Tasmanian Industry Outlook: Implications for Tasrail

Information Paper

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Subject
Series
Date
A to Z
Search
Results
Print
Exit
GO BACK

Information Paper 24

Tasmanian Industry Outlook Implications for Tasrail

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FOREWORD

On 11 September 1985 the then Federal Minister for Transport, the Honourable Peter Morris MHR, announced Terms of Reference directing the Bureau of Transport Economics (BTE) to undertake an assessment of the costs and benefits of closing Australian National's (AN) Tasmanian rail system. Such an assessment will be helpful in determining the future of present arrangements whereby the Commonwealth Government provides revenue supplements to AN to support Tasrail operations. The term of the present 'contract' between AN and the Government ends on 30 June 1988.

The preparation of detailed forecasts of Tasrail freight flows provided an important input to the economic and financial analyses presented in BTE Report 62, *The Tasmanian Rail System: An Assessment of Costs and Benefits*. This Paper provides details of these freight projections derived from an examination of the future prospects for those industries using rail services within Tasmania.

The Paper was prepared by Mr Mark Streeting under the supervision of Mr David Baussmann. The Bureau would like to express their appreciation for the assistance provided by a number of Tasmanian organisations and individuals, particularly Mr Bernard Duke, Marketing Manager, Tasrail.

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Bureau of Transport Economics
Canberra
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CONTENTS

TABLES

FIGURES

SUMMARY

The main findings of the study are:

Recent trends 1977-78 to 1986-87

- For the period 1977-78 to 1986-87 Tasrail tonnage increased by almost 40 per cent from 1.60 million tonnes to 2.22 million tonnes.
- Over the same period the Tasrail task increased by 75 per cent from 245.8 million net tonne-kilometres to 428.9 million net tonne-kilometres.
- The growth in both Tasrail tonnage and the freight task can be largely attributed to increases in woodchip log traffic in the years 1979-80 and 1980-81.
- Other commodities achieving strong growth over the period included sulphuric acid and coal.

Traffic composition

In 1986-87 Tasrail traffic had the following characteristics:

- Woodchip logs represented 40 per cent of total tonnage and 45 per cent of the Tasrail task.
- Woodchip logs, cement, coal and container traffic accounted for almost 85 per cent of Tasrail tonnage.
- Woodchip logs, coal and container traffic represented 75 per cent of the Tasrail freight task.
- Six firms, namely Australian Pulp and Paper Mills (APPM), Australian Newsprint Mills (ANM), the Electrolytic Zinc Company of Australasia (EZ), Forest Resources, Goliath Cement and Cornwall Coal either received or dispatched around 85 per cent of the freight task.

Forecasts

Under the most likely scenario:

- Tasrail tonnage is expected to increase by 12 per cent from 2.22 million tonnes (1986-87) to 2.48 million tonnes (2007-08) representing an annual increase of 0.5 per cent.
- The Tasrail task is forecast to increase by 5 per cent from 428.9 million net tonne-kilometres (1986-87) to 449.2 million net tonne-kilometres (2007-08) representing an annual increase of 0.2 per cent.
- Reflecting short-term growth across most Tasrail commodity groups, Tasrail traffic is expected to peak at 2.61 million tonnes and 514.0 million net tonne-kilometres in 1988-89.
- Growth in the years following 1988-89 is expected to be offset by an expected decline in woodchip log traffic (1989-90) and the decline in pulpwood log traffic from 1990-91.

Under alternative scenarios:

- Tasrail traffic may reach 4.04 million tonnes and 701.5 million net tonne-kilometres in 2007-08. If such a result is to be achieved, key developments include the establishment of a pulp mill at Wesley Vale by APPM which is also linked to the rail system and the movement of a substantial quantity of Hobart container traffic to and from the northern Tasmanian ports by rail.
- Tasrail traffic may decline to 1.84 million tonnes corresponding to a task of 349.5 million net tonne-kilometres in 2007-08 if forecast declines in woodchip log and pulpwood log traffic are not offset by growth in other traffics.

CHAPTER 1 INTRODUCTION

SCOPE OF THE STUDY

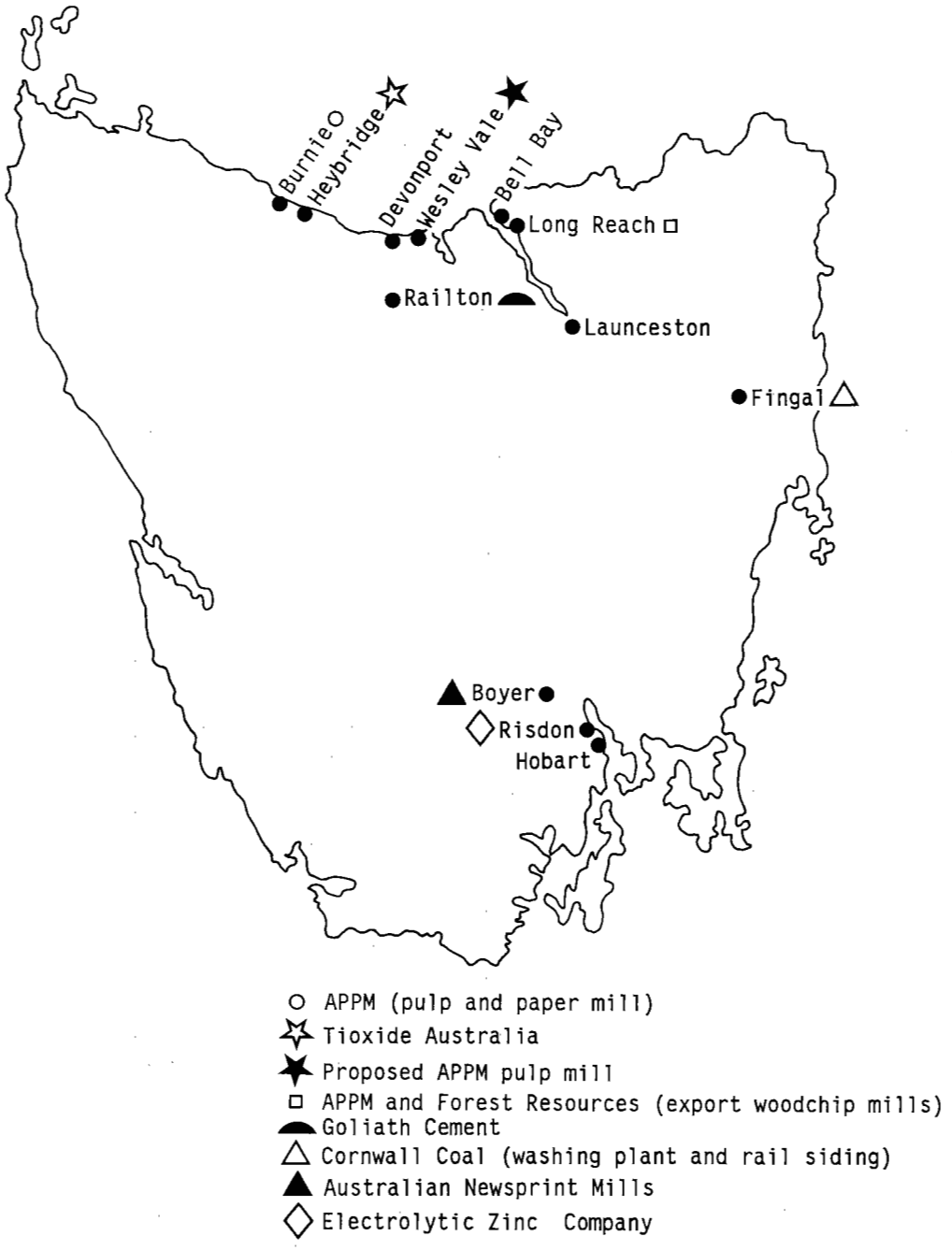
The analysis begins in Chapter 2 by examining the current composition of the freight task, before reviewing recent trends in Tasrail tonnage and the freight task. Chapters 3 to 10 provide details of the projections prepared for each of the major commodities carried by Tasrail, while Chapter 11 considers expected movements in the freight task at the aggregate level before examining some possible developments not explicitly included in the freight projections.

METHODOLOGY

Future Tasmanian industry transport requirements suggest that the demand for rail services within Tasmania will continue to be based around the requirements of current Tasrail customers. Those industry locations expected to be important in respect of future Tasrail operations are illustrated in Figure 1.1.

Three forecasts (high, medium and low growth) were prepared for each of the eight major commodities carried by Tasrail encompassing the 21-year period, 1987-88 to 2007-08. These forecasts, based on forseeable developments, are expected to contain the plausible traffic levels for each commodity. The high growth forecast can be interpreted as reflecting a scenario (or a set of assumptions) 'favourable' to high growth in the freight task, while the low growth scenario adopts an 'adverse' set of assumptions for rail task growth. The medium growth forecast has been based on the perceived most likely scenario and, as such, should not be interpreted as a simple average of the high and low growth scenarios.

The demand for rail transport is a derived demand in the sense that it is influenced by commodity demand and supply characteristics and the scope for intermodal competition. Initial evaluation of these factors for individual commodities confirmed that a formal econometric



Source Prepared by BTE.

Figure 1.1 Industry locations of significance for Tasrail

modelling approach would not adequately capture the effect of these variables. Consequently, the three scenarios developed for each commodity were based on specific assumptions regarding factors such as commodity sales growth and distribution, commodity production capacities and rail modal shares.

CHAPTER 2 MAJOR COMMODITIES AND THE FREIGHT TASK

This chapter outlines the freight carried by Tasrail and examines the relative contribution of each commodity to the aggregate measures of tonnage and net tonne-kilometres.

MAJOR COMMODITIES

There are eight major commodities carried by Tasrail:

- woodchip logs
- coal
- cement
- pulpwood logs
- containers
- sulphuric acid
- fertiliser
- timber and sawlogs.

Container traffic is the only non-bulk traffic handled by Tasrail following the cessation of less than container load (LCL) traffic from 1 January 1986.

Table 2.1 reveals that woodchip logs is the most important commodity carried by Tasrail. In 1986-87 woodchip logs represented 39 per cent of total tonnage and 44 per cent of the freight task (that is, total net tonne-kilometres). None of the other major commodities carried by Tasrail accounted for over 20 per cent of total traffic under either measures. Furthermore, with the exception of cement, each commodity's contribution to total tonnage and the freight task was of the same order of magnitude. While cement is particularly significant in tonnage terms, the short-haul nature of the majority of movements reduces its contribution to 4 per cent of the Tasrail task.

TABLE 2.1 COMMODITIES CARRIED BY TASRAIL, 1986-87

Commodity	*Tonnes ('000)*	*Proportion of total traffic (per cent)*	*Net tonne-kilometres ('000)*	*Proportion of total traffic (per cent)*
Woodchip logs	871	39	190 882	44
Coal	365	17	82 314	19
Cement	301	14	15 605	4
Containers	297	13	51 965	12
Sulphuric acid	117	5	20 572	5
Pulpwood logs	98	4	22 355	5
Timber and sawlogs	60	3	12 460	3
Fertiliser	57	3	20 596	5
Other[a]	49	2	12 124	3
Total	2 215	100	428 873	100

a. Includes minerals, woodwaste, limestone and dolomite and other goods not included elsewhere.

Source Australian National (pers. comm. 1987).

Although none of the major commodities apart from woodchip logs represents more than 20 per cent of the traffic handled by Tasrail, there is a high degree of commodity concentration in terms of both tonnage and net tonne-kilometres. Together, woodchip logs, coal, cement and containers represented 83 per cent of Tasrail tonnage in 1986-87, while woodchip logs, coal and container traffic accounted for 75 per cent of the task in the same year.

The dominance of a small number of individual commodities under both tonnage and net tonne-kilometre measures is also reflected by the small number of firms that are major customers of Tasrail. Six firms, namely, Australian Pulp and Paper Mills (APPM), Australian Newsprint Mills (ANM), the Electrolytic Zinc Company of Australasia (EZ), Forest Resources, Goliath Cement and Cornwall Coal, either received or dispatched around 85 per cent of the freight task in 1986-87.

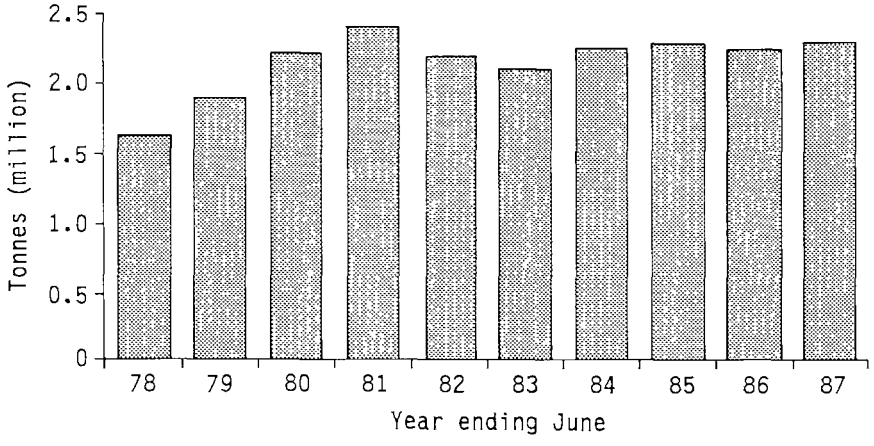
A common feature of all the major commodities carried by Tasrail, with the exception of container traffic, is their inclusion in the Tasmanian State Government rail protection policy. Administered by the Tasmanian Transport Commission, the scheme provides for the payment of a rail protection levy by road transport operators carrying

bulk commodities in competition with Tasrail. Excluding loads of less than 7 tonnes, the prepayment of rail protection fees is required for all road journeys exceeding 50 kilometres for logs and 100 kilometres for all other commodities (for further details of the scheme see BTE 1987).

RECENT TRENDS

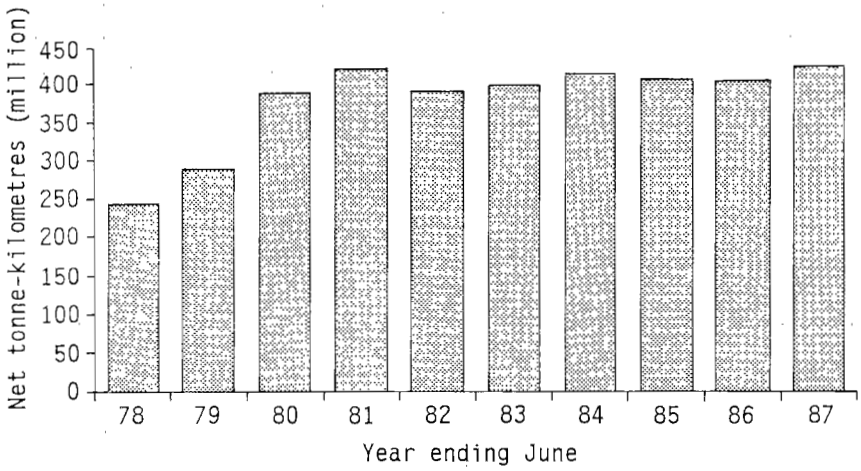
Figure 2.1 shows that the total tonnage handled by Tasrail increased from 1.60 million tonnes in 1977-78 to 2.22 million tonnes in 1986-87. Despite total tonnage remaining relatively constant in recent years, this represented an increase of 38 per cent. A period high of 2.32 million tonnes was achieved in 1980-81, which can be largely attributed to the increase in woodchip log tonnage in both 1979-80 and 1980-81.

