the gross stumpage returns to a forest owner controlling shipping.

SUMMARY

A forest owner who manages a log export system through to the customer has the ability to create wealth and enhance profitability. This requires a well managed team of people who know the business, communicate well, are prepared to change with the market and have the ability to think ahead to solve problems before they arise. The task is a large assortment of logistics management, inter company interaction and customer focus. Future trends are for smaller cargo lots, more log grades, multi port destinations and shorter planning horizons. Information technology, planning systems and multi skilled staff are expected to make significant contributions towards maintaining the required efficiencies and profitability.