Between 1977-78 and 1986-87 the Tasrail freight task increased by 75 per cent from 245.8 million net tonne-kilometres to 428.9 million net tonne-kilometres. As is the case with Tasrail tonnage, the growth in the woodchip log task generated substantial increases in the years 1979-80 and 1980-81. In addition, the 7 per cent aggregate increase achieved in 1986-87 saw the task increase to a period high of 428.9 million net tonne-kilometres (see Figure 2.2). Commodities other than woodchip logs achieving strong growth between 1977-78 and 1986-87 included sulphuric acid and coal. Cement and fertiliser were the only major commodities where the Tasrail task actually declined over the period.



Source Australian National (pers. comm. 1987).

Figure 2.1 Tasrail tonnage, 1977-78 to 1986-87



Source Australian National (pers. comm. 1987).

Figure 2.2 Tasrail freight task, 1977-78 to 1986-87

CHAPTER 3 WOODCHIP LOGS

In terms of both total tonnes and net tonne-kilometres, export woodchip logs are the major commodity carried by Tasrail. Woodchip logs are railed to mills at Long Reach (near Bell Bay on the Tamar River) operated by APPM and Forest Resources. Another mill operated by Tasmanian Pulp and Forest Holdings (TPFH) is located at Spring Bay, near Triabunna; however, all woodchip logs are transported by road to the TPFH mill as Triabunna is not linked to the rail network.[1]

PULPWOOD SOURCE

All companies involved in the export woodchip industry draw their timber supplies from a variety of sources including Crown forest concessions, other Crown land, private land and sawmill waste. In 1985-86, logs and sawmill offcuts accounted for 93 and 7 per cent respectively of the inputs to the woodchip industry (ABS 1987a). Forest Resources are mainly dependent on timber from private land; however, Forest Resources also draw pulpwood from areas of Crown forest in the north west and south of the State. Crown concession entitlements apply only to Crown land and State forest within the boundaries of the designated concession areas. It should be noted that the concession system is currently under review by the Tasmanian State Government and is likely to be modified as a result. In particular, there will probably be provision for the review of resource entitlements based on the performance of the concession holder.

The allocation of the Tasmanian pulpwood resource was affected by the 1986 Tasmanian State Government decision regarding the Southern Forest Concession, which was formerly operated under licence by Australian Paper Manufacturers Limited (APM). Until 1982 APM manufactured wood

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1. APPM and TPFH are both part of the North Broken Hill Holdings Group. Forest Resources is a wholly owned subsidiary of Petersville Sleigh Limited.

pulp at Port Huon for shipment to the company's paper mills in other States. However, following the closure of the Port Huon mill in October 1982, the Tasmanian State Government subsequently suspended their licence to evaluate proposals from several companies regarding the future utilisation of the resource. The APM mill was reopened in August 1986 and has been exporting pulp pellets to a number of Asian countries since March 1987. However, the permanent operation of the mill was dependent on both the establishment of Asian markets and obtaining cutting rights to the Southern Forest Concession. In September 1986, the State Government announced that the 107 000 hectare Southern Forest Concession would be granted to Huon Forest Products (HFP), a consortium of Australian Newsprint Mills (ANM) and five sawmillers. It is proposed that the Southern Forest Concession will be utilised by HFP as an integrated woodchip, pulp and sawlog operation following the construction of an export woodchip mill and wharf at Whale Point.[2] The future of this project is dependent on the Commonwealth Government issuing HFP with an export woodchip licence.

TRANSPORT ARRANGEMENTS

The completion of the Bell Bay rail link in 1973 was an important development for the Tasmanian export woodchip industry. Although initial export contracts were not based on the provision of a rail service, subsequent transport infrastructure development has largely been based around the availability of both rail and road transport. For example, the Long Reach plant operated by Forest Resources is geared for a 50 per cent allocation of inputs by each of road and rail. In recent years around 40 to 45 per cent of logs have been transported by rail to the Long Reach mills.

Substantial capital investment has been undertaken by APPM and Forest Resources to provide road access and weighbridge facilities at all railheads. In addition, financial assistance was provided for the construction of spur lines and sidings at the two Long Reach mills. As Tasrail are only responsible for line-haul operations, APPM and Forest Resources provide the necessary mechanical loading equipment and the staff required to load and unload woodchip log wagons. Railyard facilities are owned and operated by the two companies.

Woodchip log rail traffic increased substantially between 1977-78 and 1986-87. Over this period, total tonnes carried increased by 95 per cent, while net tonne-kilometres more than doubled (see Table 3.1).

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2. An agreement was reached in May 1987 whereby APM agreed to sell HFP part of their Whale Point site (*Hobart Mecury* 1987a).

TABLE 3.1 WOODCHIP LOGS CARRIED BY TASRAIL, 1977-78 TO 1986-87

Year	Tonnes ('000)	Annual change (per cent)	Net tonne-kilometres ('000)	Annual change (per cent)
1977-78	444	..	85 756	..
1978-79	471	6.1	81 166	-5.4
1979-80	780	65.6	153 035	88.5
1980-81	890	14.1	177 845	16.2
1981-82	694	-22.0	142 200	-20.0
1982-83	705	1.6	147 499	3.7
1983-84	809	14.8	169 259	14.8
1984-85	737	-8.9	161 478	-4.6
1985-86	737	0.0	159 919	-1.0
1986-87	871	18.2	190 882	19.4

.. Not applicable.

Source Australian National (pers. comm. 1987).

The associated average haul per tonne increased from 193 kilometres in 1977-78 to 219 kilometres in 1986-87. Particularly strong growth occurred in the years 1979-80 and 1980-81 resulting in tonnage increasing to a period high of 890 000 tonnes, before traffic declined by 20 per cent in 1981-82 reflecting rail capacity problems and a downturn in export demand. Subsequent movements saw woodchip log tonnage reach 871 000 tonnes in 1986-87, while the 191 million net tonne-kilometres performed in the same year was a period high.

Intermodal considerations

Modal choice is essentially based on total cost. Important considerations influencing total cost include the distance from the railhead to the average place of accumulation and the associated factors of loading and unloading rail wagons. For distances over 100-120 kilometres, rail presently has a price advantage over road transport. The relativity between road and rail rates influences both the locality and intensity of woodchip log transport operations. In addition, annual volumes of between 80 000 and 100 000 tonnes are necessary to justify the operation of a railhead. Apart from total cost, service consistency (rather than transit time) is important as railheads have limited storage capacities. The social implications of transporting logs by road transport are also important. For example, Forest Resources continue to maintain their Conara railhead, despite

its uneconomical operation, in order to avoid substantial truck movements through the City of Launceston.

MARKET DEVELOPMENTS

The Tasmanian woodchip industry developed in the early 1970s as a result of the rapid expansion of the Japanese pulp and paper industry in the 1960s, which could not continue to be met by domestic pulpwood supplies alone. As a result of negotiations completed in the late 1960s, the first shipment of woodchips left Tasmania in April 1971. The consequent integration of sawlog and pulpwood harvesting operations has enabled more effective utilisation and regeneration of the forest resource by maximising product recovery and improving the cost structure of the industry.

The Environmental Impact Statement regarding Tasmanian woodchip exports beyond 1988 (Tasmanian Woodchip Export Study Group 1985) presented several industry benefits created as a result of the export woodchip industry. These include:

- the removal of previously unsaleable pulpwood enabling forest regeneration treatment and the return of the forest to a more productive condition;
- the economic harvest of forest with low sawlog yield consequently supplying additional logs to sawmills facing dwindling supplies of economically available sawlog;
- an opportunity for further employment in Tasmania in part compensating for the unavoidable decline in the hardwood sawmilling industry due to past and continued overcutting of forests for sawlogs; and
- the provision of an economic return for sawmill residues which had previously been burnt, therefore enabling a lower standard of log to be sawn than would otherwise be possible.

Currently, all Tasmanian pulpwood surplus to domestic requirements is exported as woodchips, primarily to Japan, subject to current export licences due to expire on 31 December 1988. The present licences permit a total quantity of 2 825 000 green tonnes to be exported annually of which APPM, TPFH and Forest Resources are licensed to export 1 065 000, 813 000 and 947 000 green tonnes respectively. The Federal Government agreed in a Memorandum of Understanding signed with the Tasmanian State Government in June 1986 to continue to issue export licences for a period of 15 years from 1 January 1989. These licences, subject to five-yearly resource reviews, provide for up to an initial annual quantity of 2 889 000 green tonnes to be exported,

representing a 64 000 tonne increase above the quantity presently licensed. The possible inclusion of HFP as a woodchip exporter with an annual licence of 510 000 green tonnes will result in a reduction in export tonnage for the three existing licensees. Apart from the previously unallocated 64 000 tonnes, APPM, TPFH and Forest Resources export tonnages will be reduced by around 20 per cent on a pro rata basis to reflect the inclusion of HFP when and if this occurs.

Two important factors governing the future commencement of HFP operations include the granting of an export woodchip licence to HFP and the outcome of the Federal Government Commission of Inquiry regarding the Lemonthyme and Southern Forests. HFP have indicated that the development would be jeopardised if the Inquiry determines that all logging should be discontinued in these areas *(Launceston Examiner* 1987a).

In order to increase value-added exports, both the Tasmanian State Government and the companies presently exporting woodchips are firmly committed to the establishment of an export pulp mill should it prove commercially viable, using part of the currently exported woodchips as an input. Important considerations governing any future development include suitable marketing prospects for the pulp, the cost of building and operating the mill, the price at which the pulp can be produced and the security of access to the wood resource. The majority of the pulp produced would have to be exported and consequently have to compete on international markets at world prices.

The combination of a small domestic market and high production costs does not allow for the economies of scale achievable overseas and doubts have been expressed over the ability of such a domestic mill to be competitive on world markets. This has been the major factor delaying the development of a pulp mill based on the currently exported woodchip resource. However, as a result of the recent depreciation of the Australian dollar and projected pulp marketing prospects, APPM have intensified their interest in establishing a large-scale export pulp mill at Wesley Vale in the early 1990s. The mill, to be established as a joint-venture between APPM and a Japanese consortium would produce 440 000 tonnes of pulp annually. Around 75-80 per cent of production would be exported, primarily to Japan and the United States, while the remaining pulp would be used by APPM in its paper production process. The pulp mill would consume around 1 800 000 tonnes of wood annually. It is not expected that a final decision on the project will be made until mid-1988.

Table 3.2 contains details of chipped, ground and flaked wood produced in Tasmania for export (that is, in woodchip form) and local

TABLE 3.2 CHIPPED, GROUND AND FLAKED WOOD PRODUCTION, TASMANIA, 1977-78 TO 1985-86

('000 tonnes)

Year	*For local processing*	*For export*	*Total*
1977-78	797	2 041	2 838
1978-79	781	2 197	2 978
1979-80	871	2 802	3 673
1980-81	1 074	2 354	3 428
1981-82	938	2 181	3 119
1982-83	875	2 293	3 168
1983-84	873	2 635	3 508
1984-85	900	2 750	3 651
1985-86	920	2 696	3 615

Notes 1. Chipping, grinding or flaking of wood comprises the first stage in the production of woodpulp, paper etc.
2. Figures may not add to totals due to rounding.

Source ABS (1987a).

processing.[3] The Table shows that while locally processed tonnage has fluctuated within a relatively small range, export tonnage has been subject to quite wide variation. In particular, export tonnage declined significantly between 1980-81 and 1982-83 after reaching a period high of 2.8 million tonnes in 1979-80. More recently, export tonnage has remained relatively constant at around 2.6 - 2.7 million tonnes and locally processed wood at about 900 000 tonnes. Consequently, the proportion of total production exported in woodchip form has steadied at around 75 per cent.

In addition to Tasmania, woodchips (for export) are also produced in New South Wales, Victoria and Western Australia. Table 3.3 indicates that total Australian woodchip exports increased by almost 40 per cent from 3.1 million tonnes in 1977-78 to 4.3 million tonnes in 1985-86. Growth in Australian woodchip exports has largely been due to increases in shipments to Japan. Between 1977-78 and 1985-86 Japan accounted for 80 per cent of the total increase in export woodchip

3. Locally, this wood is used as an input in the production of wood pulp, paper, hardboard and particle board.

TABLE 3.3 AUSTRALIAN EXPORTS OF WOODCHIPS, 1977-78 TO 1985-86
('000 tonnes)

	Country			
Year	*Japan*	*Taiwan*	*Korea, Republic of*	*Total*
1977-78	3 132	0	0	3 132
1978-79	3 316	33	0	3 349
1979-80	4 288	70	2	4 360
1980-81	4 440	84	71	4 595
1981-82	3 944	17	52	4 013[a]
1982-83e	3 540	92	50	3 682
1983-84e	4 096	158	28	4 282
1984-85e	3 947	195	55	4 197
1985-86e	4 046	195	46	4 287

a. Includes 1000 tonnes exported to 'other' countries.
e. Estimated.

Notes 1. From the 1982-83 year ABS have reported export figures in dry tonnes rather than green tonnes. To present a consistent series, figures for the period 1982-83 to 1985-86 were estimated in green tonnes using a conversion factor of 1.77 green tonnes per dry tonne.
2. Figures may not add to totals due to rounding.

Source ABS (1987b).

shipments. The strong growth in Japanese import demand for hardwood pulpwood has largely reflected the relative decline in Japanese supplies against demand and the increasing cost of domestically sourced hardwood pulpwood as opposed to imported sources. Japan is the world's second largest paper manufacturer and the third largest pulp producer and, as such, has a large requirement for pulpwood. The large majority of imported hardwood chips are processed into bleached sulphate (kraft) pulp, which is the most important raw material input for the manufacture of printing and writing paper.

Apart from Australia, other countries exporting significant quantities of hardwood woodchips to Japan are South Africa, the United States and Malaysia. In contrast to the strong Australian export growth, exports to Japan from these countries have increased moderately or even declined in recent years. In 1986-87, Australian woodchip exports represented just under 65 per cent of total Japanese hardwood pulpwood imports, which exceeded 4 million dry tonnes for the first time.

Both demand and supply influences relevant to the Japanese woodchip market are likely to contribute to continued significant Japanese demand for Australian woodchips.[4] Projections produced by the Bureau of Agricultural Economics (BAE) indicate that the export demand for Australian woodchips will be between 4.8 and 5.9 million green tonnes by 1991 (Bureau of Agricultural Economics 1987).[5] This forecast is primarily based on the increasing Japanese reliance for imported sources of both pulp and woodchips. In addition, Australian exports to the Republic of Korea and Taiwan are expected to increase.

SCENARIOS

Given the sound market prospects for Tasmanian woodchips, it is expected that export volumes will be maintained at licence levels. It was assumed that export licences will be renewed to at least 2007-08 at 2 889 000 green tonnes upon the expiration of licences on 31 December 2003. All three scenarios assume that some growth in the task is achieved in both 1987-88 and 1988-89.

To develop scenarios for woodchip logs in subsequent years it was assumed that HFP would commence operations in 1989-90. As previously mentioned, the inclusion of HFP will result in export tonnages for the existing licensees being reduced on a pro rata basis according to current allocations. The annual decrease in allowable export tonnage for APPM/TPFH and Forest Resources will be around 20 per cent and industry sources suggest that the quantity of logs sourced by rail will decline by around 20 per cent following the inclusion of HFP. Consequently, the medium growth scenario assumes that the rail carriage of woodchip logs declines by 20 per cent at this time, while the low growth scenario provides for a decline of 25 per cent in Long Reach rail traffic.

The high growth forecast allows for a decline of 15 per cent in Long Reach woodchip log traffic following the commencement of HFP operations. However, the establishment of the APPM Wesley Vale pulp mill is assumed to offset this decrease in the early 1990s. Industry sources suggest that rail may carry anywhere between 20 and 60 per

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4. For further details regarding the prospects for Australian woodchips in the Japanese market see Wallace, Maxwell and Sledge (1986).
5. This forecast does not allow for the potential development of the Wesley Vale pulp mill which would probably result in a decline in export demand for Australian woodchips.

TABLE 3.4 FORECAST AVERAGE ANNUAL GROWTH RATES FOR WOODCHIP LOGS CARRIED BY TASRAIL, 1988-89 TO 2007-08

Forecast	*1988-89 to 1992-93*	*1993-94 to 1997-98*	*1998-99 to 2002-03*	*2003-04 to 2007-08*
Tonnes				
High	-0.9	2.2	0.0	0.0
Medium	-6.9	0.0	0.0	0.0
Low	-7.8	0.0	0.0	0.0
Net tonne-kilometres				
High	-1.6	2.1	0.0	0.0
Medium	-6.7	0.0	0.0	0.0
Low	-7.6	0.0	0.0	0.0

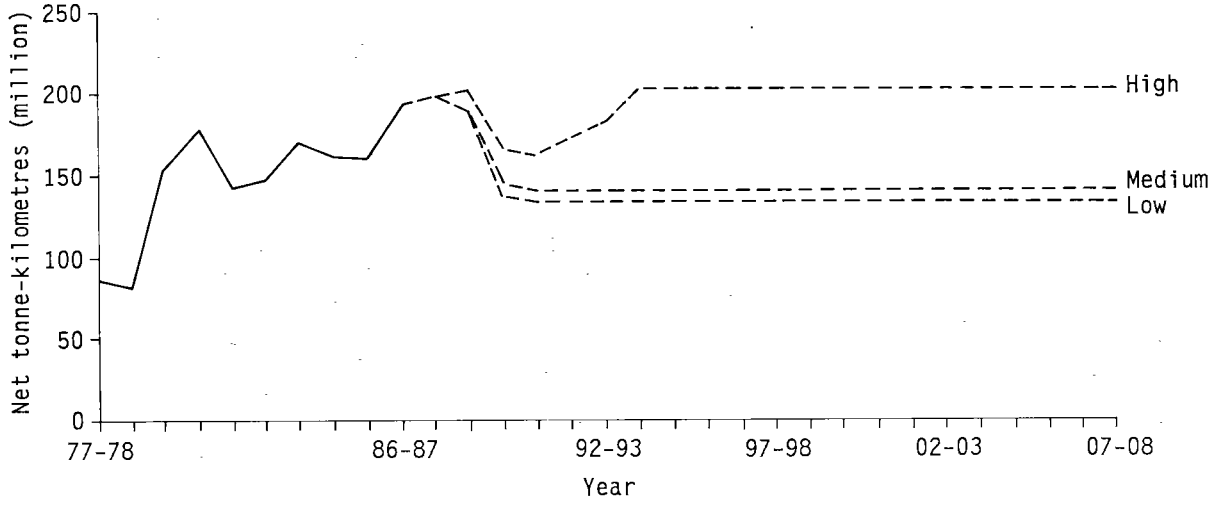
Source BTE estimates.

cent of Wesley Vale requirements.[6] Under the high growth scenario, it was assumed that all APPM woodchip logs are redirected from Long Reach to Wesley Vale and an additional 200 000 tonnes is moved by rail to the new mill.[7]

FORECASTS

Details of forecast growth for both woodchip log tonnage and the task are contained in Table 3.4, while the forecast woodchip log task is illustrated in Figure 3.1. Long-term growth rates (that is, 1987-88 to 2007-08) in terms of tonnage are 0.4, -1.5 and -1.8 per cent under the high, medium and low growth scenarios respectively. Corresponding rates applicable to the freight task are 0.3, -1.4 and -1.7 per cent. Further details of the forecast tonnage and task are presented in Table I.1.

6. The high growth scenario assumes that a 12 kilometre spur line would be provided from Latrobe to Wesley Vale.
7. Logs moved to the proposed Wesley Vale pulp mill will be used as an input to the production of kraft pulp. Therefore, in terms of Tasrail commodity classifications, these logs are strictly pulpwood logs rather than woodchip logs. However, to produce a consistent set of forecasts throughout the study period, all Wesley Vale traffic was included as woodchip log traffic.



Sources Australian National (pers. comm. 1987). BTE estimates.

Figure 3.1 Tasrail woodchip log task, 1977-78 to 2007-08

CHAPTER 4 COAL

The sole Tasmanian producer of coal is the Cornwall Coal Company No Liability, which operates as a wholly owned subsidiary of Goliath Cement Holdings. Cornwall Coal operate two collieries, Duncan and Blackwood, in the Fingal-Mount Nicholas area. Approximately 1200 tonnes of raw black coal is extracted per day from the Duncan colliery, while 2100 tonnes is extracted from the Blackwood colliery.

The black bituminous coal mined by Cornwall Coal is characterised by its good steaming properties and is used directly as a fuel to fire the kilns and boilers of a number of Tasmania's major secondary industries. Commodities manufactured directly or indirectly using Tasmanian coal include cement, newsprint, fine paper, hardboard, beer, iron pellets and paper pulp. Coal is also used for domestic and industrial heating.

Table 4.1 contains details of Tasmanian coal production between 1977-78 and 1985-86. Production fluctuated about a strong upward trend, increasing by 144 000 tonnes or 75 per cent over the period. With the exception of 1983-84, increases in production have been achieved in all years since 1981-82.

TRANSPORT ARRANGEMENTS

All raw coal extracted from the Duncan and Blackwood collieries is transported by road to the coal washing plant located at the Duncan rail siding, Fingal. From Duncan, practically all coal is transported by rail to Tasmanian industry. A small quantity of coal (between 4000 and 5000 tonnes annually) is sent directly by road transport to Scottsdale as rail is not price competitive due to the much greater rail distance.

Table 4.2 provides details of rail coal tonnage and the associated freight task between 1977-78 and 1986-87. Over the period, coal traffic under both measures increased to period highs in 1986-87; both tonnage and the task more than doubling over the 10 years. The

TABLE 4.1 PRODUCTION OF BLACK WASHED BITUMINOUS COAL, TASMANIA, 1977-78 TO 1985-86

Year	*Tonnes ('000)*	*Annual change (per cent)*
1977-78	195	..
1978-79	253	29.7
1979-80	221	-12.6
1980-81	199	-10.0
1981-82	265	33.2
1982-83	320	20.8
1983-84	276	-13.8
1984-85	297	7.6
1985-86	339	14.1

.. Not applicable.

Sources ABS (1986a). Cornwall Coal (pers. comm. 1986).

TABLE 4.2 COAL CARRIED BY TASRAIL, 1977-78 TO 1986-87

Year	*Tonnes ('000)*	*Annual change (per cent)*	*Net tonne-kilometres ('000)*	*Annual change (per cent)*
1977-78	161	..	30 942	..
1978-79	175	8.7	34 530	11.6
1979-80	169	-3.4	33 194	-3.9
1980-81	196	16.0	39 789	19.9
1981-82	261	33.2	53 588	34.7
1982-83	310	18.8	68 000	26.9
1983-84	277	-10.6	61 007	-10.3
1984-85	311	12.3	67 588	10.8
1985-86	341	9.6	75 082	11.1
1986-87	365	7.0	82 314	9.6

.. Not applicable.

Source Australian National (pers. comm. 1987).

associated average haul per tonne increased from 192 kilometres in 1977-78 to 226 kilometres in 1986-87. The only significant decline in coal traffic occurred in 1983-84. This largely reflected industrial action which affected the operations of Goliath Cement and APPM (Burnie). In addition, APPM (Burnie) began using woodwaste to supplement their coal requirements in April 1983.

Intermodal considerations

Rail is generally the preferred mode of transport as a result of the long distances between Fingal and major coal users. In addition, all major customers are geared to receive rail coal shipments. Although it would be possible to use road transport exclusively, there would be problems achieving the necessary loading and dispatch of coal by road.

MARKET DEVELOPMENTS

There are known deposits of coal throughout Tasmania, although the most important of these are located in the Fingal Valley. Apart from Cornwall Coal, other companies have lease-holdings which could be developed, such as The Shell Company of Australia Ltd and Avoca Transport. Tasmania's demonstrated economic coal resources total 530 million tonnes and the entire resource can be classified as steaming coal. An estimated 246 million tonnes can be regarded as recoverable and of the total resource, all but 25 million tonnes is amenable only to underground mining (Bureau of Mineral Resources 1986a).

In recent years, a great deal of attention was focused on the possibility of a thermal power station being established in the Fingal Valley. A feasibility study undertaken by the Hydro-Electric Commission (HEC) regarding the establishment of such a power station to replace the Gordon-below-Franklin hydro-electric scheme concluded with some confidence, that sufficient coal exists for the economic development of a 400 megawatt facility (Hydro-Electric Commission 1985, 19). A thermal power station of this magnitude would have a requirement for between 600 000 and 700 000 tonnes of coal per annum. Cornwall Coal, together with a number of other companies, submitted proposals to the Tasmanian State Government regarding the supply of coal to any future thermal power station development.

The establishment of a coal-fired thermal power station in the Fingal Valley is dependent on the future electricity load. The HEC have concluded that, with the addition of the Anthony and King River power developments, together with the support of the oil-fired thermal station at Bell Bay, likely levels of load can be met both reliably and economically from these sources until the mid 1990s

(Hydro-Electric Commission 1986a, 18). Apart from the Fingal Valley thermal station, the HEC are also considering the addition of further minor hydro schemes including Que, Hatfield, Lower King and Lake Margaret. Given the decreased likelihood of a major HEC thermal power generation facility being required in the near future, coal sales over the forecast period are likely to be governed by the requirements of existing users.

The vast majority of coal used in Tasmania is locally produced. Of the 348 000 tonnes of coal consumed in 1985, 312 000 tonnes was locally produced and the remaining 36 000 tonnes was imported for metallurgical application. Of the imported coal, 33 000 tonnes originated from New South Wales and 2000 tonnes was obtained from Queensland. South African imports, which were 20 000 tonnes in 1984, declined to 1000 tonnes in 1985 (Bureau of Mineral Resources 1986a).

Three customers, namely, APPM (Burnie), ANM and Goliath are the major Tasmanian coal users accounting for approximately 80 per cent of Cornwall Coal's sales. Other customers include Edgell-Birdseye, Wander (Australia), Tasmanian Breweries, Cadbury Schweppes, the Royal Derwent Hospital and Tioxide Australia. In 1985-86, long-term supply contracts were negotiated with both ANM and Tioxide Australia (Goliath Cement Holdings 1986). Furthermore, it is likely that other major Tasmanian secondary industries will continue to use Tasmanian coal for the following reasons:

- the use of mainland coal would leave Tasmanian customers vulnerable to shipping disputes;
- the transport costs for mainland coal may be greater;
- some plants are designed to burn Tasmanian coal exclusively (plant modification would be required to burn mainland coal);
- Tasmanian coal has good steaming properties; and
- Tasmanian coal currently has a small price advantage in comparison to mainland coal.

It is not expected that any significant substitution for coal as a fuel source, such as that which occurred in the 1960s, will result in any marked decrease in consumption.[1] Coal consumption declined

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1. Some substitution of coal in favour of wood fuels is possible in the commercial and industrial sectors. Green woodchips appear to be competitive with coal and offer the benefits of low ash content and relative cleanliness in handling and stockpiling. Although dry woodchips have no price advantage relative to coal, they may prove suitable in some applications (Hydro-Electric Commission 1986b, 9).

substantially in the early 1960s as all major Tasmanian industries with the exception of ANM converted to oil - APPM and Goliath having switched to oil in 1962 and 1964 respectively. However, in the early 1970s the price relativity between oil and coal had started to reverse and by 1977, raw coal output exceeded all previous records as major industries switched from oil back to coal (Cornwall Coal Company 1986).

Although substitution of coal as a fuel source by any of the three major customers is unlikely, one coal user, ANM, did undertake investigations in 1985 regarding possible alternative and less costly sources of coal suitable for use at Boyer (Australian Newsprint Mills Limited 1985). One such investigation was based on a deposit located near Hamilton which could supply ANM with its coal requirements. However, as previously mentioned, a long-term contract was negotiated between ANM and Cornwall Coal in 1985-86.

Apart from existing users, the major potential for increased coal demand over the forecast period lies in the development of a coal-fired pulp mill at Wesley Vale in the early 1990s. Industry sources suggest that approximately 200 000 tonnes of coal may be required per annum if APPM opt for a coal-fired plant.[2]

SCENARIOS

To develop coal rail traffic forecasts, individual projections were developed for the three largest coal consumers in Tasmania, namely, APPM (Burnie), ANM and Goliath. These projections relate directly to output projections and historical trends. In addition, likely efficiency gains were incorporated into these forecasts. Projections for other minor coal consumers were generally based on historic trends. The high growth scenario incorporates sales to the Wesley Vale pulp mill from the early 1990s. It was assumed that a thermal power station would not be established in the forecast period.

FORECASTS

Table 4.3 contains details of forecast growth rates under the high, medium and low growth scenarios for coal carried by Tasrail between 1988-89 and 2007-08. The long-term growth rates (that is, 1987-88 to 2007-08), in terms of tonnage, to the year 2007-08, are 2.8, 0.5 and -0.2 per cent under the high, medium and low growth scenarios

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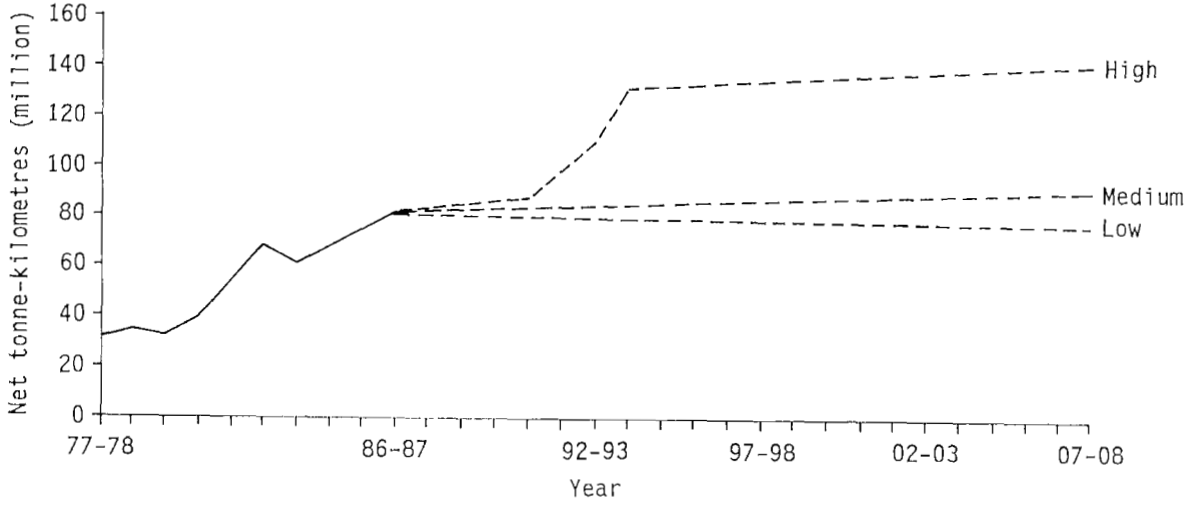
2. The high growth scenario assumes that a 12 kilometre spur line would be provided from Latrobe to Wesley Vale.

TABLE 4.3 FORECAST AVERAGE ANNUAL GROWTH RATES FOR COAL CARRIED BY TASRAIL, 1988-89 TO 2007-08

Forecast	*1988-89 to 1992-93*	*1993-94 to 1997-98*	*1998-99 to 2002-03*	*2003-04 to 2007-08*
Tonnes				
High	6.5	4.6	0.4	0.3
Medium	1.0	0.7	0.3	0.1
Low	-0.2	-0.2	-0.2	-0.2
Net tonne-kilometres				
High	5.8	4.4	0.4	0.3
Medium	0.7	0.6	0.3	0.1
Low	-0.4	-0.2	-0.2	-0.2

Source BTE estimates.

respectively. Figure 4.1 shows the corresponding coal task over the forecast period. Long-term growth rates for the task under the three scenarios are 2.6 per cent (high growth), 0.4 per cent (medium growth) and -0.3 per cent (low growth). Further details of both tonnage and net tonne-kilometres are presented in Table I.2.



Sources Australian National (pers. comm. 1987). BTE estimates.

Figure 4.1 Tasrail coal task, 1977-78 to 2007-08

CHAPTER 5 CEMENT

Cement is produced at Railton, near Devonport, by the Goliath Portland Cement Company Limited. The cement is sold to customers in Tasmania, Victoria and New South Wales. In addition, Goliath has been exporting bagged cement to Papua New Guinea and other Pacific destinations since 1970.

When fully supported by ancilliary facilities, the Goliath plant at Railton has an annual production capacity of one million tonnes. However, present production capacity is constrained to around 600 000 tonnes, while output has been around 450 000 tonnes per annum in recent years (Falkiner, Collins and Co 1987).

Approximately 70 per cent of Goliath sales are to mainland customers. The fact that Goliath are able to successfully compete with mainland producers, despite a clear transport cost disadvantage, probably reflects differences in the overall cost structure between Goliath and mainland competitors.[1] Apart from mainland competition, Goliath have acknowledged the increasing threat posed by South Korean cement manufacturers *(Launceston Examiner,* 1987b).

The production of Portland cement by Goliath is a vertically integrated operation. Limestone and clay are obtained from a quarry adjacent to the Railton plant, which has extensive high grade limestone reserves. However, as the materials quarried on the site are deficient in both silica and iron oxide content, supplies of silica and ironstone are brought in by road. The gypsum necessary for

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1. During 1980 Goliath's dry-process pre-heater kiln was converted to the Pyroclon precalcination unit which is the only such system in Australia. Goliath's dry-process plant is vastly more fuel efficient than the wet-process of production still used by a number of other Australian producers. The dry-process enables the same amount of cement to be produced using approximately half the fuel input.

production is transported from South Australia to Devonport in one annual shipment. It is necessarily moved by road to Railton over a three to four day period as there is no rail access to the East Devonport wharf.

TRANSPORT ARRANGEMENTS

All cement destined for mainland Australia and international markets is transported by Tasrail from the Railton plant to Devonport (a distance of 22 kilometres). The transport of cement between Railton and the port of Devonport is essentially a 'shuttle' operation for Tasrail. Bulk cement is loaded at the plant into rail tankers by means of three telescopic shutes, each capable of loading at a rate of 200 tonnes per hour. At the port of Devonport, the bulk cement is pumped into storage silos (6000 tonne capacity) before being loaded onto the MV *Goliath* for shipment to Goliath bulk cement depots located in Melbourne and Sydney. The MV *Goliath* has a 4000 tonne capacity and can be loaded at a rate of 600 tonnes per hour. On average, at maximum production rates, one shipment to each of Melbourne and Sydney is provided each week.

Tasmanian customers are served by both rail and road transport although all road transport arrangements are made by the consignee. Bagged cement produced by Goliath is palletised for rail and road transport or loaded directly onto road transport. In recent years, rail and road transport have accounted for approximately 30 and 70 per cent, respectively, of total intrastate movements, in tonnage terms.

Total rail cement tonnage and the total rail task fluctuated quite widely between 1977-78 and 1986-87 (see Table 5.1). In 1986-87, 301 000 tonnes of cement was carried by Tasrail which was 18 per cent below the peak of 369 000 tonnes achieved in 1980-81, while total net tonne-kilometres declined to a period low of 15.6 million in 1986-87.

In 1986-87, cement was carried an average distance of 52 kilometres. However, if the Railton-Devonport component of total tonnage is excluded, the average haul was in excess of 250 kilometres, indicating the importance of intrastate rail cement movements as a proportion of the cement rail task. Major destinations (other than Devonport) for Goliath cement include Derwent Park (near Hobart), Burnie, Hobart and Launceston.

Intermodal considerations

Road transport is currently price competitive with rail to some destinations. However, in addition to the price competitiveness of

TABLE 5.1 CEMENT CARRIED BY TASRAIL, 1977-78 TO 1986-87

Year	Tonnes ('000)	Annual change (per cent)	Net tonne-kilometres ('000)	Annual change (per cent)
1977-78	244	..	18 878	..
1978-79	366	50.0	21 518	14.0
1979-80	300	-18.0	18 903	-12.2
1980-81	369	23.0	20 194	6.8
1981-82	366	-0.8	18 933	-6.2
1982-83	303	-17.2	20 907	10.4
1983-84	322	6.3	24 317	16.3
1984-85	337	4.7	16 530	-32.0
1985-86	344	2.1	18 647	12.8
1986-87	301	-12.5	15 605	-16.3

.. Not applicable.

Source Australian National (pers. comm. 1987).

road transport, the social implications of regular road bulk cement movements on some routes is an important consideration affecting modal choice.

Although rail capacity problems have not been encountered with the transport of cement between Railton and Devonport, capacity problems have occasionally been experienced by Goliath in the past for the transport of shipments to customers elsewhere in Tasmania. Rail capacity is not expected to pose any difficulties in the future.

The transport of all bulk cement and pre-cast building materials is regulated under the Tasmanian rail protection scheme. However, all bagged cement is excluded from the scheme (Transport Tasmania 1987).

MARKET DEVELOPMENTS

Portland cement is produced in all States of Australia. At least two manufacturers are located in each State with the exception of South Australia and Tasmania where production is undertaken by a single manufacturer. Total Australian Portland cement production in 1985-86 was 6 million tonnes which represented an increase of 7 per cent in comparison to 1984-85. However, production in 1981-82 was in excess of 6 million tonnes, before sharp reductions in residential

construction activity and the lack of large new civil engineering projects saw production decline to approximately 5 million tonnes in 1982-83. Subsequent increases in production, notably in 1984-85 and 1985-86 enabled production to once again exceed 6 million tonnes. As previously mentioned, Goliath production has been of the order of 450 000 tonnes annually in recent years. This figure, together with Australian production figures, indicates that Goliath production represents approximately 8 per cent of total domestic production.

Australian cement producers supply almost all domestic requirements. Small quantities of special cements including Portland grey, Portland white, other constructional cements and non-refractory aluminous cements are imported. According to information supplied by the Bureau of Mineral Resources (BMR), Tasmania imported 500 tonnes of 'other constructional cements' in 1985-86.

Interstate sales are fundamental to the success of Goliath's Tasmanian operations. Since 1968, Goliath sales of bulk cement to Victoria and New South Wales have been secured through a long-term contract with CSR Limited. The total volume shipped according to this contract is 250 000 tonnes per annum *(Australian Financial Review* 1986). Export sales to the Pacific Islands represent less than 5 per cent of total sales. International shipping costs are probably the major impediment to increased bagged cement sales in the South Pacific, particularly in relation to Papua New Guinea.

Table 5.2 contains details of cement loaded at the port of Devonport for shipment to Melbourne, Sydney and overseas destinations. Table 5.2 also includes cement in clinker form which was shipped to mainland Australia in the years 1980-81 and 1981-82. Between 1977-78 and 1985-86, total shipments to mainland Australia and overseas increased from 218 000 tonnes to 326 000 tonnes, representing an increase of 50 per cent. Over the four years to 1985-86, shipments ranged from 261 000 tonnes to 326 000 tonnes demonstrating the importance of the CSR contract to Goliath sales outside Tasmania.

The demand for Portland cement comes mainly from the ready-mixed concrete industry. Small quantities are also used for pre-cast cement products and cement bricks, blocks and tiles. In those States where Goliath currently sells its products (namely, Tasmania, New South Wales and Victoria) the movement in ready-mixed concrete production has been quite uneven. Between 1977-78 and 1986-87, both Tasmanian and Victorian production fluctuated within relatively small ranges, while New South Wales production exhibited a predominantly upward trend (see Table 5.3). The 1986-87 decline in ready-mixed concrete production in Tasmania (14 per cent) was reflected in Goliath rail

TABLE 5.2 CEMENT LOADED FOR SHIPMENT: DEVONPORT, 1977-78 TO 1985-86
('000 tonnes)

	Destination			
Year	*Melbourne*	*Sydney*	*Overseas*	*Total*
1977-78	97	115	6	218
1978-79	160	123	18	301
1979-80	108	103	8	219
1980-81[a]	92[b]	190[b]	15	297
1981-82[a]	167	212	4	383
1982-83	136	110	15	261
1983-84	164	122	0	286
1984-85	152	136	0	288
1985-86	152	174	0	326

a. Includes clinker.
b. On advice of Goliath Cement, these figures reflect cement discharged at Melbourne and Sydney originating from Devonport.

Source Federal Department of Transport (1987).

TABLE 5.3 PRODUCTION OF READY-MIXED CONCRETE: TASMANIA, NEW SOUTH WALES AND VICTORIA, 1977-78 TO 1986-87

	State		
Year	*Tasmania*[a] *('000 m^3)*	*New South Wales* *('000 m^3)*	*Victoria* *('000 m^3)*
1977-78	289	2 919	2 911
1978-79	260	3 384	2 853
1979-80	250	3 893	2 580
1980-81	250	4 124	2 570
1981-82	227	4 320	2 696
1982-83	208	3 572	2 280
1983-84	188	3 543	2 541
1984-85	214	4 003	2 867
1985-86	282	4 587	3 047
1986-87	242	4 492	3 215

a. Excludes production for use within the same enterprise.

Sources ABS (1987c, 1987d, 1987e).

shipments which declined by 13 per cent in tonnage terms in the same year.

SCENARIOS

Shipping capacity and interstate sales are the two single most important factors governing the future rail task. Increases in intrastate demand are unlikely to result in significant additional rail traffic in terms of tonnage. However, as previously mentioned, intrastate movements are particularly important to the total rail cement task.

Shipping capacity is presently limited to the 4000 net tonne MV *Goliath,* currently the only specialised bulk cement tanker operating in Australian waters. Under present operations at maximum production rates (that is, one shipment to Melbourne and Sydney per week), the upper bound on annual bulk cement shipments to the Australian mainland is of the order of 370 000 tonnes.[2] Apart from the option of employing another vessel, additional mainland shipments could be achieved by making fewer sailings to Sydney and increasing calls to Melbourne.

Currently, around 60 per cent of Goliath sales are to customers outside Tasmania. New South Wales and Victoria are likely to continue to be the major outlets for sales of Goliath cement. Although Victorian demand has remained relatively constant over recent years before increasing in both 1985-86 and 1986-87, demand in New South Wales (as measured by ready-mixed concrete production statistics) increased by 5 per cent annually, on average, between 1977-78 and 1986-87. The high and medium growth scenarios both reflect increases in the volume of mainland shipments.

For the purpose of developing cement rail traffic forecasts, the following assumptions were made:

- Any increase in Tasmanian sales will result in an equivalent proportional increase in rail cement traffic[3] (that is, the rail and road modal shares will remain constant over time).

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2. This is based on 92 sailings annually by the MV *Goliath.* The total tonnage assumes that 8 sailings are achieved each month and 14 days are allowed each year for painting, routine maintenance and survey work.
3. An average for the four-year period for which origin-destination data is available was used to project intrastate rail shipments, that is, 50 000 tonnes.

- Additional shipping capacity, as required, will be available to Goliath for the transport of cement between Devonport and mainland Australia.

Assumptions specific to the high, medium and low traffic forecasts are as follows:

High growth scenario

- Tasmanian cement sales to increase at an average annual rate of 1 per cent between 1987-88 and 2007-08.

Medium growth scenario

- Sales of cement within Tasmania to increase at an average annual rate of 0.5 per cent per annum throughout the forecast period.

Low growth scenario

- No change to the current volume and distribution of interstate and intrastate cement rail movements.

FORECASTS

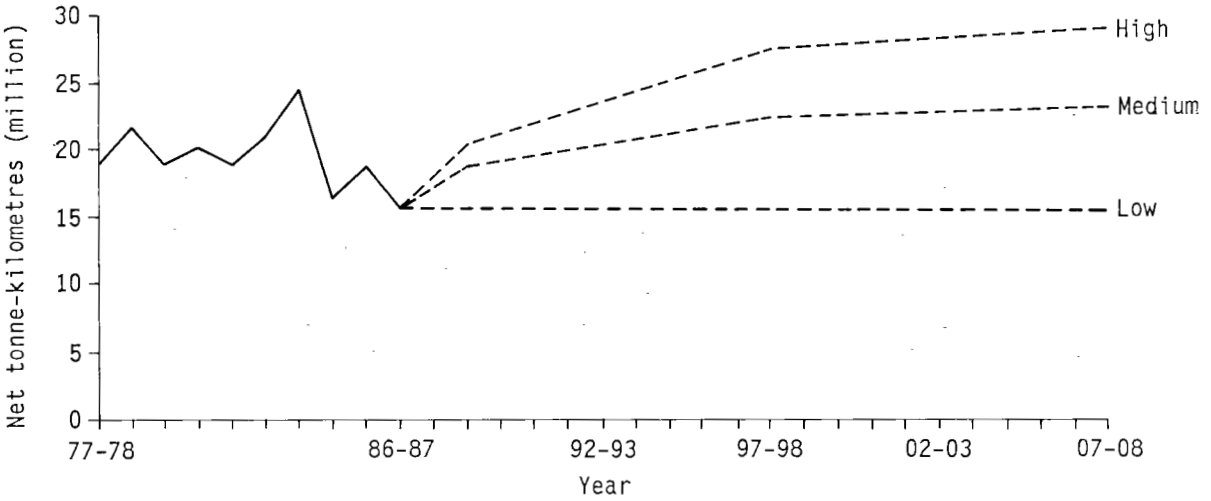
Table 5.4 reports details of forecast growth rates under the high and medium growth scenarios for cement carried by Tasrail between 1988-89 and 2007-08. No growth is expected under the low growth scenario.

TABLE 5.4 FORECAST AVERAGE ANNUAL GROWTH RATES FOR CEMENT CARRIED BY TASRAIL, 1988-89 TO 2007-08

(per cent)

Forecast	*1988-89 to 1992-93*	*1993-94 to 1997-98*	*1998-99 to 2002-03*	*2003-04 to 2007-08*
Tonnes				
High	9.1	5.0	0.3	0.3
Medium	5.6	3.3	0.2	0.2
Low	0.0	0.0	0.0	0.0
Net tonne-kilometres				
High	5.6	3.3	0.6	0.6
Medium	3.5	1.8	0.3	0.5
Low	0.0	0.0	0.0	0.0

Source BTE estimates.



Sources Australian National (pers. comm. 1987). BTE estimates.

Figure 5.1 Tasrail cement task, 1977-78 to 2007-08

The long-term growth rates, in terms of tonnage, to the year 2007-08, are 3.4 and 2.2 per cent under the high and medium growth scenarios respectively. Corresponding rates applicable to the freight task are 2.4 per cent under the high growth scenario and 1.5 per cent under the medium growth scenario. The lower long-term rate of growth in the freight task in comparison to tonnage growth rates reflects the short-haul nature of the Railton-Devonport route where major growth is expected.

Figure 5.1 illustrates the cement task over the forecast period. Further details of total tonnage and associated net tonne-kilometres for the three scenarios are presented in Table I.3.

CHAPTER 6 CONTAINERS

Container traffic is the only non-bulk commodity currently carried by Tasrail. Containers are transported by rail primarily between the four major Tasmanian population and industrial centres, Hobart, Launceston, Burnie and Devonport and the northern port of Bell Bay. In addition, a significant quantity of container traffic originating from ANM, Boyer is railed to the port of Hobart.

The major freight forwarders in Tasmania consigning containers via Tasrail include Sea Pak Transport Services, Hammond Palmer Transport, Holyman's, TNT Seafast and Tradex.

TRANSPORT ARRANGEMENTS

The three major freight forwarders using rail, namely, Sea Pak, Hammond Palmer, and TNT Seafast all have access to a rail siding on their business premises. In addition, the four major ports, Burnie, Devonport, Bell Bay and Hobart are all linked to the rail system. However at Devonport, the rail yard is on the opposite side of the Mersey River from the Holyman depot.

Details of container traffic carried by Tasrail between 1977-78 and 1986-87 are presented in Table 6.1. Over this period, container traffic increased steadily before declining significantly in 1981-82. Increases in both total tonnes and the freight task were achieved in subsequent years before traffic losses were once again recorded in 1985-86 and 1986-87. The average haul per tonne fluctuated throughout the period, declining from 214 kilometres in 1977-78 to 175 kilometres in 1986-87.

Loaded container movements represent around 65 per cent of the container rail task. Of the total loaded containers, four major customers, including three freight forwarders (Sea Pak, TNT Seafast and Hammond Palmer) and ANM account for around 80 per cent of tonnage. Major origin-destination pairs in 1986-87 for loaded container traffic included ANM paper products moved from Boyer to Hobart, Bell

TABLE 6.1 CONTAINERS CARRIED BY TASRAIL, 1977-78 TO 1986-87

Year	*Tonnes ('000)*	*Annual change (per cent)*	*Net tonne-kilometres ('000)*	*Annual change (per cent)*
1977-78	166	..	35 558	..
1978-79	222	33.7	49 859	40.2
1979-80	248	11.7	54 593	9.5
1980-81	257	3.6	59 402	8.8
1981-82	219	-14.8	47 370	-20.3
1982-83	229	4.6	51 957	9.7
1983-84	270	17.9	57 494	10.7
1984-85	325	20.4	59 207	3.0
1985-86	316	-2.8	55 430	-6.4
1986-87	297	-6.0	51 965	-6.3

.. Not applicable.

Note Includes all containers consigned by freight forwarders and shippers with the exception of containerised cement (ex-Railton) and fertiliser (ex-Risdon).

Source Australian National (pers. comm. 1987).

Bay-Launceston, Bell Bay-Hobart, Hobart-Burnie and Devonport-Hobart.[1] The empty containers moved by rail are largely consigned by the Western Australian Coastal Shipping Commission (Stateships) and the Union Steam Ship Company of Australia (USS Co). In 1986-87 Tasrail repositioned a substantial number of empty units from Launceston to Bell Bay and Devonport and from Burnie to Hobart.

The containers handled by Tasrail consist almost entirely of interstate traffic. Although statistics for more recent years are not available, figures for 1983-84 indicate that 97 per cent of Tasrail container tonnage was interstate or intrastate traffic. The remaining 3 per cent consisted of overseas containers including imports, exports and repositioned units (Transport Tasmania 1985).

Intermodal considerations

Tasrail competes directly with road transport for container traffic

1. Future Devonport-Hobart traffic will be affected by the withdrawal of the *Mary Holyman* Devonport service.

and indirectly with sea transport. The concentration of coastal shipping services in northern ports and consequent greater service frequency to northern Tasmania enables Tasrail or road transport operators, together with the Australian National Line (ANL) service to Bell Bay, for example, to provide an alternative to USS Co services to Hobart.

Containers are the only major commodity carried by Tasrail not subject to regulation under the Tasmanian rail protection scheme. Since the movement of containers in Tasmania is almost entirely interstate trade, the regulation of road transport regarding the movement of interstate containers would infringe section 92 of the Australian Constitution. As such, unlike other commodities, the rail share of container traffic is entirely determined as a result of the interaction between price, and the relative quality of service between road and rail. In addition, all major freight forwarders operate their own truck fleet which can be supplemented, as required, by the use of sub-contractors. It would be expected that freight forwarders would aim to maximise the utilisation of their own vehicles. Therefore, it is likely that rail transport is largely used as an alternative to road when freight volumes are sufficiently large.

For time sensitive consignments, the quality of service aspect assumes importance. The level of competition between freight forwarders and client expectations are such that the service level must be high to meet desired client inventory level policies. The time-sensitive nature of products such as groceries and manufactured goods often dictate that freight forwarders use road transport to achieve required transit times.

An examination of all major origin-destination pairs in 1986-87 reveals that rail transport is used across a range of distances ranging from 48 kilometres (Burnie-Devonport) to 360 kilometres (Burnie-Hobart). Moreover, there is no significant concentration of the task at any particular distance interval which probably indicates that distance is not an important determinant of modal choice.

The Joy Report (1977) made several observations regarding the difficulties posed for the rail carriage of containers which still maintain a high degree of relevance. These findings can be summarised as follows:

- Road hauliers are able to offer competitive rates unconfined by State regulations or charges.

- If containers are arriving in unpredictable numbers, at a variety of ports, it is not possible for Tasrail to provide an overnight service to and from the south at all times, whilst keeping unit-costs low.
- In order to guarantee container movement at all times, it is likely that excess capacity will result with consequent reduced wagon utilisation.

Other important factors influencing modal choice include road vehicle limits and the possible future introduction of B-doubles (essentially a double semi-trailer with between seven and nine axles) to Tasmania. Recently, the gross weight limit for six-axle articulated trucks was increased from 38 to 41 tonnes, effectively raising payload capacity to around 24 tonnes.[2] This limit enables road transport operators to carry two containers where the average container weight is around 12 tonnes. Consequently, Tasrail faces strong road competition in this segment of the container market. The future introduction of B-doubles to some routes would further enhance the competitive position of road transport. B-doubles can carry a payload of up to around 38 tonnes, which enables two containers to be carried in almost all cases. It was reported early in 1987 that the Tasmanian State Government was considering the trial introduction of B-doubles along the Burnie-Perth-Bridgewater corridor *(Launceston Examiner* 1987c). Subsequently, the trial was cancelled until such time as road standards are considered to be adequate for such vehicles.

MARKET DEVELOPMENTS

Although the growth in rail container traffic to 1986-87 probably reflects changes in the size of the container market and movements in rail and road container rate relativities, there is no appropriate statistical evidence to quantify these effects. However, movements in the Tasmanian coastal shipping and overseas container trade provide an indication of changes in the overall container task.

Details regarding containerised coastal shipping cargo movements are only available for the years 1983-84 and 1984-85 (Federal Department of Transport 1986). These figures indicate that the total task was just under 1.5 million mass tonnes in both years. In 1984-85, outward movements accounted for 55 per cent (or 789 000 tonnes), while the remainder was inward movements of 651 000 tonnes.

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2. This assumes a tare weight of 17 tonnes.

Table 6.2 presents details of containerised overseas freight loaded and discharged at Tasmanian ports between 1979-80 and 1985-86. The Table reveals that substantial growth in overseas container traffic occurred in 1984-85 and 1985-86, reflecting increases in export container tonnage. Furthermore, with the exception of 1982-83, export shipments accounted for in excess of 80 per cent of overseas tonnage in each year.

TABLE 6.2 CONTAINERISED OVERSEAS FREIGHT LOADED AND DISCHARGED: TASMANIAN PORTS, 1979-80 TO 1985-86
('000 tonnes)

Year	*Loaded*	*Discharged*	*Total*
1979-80	67	14	81
1980-81	95	23	118
1981-82	74	13	87
1982-83	77	25	103
1983-84	94	25	118
1984-85	139	23	162
1985-86	200	31	231

Notes 1. Figures may not add to totals due to rounding.
2. All figures are measured in revenue tonnes.

Source ABS (1987f).

Since both coastal and overseas container tonnages include freight of local origin and destination and time-sensitive consignments which are likely to be carried by road transport, it is not possible to estimate the proportion of container traffic potentially available to rail. In addition, as coastal and overseas statistics are measured in mass and revenue tonnes respectively, it was not possible to aggregate these statistics to obtain a measure of the size of the Tasmanian container market.[3]

3. Revenue tonnes are the basis on which freight is charged and may be measured by mass (tonnes) or volume (cubic metres). At the aggregate level, an earlier BTE study (BTE 1985) estimated that there were 142 100 container movements involved in the Tasmanian interstate and overseas trade in 1979-80. In that year, Tasrail carried 16 260 full containers (Transport Tasmania 1985) suggesting that Tasrail handled approximately 11 per cent of total container traffic in 1979-80.

Although growth in inward and outward containerised cargo is important in terms of the size of the Tasmanian container trade, the four port structure is a significant factor determining the distribution of the total container transport task. A significant reduction in the containerised freight volume handled at any of the four ports in favour of another port, or a significant change in Bass Strait shipping services would necessarily change the requirement for intrastate road and rail container transport. As such, perhaps the two most significant developments in recent years have been:

- the AN proposal to attract significant freight volumes currently shipped through the port of Hobart; and
- the proposed rationalisation of Bass Strait shipping services from March 1 1987.

The AN proposal attained prominence in an Inter-State Commission (ISC) report (Inter-State Commission 1985) which dealt specifically with the Tasmanian Freight Equalisation Scheme (TFES). The major potential rail traffic identified by AN was 200 000 tonnes of containerised newsprint which would be railed from ANM, Boyer to Bell Bay for interstate shipment. However, the subsequent renewal of the contract between ANM and the USS Co in 1985 will probably ensure that this newsprint is shipped through the port of Hobart until at least 1990.

The proposed rationalisation of Bass Strait shipping services, by way of a three-year agreement between the ANL, USS Co and William Holyman and Sons, was subject to examination by the Trade Practices Commission. In September 1987, the Commission determined that it did not propose to grant the authorisation necessary for the agreement to proceed. However, the proposal had resulted in some alterations to Bass Strait services earlier in 1987. Major changes included the withdrawal of the *Mary Holyman* Devonport service and Hobart services to the mainland were reduced from three per week to two. Industry sources expect that Burnie will obtain most of the cargo formerly carried on the *Mary Holyman* (around 25 000 tonnes per annum). It is also anticipated that Bell Bay will receive some of the Devonport cargo and the more urgent cargo originating from Hobart which is not suited to the new sailing schedule.

SCENARIOS

The medium and low growth scenarios developed for container traffic assume that there will no further significant alterations to coastal or overseas shipping services. Conversely, the high growth scenario provides for the withdrawal of USS Co services to and from the port of Hobart following the expiration of the current ANM-USS Co agreement in

1990. Tasrail is assumed to capture an additional 200 000 tonnes of container traffic at this time, moved to and from the northern port of Bell Bay.[4] All scenarios assume that B-doubles will not be introduced to Tasmania, which would strengthen the competitive position of road transport.

Tasrail container traffic statistics are disaggregated according to freight forwarder, container shipments originating from ANM, Boyer and aluminium traffic which is predominantly railed from Bell Bay to Burnie. Accordingly, container traffic forecasts were developed for these three classes of traffic.

Freight forwarders

The high and medium growth scenarios assume that rail container traffic increases will closely reflect changes in Tasmanian economic activity as measured by growth in Tasmanian real Gross Domestic Product (GDP). Medium-term projections of Tasmanian State real GDP produced by the National Institute of Economic and Industry Research (NIEIR) suggest average annual growth of 1.8 per cent between 1987-88 and 1990-91 (National Institute of Economic and Industry Research 1987). On the basis of these medium-term projections for real State GDP, it was assumed that container tonnage would increase at an average annual rate of 2 and 1 per cent per annum between 1987-88 and 2007-08 under the high and medium growth scenarios respectively.

The low growth scenario is based on the progressive loss of rail container traffic to road as the poor container cost recovery position is addressed by Tasrail.[5] As road transport can provide an alternative service without the restriction of State regulations or charges, the future rail container task is heavily dependent on the container rate strategy adopted by Tasrail. To reflect the change over time in the rail and road market shares, rail container traffic was assumed to decline by 3 per cent annually under the low growth scenario. Estimates of the container rail task under all three scenarios are based on an average haul length of 200 kilometres.

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4. To generate task estimates it was assumed Bell Bay would be the port of shipment. The port of shipment will of course be dependent on shipping services prevailing at the time.
5. In the first Tasrail Corporate Plan, covering the period 1986-87 to 1995-96, the poor cost recovery position of container traffic was highlighted. In addition, it was noted that an assessment of the long-term viability of container traffic was required.

Aluminium

Future aluminium rail container traffic is dependent on traffic growth between Comalco Aluminium (Bell Bay) Limited and the ports of Burnie and Devonport. In 1985-86, around 15 000 tonnes of aluminium was carried by Tasrail between Bell Bay and the ports of Burnie and Devonport.

Comalco annual production is presently around 120 000 tonnes and the plant has an annual rated capacity of 117 000 tonnes (Bureau of Mineral Resources 1985). Currently, the majority of aluminium produced at Bell Bay is shipped to Comalco mainland plants, principally in New South Wales. In 1985-86, 110 000 tonnes of aluminium was shipped through the port of Bell Bay of which interstate movements accounted for 72 000 tonnes, the remaining 38 000 tonnes being export sales (Federal Department of Transport 1987).

Since no significant increase in production at the Bell Bay plant is likely in the medium-term, rail shipments are unlikely to increase in the foreseeable future. However, the present traffic can probably be regarded as rail captive as containerised aluminium shipments average around 18 to 20 tonnes per box. Consequently, all three forecasts assume no change to the present pattern of aluminium rail shipments.

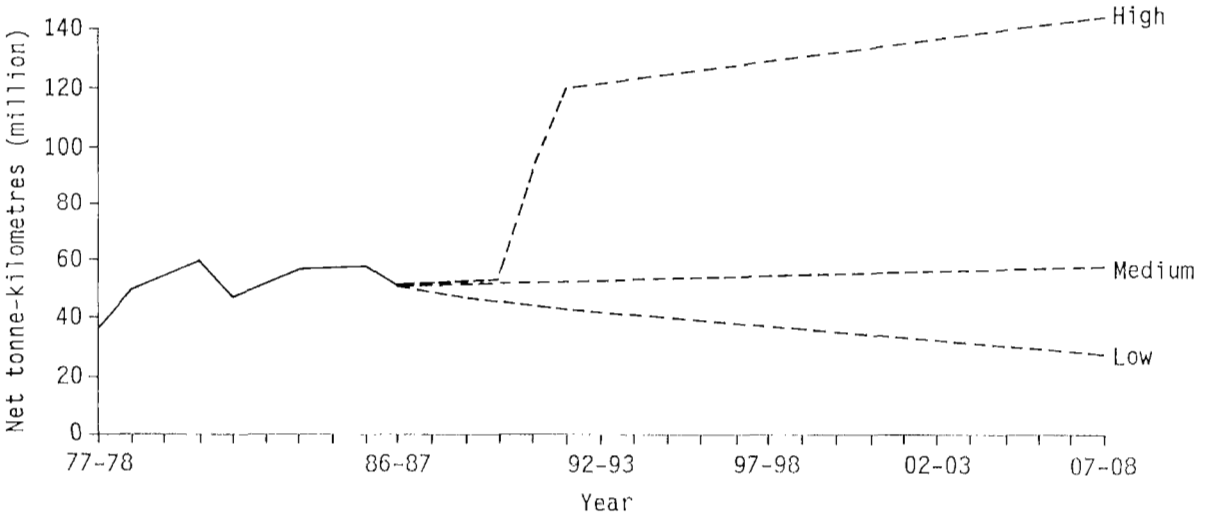
ANM

The shipment of containerised paper products by rail from ANM, Boyer to the port of Hobart is dependent upon both ANM production of paper products and future shipping arrangements for ANM products. Following the cessation of barge operations in 1986, paper products which are not railed to Hobart, are transported by road from Boyer on a 24 hour, 7 days a week basis. Under the medium and low growth scenarios it was assumed that ANM would continue to transport all paper products to the port of Hobart for interstate shipment via the USS Co service or an alternative Hobart service throughout the forecast period. Projections of rail traffic assume long-term growth rates of 1 per cent under the medium growth scenario, while the low growth scenario assumes no change to current ANM rail container movements.

The high growth scenario assumes that all ANM paper products currently moved by rail ex-Boyer are redirected from the port of Hobart to Bell Bay following the expiration of the current ANM-USS Co agreement in 1990. In addition, the high growth scenario allows for long-term growth of 2 per cent in the volume of these shipments.

FORECASTS

Table 6.3 contains details of forecast container traffic growth rates



Sources Australian National (pers. comm. 1987). BTE estimates.

Figure 6.1 Tasrail container task, 1977-78 to 2007-08

between 1988-89 and 2007-08 and Figure 6.1 illustrates the associated task. The long-term growth rates (1987-88 to 2007-08) in terms of tonnage are 3.7, 0.9 and -2.1 per cent under the high, medium and low growth scenarios. Associated growth rates in terms of net tonne-kilometres are 5.0, 0.8 and -2.7 per cent respectively. Details of forecast container tonnage and net tonne-kilometres are contained in Table I.4.

TABLE 6.3 FORECAST AVERAGE ANNUAL GROWTH RATES FOR CONTAINER TRAFFIC CARRIED BY TASRAIL, 1988-89 TO 2007-08
(per cent)

Forecast	*1988-89 to 1992-93*	*1993-94 to 1997-98*	*1998-99 to 2002-03*	*2003-04 to 2007-08*
Tonnes				
High	11.5	1.2	1.3	1.3
Medium	0.9	0.9	1.0	1.0
Low	-2.2	-2.1	-2.0	-1.9
Net tonne-kilometres				
High	18.5	1.1	1.2	1.2
Medium	0.6	0.9	0.9	0.9
Low	-3.0	-2.6	-2.5	-2.4

Source BTE estimates.

CHAPTER 7 SULPHURIC ACID

Sulphuric acid is produced as a by-product of zinc production by the Electrolytic Zinc Company of Australasia (EZ) at Risdon, near Hobart. In the second half of 1983, EZ commissioned new acid production capacity which lifted capacity to about 420 000 tonnes per year. Within Tasmania, the sulphuric acid produced by EZ is primarily used in the production of phosphatic fertiliser by EZ and as an input to the production of titanium dioxide pigment by Tioxide Australia.

Following the closure of the North-West Acid[1] plant at Wivenhoe in August 1979, sulphuric acid has been exclusively produced in Tasmania by EZ. Table 7.1 shows that total production ranged from a low of 254 000 tonnes (1980-81) to a high of 363 000 tonnes (1985-86) in the years following the closure of the Wivenhoe plant. Although EZ acid production has fluctuated from year to year, sales have exhibited an upward trend, increasing by almost 100 000 tonnes between 1977-78 and 1984-85. Significant sales increases were achieved in 1981-82 and 1983-84. Although figures for 1985-86 and 1986-87 are not available, it is reasonable to assume that sales have been maintained at around the 1984-85 level of 225 000 tonnes.

Tioxide Australia, located at Heybridge (near Burnie), manufacture titanium pigments which have a wide range of industrial applications. Titanium pigments are utilised as the base white pigment in paints, enamels, plastics, printing inks, rubber, paper, man made fibres and a number of other products. The annual titanium pigment production capacity of the Heybridge plant is currently 42 500 tonnes and the associated sulphuric acid requirement is approximately 140 000 tonnes.

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1. North-West Acid, a jointly owned subsidiary of EZ and the Mount Lyell Mining and Railway Company Limited, had an annual production capacity of 420 000 tonnes.

TABLE 7.1 PRODUCTION AND SALES (EX-RISDON) OF SULPHURIC ACID IN TASMANIA, 1977-78 TO 1986-87

Year	Production ('000 tonnes)	Annual change (per cent)	Sales ex-Risdon ('000 tonnes)	Annual change (per cent)
1977-78	522	..	127	..
1978-79	415	-20.5	126	-0.8
1979-80[a]	303	-27.0	139	10.3
1980-81	254	-16.2	120	-13.7
1981-82	336	32.3	191	59.2
1982-83	292	-13.1	186	-2.6
1983-84	319	9.2	223	19.9
1984-85	351	10.0	225	0.9
1985-86	363	3.4	na	..
1986-87	334	-8.0	na	..

a. Closure of the North-West Acid plant at Wivenhoe.
.. Not applicable.
na Not available.

Sources ABS (1987c). Electrolytic Zinc Company of Australasia (1984). North Broken Hill Holdings (1986).

TRANSPORT ARRANGEMENTS

Sulphuric acid is supplied and delivered to Tioxide by EZ through an agreement with Tasrail for the transport of sulphuric acid between Risdon or Burnie and Heybridge. Approximately 50 per cent of the sulphuric acid requirement is shipped via the MV *Zincmaster* to the port of Burnie where it is pumped into rail tankers and transported the 8 kilometres to Heybridge. The remaining 50 per cent is railed to Heybridge direct from Risdon, a distance of 348 kilometres. The long-haul Risdon-Heybridge shipments account for almost 98 per cent of the sulphuric acid task.

Table 7.2 presents details of sulphuric acid carried by Tasrail for the years 1977-78 to 1986-87.[2] Although total rail tonnage has remained relatively constant over the period, the rail task has increased substantially, particularly in the year 1979-80. This reflects the much larger volume carried to Heybridge from Risdon

2. Approximately 2 per cent of total sulphuric acid rail traffic is carried from EZ to ANM at Boyer.

directly by rail following the closure of the Wivenhoe North-West Acid plant.

Intermodal considerations

The transport of highly concentrated sulphuric acid is ideally suited to rail and sea transport. The potential consequences of an acid spill are much lower for rail and sea transport in comparison to road transport. Although it would be possible to transport all the sulphuric acid by sea, this would require additional shipping capacity. In addition, the present transport of sulphuric acid by both rail and sea transport helps ensure a continuity of supply and this arrangement continues to be viable because the cost differential between rail and sea transport is small. The reliable provision of sulphuric acid is an important consideration as the failure of EZ to supply Tioxide with sulphuric acid could result in plant closure due to the limited ability of Tioxide to store sulphuric acid. Plant closure is particularly costly as full production is not achieved for a period of two to three months following a plant shut-down.

The upper bound on sea transport of sulphuric acid destined for Tioxide is of the order of 65 000 tonnes annually. The MV *Zincmaster* is capable of carrying a maximum of 5200 tonnes and makes approximately 14 calls at the port of Burnie annually. In 1985-86,

TABLE 7.2 SULPHURIC ACID CARRIED BY TASRAIL, 1977-78 TO 1986-87

Year	*Tonnes ('000)*	*Annual change (per cent)*	*Net tonne-kilometres ('000)*	*Annual change (per cent)*
1977-78	108	..	581	..
1978-79	101	-6.5	3 855	563.5
1979-80	89	-11.9	14 534	277.0
1980-81	98	10.1	16 137	11.0
1981-82	103	5.1	17 394	7.8
1982-83	99	-3.9	19 303	11.0
1983-84	105	6.1	16 539	-14.3
1984-85	106	1.0	15 700	-5.1
1985-86	108	1.9	18 841	20.0
1986-87	117	8.3	20 572	9.2

.. Not applicable.

Source Australian National (pers. comm. 1987).

sulphuric acid recieved at the port of Burnie and distributed to local customers (primarily Tioxide) ammounted to 64 000 tonnes (North Broken Hill Holdings Limited 1986).

MARKET DEVELOPMENTS

Titanium dioxide pigments are produced by Tioxide and by SCM Chemicals Limited at Bunbury, Western Australia. Ilmenite mined from deposits in the south west of Western Australia is the basic raw material required for pigment production.

Although precise production statistics are confidential, annual domestic production of titanium pigment is between 60 000 and 70 000 tonnes (Bureau of Mineral Resources 1986b). In terms of production capacity, both current and future expansions will greatly increase the capacity of the Tioxide Heybridge plant. Work recently completed lifted annual production capacity to 42 500 tonnes generating a sulphuric acid requirement of around 140 000 tonnes. In March 1987, Tioxide announced plans for a further $23 million expansion which will increase capacity to 52 500 tonnes by the end of 1988 *(Hobart Mercury* 1987b). At this time the annual sulphuric acid requirement will increase to around 170 000 tonnes.

Domestic consumption of titanium dioxide pigments increased by over 4 per cent in 1985 to 36 000 tonnes. Despite declining in 1982 and 1983, domestic consumption increased by 2.4 per cent per annum, on average, between 1981 and 1985. However, consumption in the early 1970s was of the order of 30 000 tonnes indicating that domestic demand has been relatively constant for a number of years.

According to BMR figures, total worldwide titanium pigment production capacity was 2.4 million tonnes in 1985 and production was close to capacity reflecting strong world demand. Furthermore, Bureau of Mineral Resources (1986b) notes that world demand for pigment is expected to exceed supply in the short-term. Since Australia is a marginal supplier in world terms this suggests that any increase in Tioxide output can probably be absorbed in world markets without difficulty.

Export figures for titanium dioxide pigment are not available. However, based on domestic consumption in 1985 of 36 000 tonnes and domestic production of between 60 000 and 70 000 tonnes in the same year, pigment exports were between 24 000 and 34 000 tonnes in 1985. Major export markets include New Zealand and countries of South-East Asia.

Very small quantities of special grades of titanium pigments are imported into Australia. In 1985, 1200 tonnes of pigment was imported from a number of countries including the Federal Republic of Germany and the United States.

SCENARIOS

To develop sulphuric acid rail traffic scenarios and associated forecasts, the following assumptions were made:

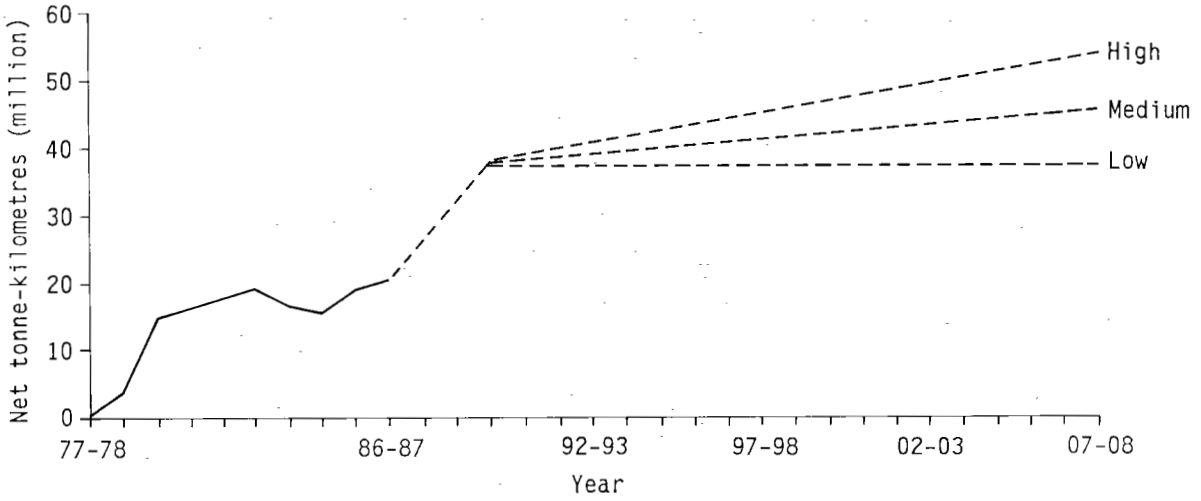
- Tioxide will continue to obtain all sulphuric acid requirements from the EZ plant at Risdon;
- there will be no significant change to present sulphuric acid shipping capacity; and
- planned production expansion by Tioxide will be absorbed by growth in domestic and export markets.

If any of the above assumptions do not hold, there may be reductions in sulphuric acid rail traffic. For example, if sulphuric acid was once again produced on the north west coast, the tonnage shipped by rail would remain essentially constant but the rail freight task would fall dramatically according to plant location. Alternatively, if all sulphuric acid was shipped to Burnie, the sulphuric acid would be railed from the port of Burnie to Heybridge generating between 1 and 2 million net tonne-kilometres annually. However, for analytical purposes, the above assumptions are assumed to be valid throughout the forecast period.

All three scenarios allow for annual Tioxide acid requirements to reach 170 000 tonnes from 1989. The low growth scenario assumes that the annual sulphuric acid requirement will not increase beyond 170 000 tonnes to the end of the forecast period. The medium and high growth forecasts assume that the historical production trend will be maintained and further plant capacity expansions are realised. Sulphuric acid destined for ANM, Boyer was assumed to be constant at 2500 tonnes per annum throughout the forecast period under all three scenarios.

FORECASTS

Table 7.3 provides details of average annual growth rates for sulphuric acid carried by Tasrail and Table I.5 details the associated tonnage and task for the period 1988-89 to 2007-08. Figure 8.1 illustrates the freight task for the period 1977-78 to 2007-08. The long-term growth rates, in terms of tonnage, to the year 2007-08 are



Sources Australian National (pers. comm. 1987). BTE estimates.

Figure 7.1 Tasrail sulphuric acid task, 1977-78 to 2007-08

3.1, 2.5 and 1.9 per cent under the high, medium and low growth scenarios respectively. Associated growth rates for the task are 4.7, 3.9 and 2.9 per cent respectively. The low growth scenario average annual increase is entirely due to increases up to, and including, 1989-90.

TABLE 7.3 FORECAST AVERAGE ANNUAL GROWTH RATES FOR SULPHURIC ACID CARRIED BY TASRAIL, 1988-89 TO 2007-08
(per cent)

Forecast	*1988-89 to 1992-93*	*1993-94 to 1997-98*	*1998-99 to 2002-03*	*2003-04 to 2007-08*
Tonnes				
High	5.8	1.3	1.3	1.2
Medium	5.2	0.8	0.7	0.6
Low	4.6	0.0	0.0	0.0
Net tonne-kilometres				
High	9.2	2.1	1.9	1.7
Medium	8.2	1.2	1.1	1.0
Low	7.2	0.0	0.0	0.0

Source BTE estimates.

CHAPTER 8 PULPWOOD LOGS

Pulpwood logs are used as an input to the production of a range of newsprint and related products by Australian Newsprint Mills Limited (ANM). ANM is the sole Australian producer of newsprint and operates two mills located at Boyer, Tasmania and Albury, New South Wales. Annual newsprint production capacities of the Boyer and Albury mills are of the order of 235 000 and 185 000 tonnes respectively. Major shareholders in ANM Holdings include John Fairfax and Sons Limited (50 per cent) and News Corporation (39 per cent). Of total newsprint sales in 1986, the shareholders of ANM Holdings Limited accounted for approximately 97 per cent of output, the remaining product being either exported or sold as other grades (Australian Newsprint Mills, pers. comm. 1987).

The production of newsprint and other paper products at Boyer requires both hardwood and softwood inputs. Hardwood is obtained from the ANM Forest Concession, located in the Derwent River catchment area, while softwood is drawn from Tasmanian Forestry Commission plantations in northern Tasmania. Currently, approximately 60 per cent of the 500 000 tonne Boyer mill annual pulpwood requirement is drawn from the ANM Concession. In addition to those logs extracted for newsprint and paper production, over 50 000 tonnes of sawlog is removed from the Concession annually.

ANM have been undertaking the development of pine plantations on freehold land in the Boyer area since the early 1970s. When these forests mature, the requirement for pine logs from northern Tasmania Forestry Commission plantations will be virtually eliminated. Consequently, the volumes obtained by rail from northern Tasmania can be expected to begin declining in 1990-91 and, depending on the rate of expansion at Boyer, the ANM requirement for external sources of pine logs will be minimal from 1996-97.

TRANSPORT ARRANGEMENTS

ANM currently obtain pulpwood logs by rail from four locations in

northern Tasmania, including Blumont, Conara, Fingal and Railton. ANM has cut out the hardwood log source in the area served by the Maydena line and consequently the tonnages carried by Tasrail from Florentine to Boyer fell to a negligible quantity in 1986-87. As a result of the phasing out of the use of rail in the Maydena area, hardwood log requirements are now transported by road to the Boyer mill.

In 1986-87, Tasrail transported approximately 20 per cent of the ANM pulpwood requirement to Boyer. Table 8.1 provides details of pulpwood logs carried by Tasrail and the associated freight task between 1977-78 and 1986-87. In tonnage terms, the pulpwood handled by Tasrail more than halved, from 209 000 tonnes (1977-78) to 98 000 tonnes (1986-87), representing an average annual decline of 8 per cent. The traffic task had increased substantially in 1978-79 as a result of pulpwood being drawn from northern Tasmania, specifically the Scottsdale area. However, significant declines have occurred in the 1980s largely reflecting the decreasing volume of Derwent Valley line pulpwood traffic. As a result of these changes in the composition of the pulpwood task, the average haul per tonne increased from 58 kilometres in 1977-78 to 228 kilometres in 1986-87.

TABLE 8.1 PULPWOOD LOGS CARRIED BY TASRAIL, 1977-78 TO 1986-87

Year	*Tonnes ('000)*	*Annual change (per cent)*	*Net tonne-kilometres ('000)*	*Annual change (per cent)*
1977-78	209	..	12 150	..
1978-79	256	22.5	29 156	140.0
1979-80	232	-9.4	29 271	0.4
1980-81	239	3.0	33 493	14.4
1981-82	232	-2.9	30 966	-7.5
1982-83	213	-8.2	29 501	-4.7
1983-84	185	-13.1	26 618	-9.8
1984-85	180	-2.7	26 576	-0.2
1985-86	152	-15.6	24 846	-6.5
1986-87	98	-35.5	22 355	-10.0

.. Not applicable.

Note May also include treated and untreated roundwood and firewood carried by Tasrail prior to 1983-84.

Source Australian National (pers. comm. 1987).

Intermodal considerations

The primary consideration governing modal choice is total cost which is largely dependent on the average place of accumulation, distance to the nearest railhead and the double handling incurred in the loading of rail wagons. For example, the intensity of ANM pulpwood logging operations was progressively reduced in the area served by the Derwent Valley line in favour of locations utilising road transport due to the interaction of these factors.

Another factor influencing modal preference is the greater flexibility afforded by road transport. Both the timing and the quantity of log inputs to the Boyer mill can be more readily adjusted to meet inventory requirements when road transport is utilised.

MARKET DEVELOPMENTS

The ANM mill at Boyer currently produces more than 30 different widths of standard newsprint to meet varying user requirements. The changing nature of Australian requirements in recent years has led to the addition of coloured, lightweight and high brightness paper, telephone directory paper and bulky paper to the ANM product range. Negotiations are currently underway between ANM and an overseas company which would involve a further major product diversification into lightweight coated paper. The diversification of the product range in recent years has given ANM the ability to avoid possible temporary plant closure by broadening the product range and thus lessening the impact of market downturns.

ANM has undertaken continuing capital expenditure projects in recent years to improve both efficiency and output. In 1978, plant and equipment was installed to manufacture thermo-mechanical pine pulp at Boyer, thus reducing the requirement for imported semi-bleached kraft pulp. The commissioning of the ANM Albury mill in the latter half of 1981 increased ANM annual newsprint production capacity to 400 000 tonnes. More recently, an additional thermo-mechanical pine pulp mill was comissioned in June 1987, which further replaced kraft pulp imports sourced from New Zealand and North America. The new mill has a requirement for around 180 000 tonnes of pulpwood annually, which will be sourced from Forestry Commission plantations in northern Tasmania until at least 1995-96.

Total Boyer newsprint production increased from 208 000 tonnes in 1977-78 to 223 000 tonnes in 1982-83 before successive declines saw production fall to 190 000 tonnes in 1985-86. The recent decline in Boyer newsprint production largely reflects the transfer of capacity

to paper products other than newsprint following the commissioning of the ANM Albury mill in 1981. Total Boyer production in 1985-86 of all paper products was 205 500 tonnes (Australian Newsprint Mills Limited 1986). The decline in production from 1984-85 (221 200 tonnes) was due to a number of factors including machine shutdowns associated with mill upgrading work. Production of all products was expected to be 221 000 tonnes in 1986-87, increasing to 235 000 tonnes in 1987-88 (Australian Newsprint Mills 1987a).

Table 8.2 shows that the total Australian consumption of newsprint increased by 11 per cent between 1979-80 and 1985-86, despite a sharp decline in 1982-83, which was a reflection of the general downturn in economic activity. Increases in newsprint consumption were recorded in both 1983-84 and 1984-85; however, consumption declined to 619 000 tonnes in 1985-86. Factors influencing this decline, after a two-year period of strong growth, included the adverse impact of continuing high interest rates on stock levels, reduced economic growth, the depreciation of the Australian dollar and a recovery in prices on world markets (Bureau of Agricultural Economics 1986a).

TABLE 8.2 AUSTRALIAN NEWSPRINT PRODUCTION, IMPORTS, EXPORTS AND APPARENT CONSUMPTION, 1979-80 TO 1985-86

	Year ('000 tonnes)						
Item	*1979-80*	*1980-81*	*1981-82*	*1982-83*	*1983-84*	*1984-85*	*1985-86p*
Production	222	214	307[a]	376	378	372	366
Imports	337	278	252	135	194	303	257
Exports	1	-	1	10	4	4	4
Total consumption	557	492	558	500	568	671	619

a. The ANM Albury mill commenced production in the latter half of 1981.
p Preliminary.
- Rounded to zero.

Note Figures may not add to totals due to rounding.

Source Bureau of Agricultural Economics (1986b).

Despite increased domestic production capacity, newsprint imports have remained at relatively high levels. Major sources of imports in 1985-86, according to preliminary data, included Canada (90 000 tonnes), New Zealand (87 000 tonnes) and Finland (50 000 tonnes). Australian newsprint exports form a relatively insignificant proportion of total domestic production. Between 1979-80 and 1985-86, exports, as a proportion of total Australian production, were less than 3 per cent in each year.

Prospects for the Australian newsprint market, together with current capacity constraints, suggest that ANM, Boyer sales can be maintained at current levels. While the Bureau of Agricultural Economics (1987, 82) notes that newsprint consumption will be constrained by market trends towards smaller newspapers of higher quality paper, some growth in the market is anticipated. Projections produced by the Bureau of Agricultural Economics (BAE) in their submission to the Industries Assistance Commission (IAC) report (Industries Assistance Commission 1986) on the pulp, paper, paper products and printing industries forecast average annual growth of 1 per cent for newsprint consumption to the end of the century. The practice of Australian newspaper publishers to multiple source newsprint, together with ANM capacity constraints, suggests this growth will be largely satisfied by overseas suppliers.[1]

Future ANM plans for Boyer are based on both the limited expected growth in the newsprint market and the opportunities that exist in domestic and export markets for higher value paper products. In addition, ANM aim to realise the achievable scale economies by transferring some Boyer newsprint capacity to the Albury mill. Future plans for Boyer incorporating further product diversification, outlined in Australian Newsprint Mills (1987b), include[2]:

- the conversion of one paper machine to the production of higher grade newsprint, together with modifications to another machine, lifting Boyer production capacity to 255 000 tonnes by 1990;
- a new paper machine producing magazine grade coated paper increasing output to between 350 000 and 400 000 tonnes in the early 1990s; and

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1. Total newsprint production capacity of the two ANM mills is 420 000 tonnes compared to current domestic consumption of over 600 000 tonnes.
2. The precise timing of these developments will depend on factors such as product marketing prospects and paper making technological change.

- the addition of a further machine in the mid 1990s, adding higher value printing and writing papers to the product range, lifting production to around 600 000 tonnes.

SCENARIOS

With the cessation of rail operations in the Maydena area, future pulpwood log rail shipments to Boyer will consist of pine sourced from northern Tasmania. The present agreement between ANM and the Forestry Commission ensures that ANM pine requirements are obtained from northern Tasmania until the end of the 1995-96 year. However, as previously noted, the availability of pine pulpwood from ANM forests will reduce the dependence on this source from 1990-91.

All three scenarios assume that all pine requirements can be satisfied by ANM resources in the 1996-97 year. The low growth scenario assumes that all pine requirements can be met by ANM resources for the remainder of the forecast period. However, proposed Boyer expansion plans outlined previously are likely to necessitate the external sourcing of pine from 1997-98. This wood may continue to be sourced from northern Tasmania or alternative sources of supply could be obtained. Assumptions specific to the high and medium growth scenarios are as follows:

High growth scenario

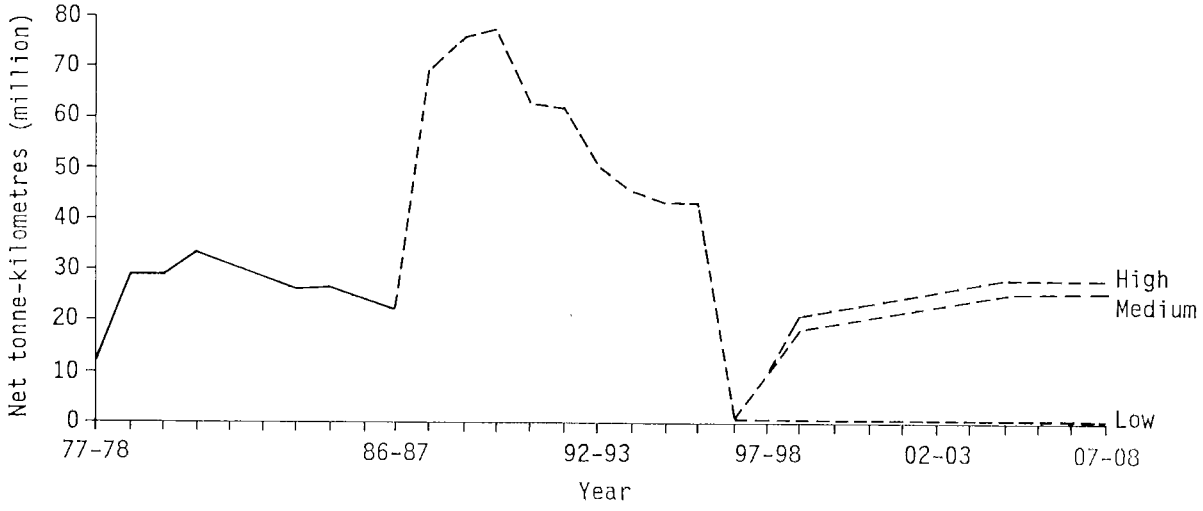
- capacity expansions are achieved resulting in pine requirements reaching 600 000 tonnes per annum by 2004-05; and
- from 1997-98, 50 per cent of pine requirements (over and above ANM resources) are obtained from northern Tasmania and railed to Boyer.

Medium growth scenario

- assumptions in line with those for the high growth scenario assuming requirements increase at a rate some 10 per cent lower than the high growth scenario.

FORECASTS

Table 8.3 shows details of growth rates associated with the three scenarios in both tonnes and net tonne-kilometres. The pulpwood rail task between 1977-78 and 2007-08 is illustrated in Figure 8.1, which shows the greatly increased task following the commissioning of the second thermo-mechanical pine pulp mill in late 1986-87. Figure 8.1 also illustrates the diminishing requirement for external sources of pine pulpwood from 1990-91.



Sources Australian National (pers. comm. 1987). BTE estimates.

Figure 8.1 Tasrail pulpwood log task, 1977-78 to 2007-08

Table 1.6 contains details of forecast Tasrail tonnage and net tonne-kilometres for the period 1988-89 to 2007-08. Long-term growth rates (that is, 1987-88 to 2007-08) in terms of tonnage are 0.7 and 0.1 per cent under the high and medium scenarios. Corresponding growth rates for the task are 1.2 per cent and 0.7 per cent respectively.

TABLE 8.3 FORECAST AVERAGE ANNUAL GROWTH RATES FOR PULPWOOD LOGS CARRIED BY TASRAIL, 1988-89 TO 2007-08

Forecast	*1988-99 to 1992-93*	*1993-94 to 1997-98*	*1998-99 to 2002-03*	*2003-04 to 2007-08*
Tonnes				
High	-6.6	-28.3	22.1	1.9
Medium	-6.6	-29.8	22.3	1.7
Low[a]	-6.6	..	..	..
Net tonne-kilometres				
High	-5.7	-28.6	22.4	1.8
Medium	-5.7	-30.1	22.4	1.8
Low[a]	-5.7	..	..	..

a. The low growth forecast provides for the cessation of all traffic from 1996-97.
.. Not applicable.

Source BTE estimates.

CHAPTER 9 FERTILISER

The three main types of artificial fertiliser applied to crops and pastures in Tasmania are phosphatic, nitrogenous and potassic.[1] In addition, many combinations of the basic types are employed.

The Electrolytic Zinc Company of Australasia (EZ), a wholly owned subsidiary of North Broken Hill Holdings Limited, is the sole producer of fertiliser in Tasmania, producing superphosphate in both bulk and bagged form and various other types of fertilisers. In addition, small quantities of sulphate of ammonia are produced for mixed fertiliser production, supplemented by approximately 4000 tonnes obtained from mainland Australia and overseas sources. EZ do not produce any form of potassic fertiliser; however, approximately 5000 tonnes is imported annually.

Between 1977-78 and 1985-86, EZ superphosphate production ranged from a low of 99 000 tonnes in both 1977-78 and 1985-86 to a high of 150 000 tonnes in 1978-79. The average quantity produced over the nine-year period was 119 000 tonnes. In the four years to 1985-86, between 1000 and 3000 tonnes of sulphate of ammonia was also produced annually.

Over the eight-year period to 1985-86, EZ fertiliser sales fluctuated quite widely about the average sales figure of 148 000 tonnes. Sales ranged from a high of 167 000 tonnes in 1979-80 to a low of 132 000 tonnes in 1985-86. However, adverse seasonal conditions prevailed in Tasmania in the first half of 1985-86, which resulted in low fertiliser demand.

Fertiliser demand in Tasmania is subject to strong seasonality with Autumn and Spring peaks. The Autumn season is characterised by strong

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1. Examples of phosphatic, nitrogenous and potassic fertilisers include superphosphate, sulphate of ammonia and muriate of potash respectively.

bulk fertiliser demand for pasture improvement, while the Spring season sees strong bagged demand for use in the cropping sector. Currently, some 60 per cent of sales are dispatched in bulk form, while the remaining 40 per cent is bagged.

TRANSPORT ARRANGEMENTS

When fertiliser is transported by road, a freight rebate is allowed by EZ. Since 1975, variations in the road freight rebate paid by EZ have been in direct proportion to the variation in rail freight rates. For example, if rail freight rates increase by 10 per cent, road freight rebates are increased by 10 per cent. In the absence of increased protection provided for rail under the Tasmanian rail protection scheme, this has the effect of increasing the range of viable road transport movements.

Table 9.1 provides details of total fertiliser carried by Tasrail for the period 1977-78 to 1986-87. While the vast majority of traffic carried by Tasrail is fertiliser originating from EZ, Risdon, substantial quantities of agricultural lime were carried in both 1978-79 and 1979-80. Apart from these two years, both rail tonnage and the task remained in a relatively small range. In 1985-86 major rail destinations ex-Risdon, that is, quantities greater than 5000 tonnes, included Smithton, Launceston, Deloraine, Stanley and Scottsdale. Over the ten years to 1986-87, the average haul length per tonne increased from 309 kilometres to 361 kilometres.

Fertiliser carried by road declined from 94 000 tonnes in 1978-79 to around 66 000 tonnes in 1985-86 or by 30 per cent. Consequently, the proportion of total fertiliser traffic carried by road from Risdon declined from 60 per cent in 1978-79 to around 50 per cent in 1985-86. Although estimates for more recent years are not available, a study undertaken by Transport Tasmania in 1981 estimated the distribution of road fertiliser traffic ex-Risdon according to geographical location (Transport Tasmania 1981). These estimates suggest that the road transport of fertiliser is largely confined to southern Tasmania (50 per cent of total road traffic) and north and north east Tasmania (31 per cent of total road traffic).

In a move away from individual delivery to the customer's nearest railway station, it is likely that two further bottom-dump fertiliser bulk depots will be established at Killafaddy (Launceston) and Devonport in addition to the depots currently operating at Deloraine, Howth, Wiltshire Junction and Scottsdale. It is expected that 34 sidings will be closed when all six bulk depots are operational (Australian National 1987). Benefits resulting from the introduction of the bulk depot concept identified by EZ include:

TABLE 9.1 FERTILISER CARRIED BY TASRAIL, 1977-78 TO 1986-87

Year	Tonnes ('000)	Annual change (per cent)	Net tonne-kilometres ('000)	Annual change (per cent)
1977-78	72	..	22 244	..
1978-79[a]	91	26.4	27 938	25.6
1979-80[b]	111	22.0	34 247	22.6
1980-81	73	-34.2	24 479	-28.5
1981-82	70	-4.1	23 377	-4.5
1982-83	75	7.1	23 954	2.5
1983-84	76	1.3	26 564	10.9
1984-85	77	1.3	26 066	-1.9
1985-86	67	-13.0	23 137	-11.2
1986-87	57	-14.9	20 596	-11.0

a. Includes around 25 000 tonnes of lime.
b. Includes about 37 000 tonnes of lime.
.. Not applicable.

Sources Australian National (pers. comm. 1987). Electrolytic Zinc Company of Australasia (pers. comm. 1986).

- improved loading techniques resulting in higher labour productivity;
- quicker turnaround of wagons resulting in improved rolling stock availability;
- less fertiliser becomes wet in transit;
- depots provide farmers with a local stock of fertiliser to meet planned and unplanned requirements;
- depots provide a range of fertilisers on view, thus encouraging farmers to be more selective in the type of fertiliser used (this should result in increased productivity);
- fertiliser spreading contractors have been provided with a more reliable delivery of fertiliser, thus increasing the utilisation of their equipment during the very busy Autumn season (Australian National 1987).

Intermodal considerations

An important advantage to EZ of using rail transport is that all loading can be undertaken at night. In addition, it is also possible

to achieve greater loading productivity using rail. If road transport was used exclusively, it would be extremely difficult to achieve all necessary loading during daylight hours.

As a result of the seasonal nature of fertiliser demand, periodic rail capacity problems have been experienced due to rolling stock and equipment unavailability. Through the implementation of deferred payments, this rail capacity problem has been alleviated to a small extent by enabling the advance delivery of fertiliser with payment being made at a later date.

MARKET DEVELOPMENTS

EZ is one of six manufacturers of phosphatic fertilisers in Australia. Each State has one manufacturer; however, with the exception of EZ, they all operate a number of plants. Since the price of transport is a significant component of final fertiliser price, domestic production of single superphosphate can be expected to continue dominating the Australian market. In 1983-84, 2.25 million tonnes of single superphosphate was produced in Australia utilising about 45 per cent of total capacity (Industries Assistance Commission 1985). Tasmanian production represented approximately 5 per cent of total Australian production in 1983-84. The IAC concluded that demand projections for single superphosphate indicate that current production levels will be maintained in the medium-term (Industries Assistance Commission 1985, 78).

The historically high demand for superphosphate in Australia compared to other countries is due largely to the widespread phosphorus and sulphur deficiencies in Australian soils, which are corrected mainly by the application of single superphosphate. The most significant change in fertiliser use in Australia in recent years has been the substitution of imported high analysis phosphatic fertilisers (such as mono-ammonium phosphate and di-ammonium phosphate) for single superphosphate, reflecting the relative price increase of single superphosphate in comparison to high analysis phosphatic fertilisers. This substitution has occurred principally in cropping activity which accounted for around 25 per cent of all fertiliser used in Tasmania in 1985-86. As a result of this development, EZ import granulated high analysis fertiliser to meet the specific requirements of the vegetable cropping industry.

The aggregate demand for fertiliser is dependent on factors such as climatic conditions, crop and pasture response to fertiliser application, the price of fertiliser and other farm inputs (and the relativity between these prices) and farm output prices. ABS

publishes figures regarding the consumption of fertiliser, by type, in Tasmania (ABS 1986b). Although these figures may somewhat understate total fertiliser consumption[2], it is evident that the usage of fertilisers other than superphosphate has been increasing in Tasmania. The quantity of potash, mixed and compound fertiliser used as a proportion of total fertiliser applied to crops and pastures increased from 24 per cent in 1977-78 to 34 per cent in 1985-86.

One development potentially affecting future EZ fertiliser sales and the requirement for rail transport was the inclusion of southbound non-bulk fertiliser shipments in the revised Tasmanian Freight Equalisation Scheme (TFES), effective from 1 September 1985. This has particular implications for the 6000 tonne per annum King Island market. Currently, all superphosphate shipped to King Island from EZ is railed to Stanley before being shipped to the port of Grassy, King Island via MV *Straitsman.* The Inter-State Commission (ISC) acknowledged that the inclusion of fertiliser in the southbound scheme would probably result in increased shipments of non-bulk fertiliser from the mainland (Inter-State Commission 1985, 334).

SCENARIOS

The dominance of rail transport in relation to northern Tasmania fertiliser sales, particularly north west Tasmania, can be expected to continue. The establishment of bottom-dump bulk depots has resulted in a number of improvements, which may enable Tasrail to capture some market share from road transport, particularly in cases where large quantities of bagged fertiliser are moved by road.

To develop fertiliser rail traffic forecasts the following assumptions were made:

- any decline in sales of single superphosphate in the cropping sector will be offset by increased demand in the pastoral industry; and
- EZ will remain the sole Tasmanian producer of single superphosphate.

The high and medium growth scenarios both assume that there is modest growth in the rail share of the bulk superphosphate market and/or

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2. A comparison of EZ sales with ABS consumption figures shows that EZ sales exceeded estimated Tasmanian fertiliser consumption in each of the years between 1978-79 and 1985-86.

overall growth in the size of bulk fertiliser market. Assumptions specific to the high, medium and low traffic forecasts are as follows:

High growth scenario

- Tasmanian fertiliser carrried by rail to increase at an average annual rate of 1 per cent between 1987-88 and 2007-08.

Medium growth scenario

- Sales of fertiliser moved by rail to increase at an average annual rate of 0.5 per cent per annum throughout the forecast period.

Low growth scenario

- Tasmanian fertiliser sales carried by rail to decline at an average annual rate of 0.5 per cent between 1987-88 and 2007-08.

As the quantity of fertiliser demanded is subject to annual fluctuations due to climatic and other factors, a six-year average of rail tonnage (that is, between 1980-81 and 1985-86) was used to project rail fertiliser tonnages and the associated freight task.[3] Estimates of the rail task assume that fertiliser bulk-depots are operating at Killafaddy and Devonport by 1988-89.

FORECASTS

Table 9.2 contains forecasts of the average annual growth rates for fertiliser carried by Tasrail, while Figure 9.1 shows the corresponding freight task over the forecast period. Table I.7 contains details of tonnage and net tonne-kilometres for the period 1988-89 to 2007-08.

The long-term growth rates (that is, 1987-88 to 2007-08), in terms of tonnage, to the year 2007-08 are 2.3, 1.7 and 0.6 under the high, medium and low growth scenarios respectively. Corresponding growth rates for the freight task are 2.1 per cent (high growth), 1.5 per cent (medium growth) and 0.5 per cent (low growth).[4]

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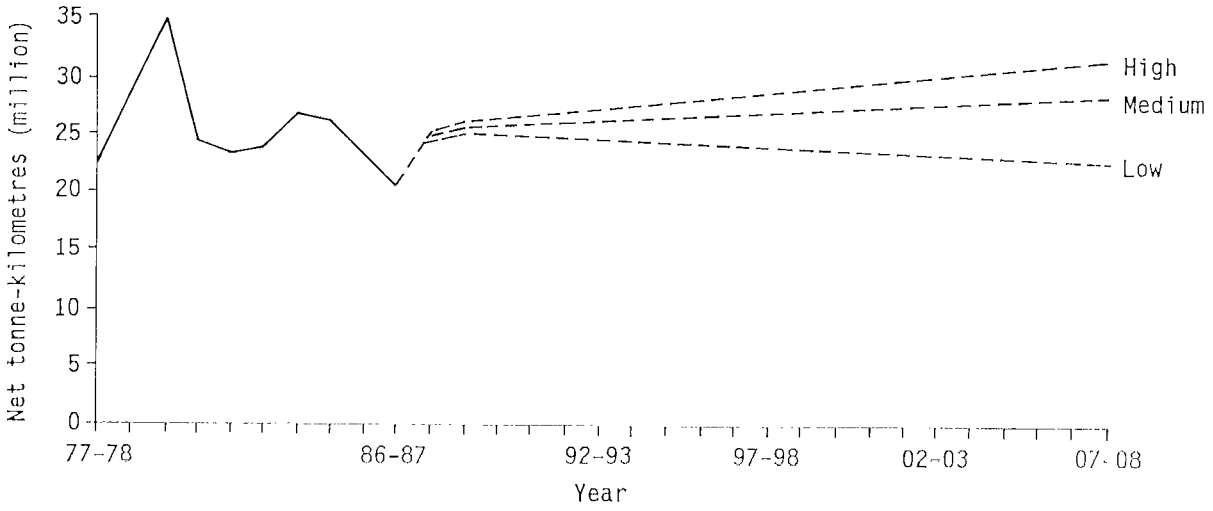
3. The 1986-87 year was excluded as rail tonnage was below the range which could reasonably be expected on a year-to-year basis.
4. Long-term growth rates for both tonnage and the task are biased upwards due to the particularly low rail carriage of fertiliser in 1986-87.



Sources Australian National (pers. comm. 1987). BTE estimates.

Figure 9.1 Tasrail fertiliser task, 1977-78 to 2007-08

TABLE 9.2 FORECAST AVERAGE ANNUAL GROWTH RATES FOR FERTILISER CARRIED BY TASRAIL, 1988-89 TO 2007-08

Forecast	1988-89 to 1992-93	1993-94 to 1997-98	1998-99 to 2002-03	2003-04 to 2007-08
Tonnes				
High	1.0	1.0	1.0	1.0
Medium	0.5	0.5	0.5	0.5
Low	-0.1	-0.1	-0.1	-0.1
Net tonne-kilometres				
High	1.0	1.0	1.0	1.0
Medium	0.5	0.5	0.5	0.5
Low	-0.1	-0.1	-0.1	-0.1

Source BTE estimates.

CHAPTER 10 OTHER COMMODITIES

This chapter outlines the forecasts for all other commodities either currently or potentially carried by Tasrail. These include timber and sawlogs, kraft pulp, clay, woodwaste, limestone, dolomite and quartz.

TIMBER AND SAWLOGS

The transport of timber and sawlogs involves a number of origin-destination pairs. Major sawn timber origin-destination pairs include South Burnie-Tonganah, South Burnie-Launceston and Tonganah - Bell Bay. Major movements of sawlogs include Florentine-Western Junction and Wiltshire-South Burnie.

Table 10.1 provides details of timber and sawlogs carried by Tasrail between 1977-78 and 1986-87. Over the period both tonnage and the rail task were subject to some degree of fluctuation, probably reflecting the volatility of individual shipments from year to year. In 1986-87, the average haul length per tonne was 208 kilometres.

Forecast sawlog tonnages to 1988-89 reflect expected increases in Florentine-Western Junction tonnage. Following the 1988-89 year, tonnage on this route is anticipated to decline significantly as sourcing from the Florentine area is reduced.

Sawn timber tonnage is expected to be around 35 000 tonnes over the forecast period. This is an increase over the current tonnage of about 10 000 tonnes reflecting expected traffic originating from Scottsdale to locations throughout Tasmania.

Table 10.2 presents details of forecast growth rates in timber and sawlog tonnage and the freight task between 1988-89 and 2007-08.

In relation to the high growth scenario, the medium and low growth scenarios assume a proportionally lower tonnage is carried over all origin-destination pairs for both sawlogs and sawn timber. Long-term growth rates (1987-88 to 2007-08) in terms of tonnage are 0.5 per cent (high growth) and 0.2 per cent (medium growth). No long-term growth

TABLE 10.1 TIMBER AND SAWLOGS CARRIED BY TASRAIL, 1977-78 TO 1986-87

Year	*Tonnes ('000)*	*Annual change (per cent)*	*Net tonne-kilometres ('000)*	*Annual change (per cent)*
1977-78	63	..	11 301	..
1978-79	39	-38.1	7 994	-29.3
1979-80	76	94.9	13 034	63.0
1980-81	55	-27.6	9 319	-28.5
1981-82	59	7.3	9 655	3.6
1982-83	48	-18.6	8 005	-17.1
1983-84	68	41.7	11 455	43.1
1984-85	67	-1.5	12 023	5.0
1985-86	70	4.5	13 642	13.5
1986-87	60	-14.3	12 460	-8.7

.. Not applicable.

Source Australian National (pers. comm. 1987).

TABLE 10.2 FORECAST AVERAGE ANNUAL GROWTH RATES FOR TIMBER AND SAWLOGS CARRIED BY TASRAIL, 1988-89 TO 2007-08
(per cent)

Forecast	*1988-89 to 1992-93*	*1993-94 to 1997-98*	*1998-99 to 2002-03*	*2003-04 to 2007-08*
Tonnes				
High	-1.4	0.0	0.0	0.0
Medium	-1.8	0.0	0.0	0.0
Low	-2.2	0.0	0.0	0.0
Net tonne-kilometres				
High	-2.0	0.0	0.0	0.0
Medium	-2.4	0.0	0.0	0.0
Low	-2.8	0.0	0.0	0.0

Source BTE estimates.

is expected under the low forecast. Corresponding growth rates in terms of the freight task are 0.3, 0.1 and -0.2 per cent respectively. Figure 10.1 illustrates forecast movements in the freight task to 2007-08, while Table I.8 contains details of forecast tonnage and net tonne-kilometres.

KRAFT PULP

The high growth scenario provides for the inclusion of Wesley Vale-Burnie baled kraft pulp rail traffic originating from the proposed APPM pulp mill. For analytical purposes, it was assumed that export pulp is shipped through the port of Burnie. At full production rates, the mill will produce 440 000 tonnes of pulp annually.[1]

OTHER COMMODITIES

Other commodities presently carried by Tasrail include clay, woodwaste, limestone, dolomite and quartz. Apart from clay, all these volumes are currently less than 10 000 tonnes per annum.

Clay is transported by Tasrail between Tonganah and the APPM South Burnie paper mill. The white kaolin clay sourced by APPM is used for filling paper and increasing its opacity. Due to increased clay demand in terms of both quantity and quality, reserve estimates of 50 to 70 years prepared in the early 1980s probably overstate the size of the clay resource (*Launceston Examiner* 1986). However, it was assumed that sufficient clay to meet demand will be available throughout the forecast period. In 1986-87, Tasrail transported 44 000 tonnes of clay between Tonganah and South Burnie. Little change in this volume is anticipated over the forecast period.

Prospects for other minor commodities such as woodwaste, limestone, dolomite and quartz suggest that the contribution of these minor commodities to the Tasrail freight task will not change greatly over the forecast period. The introduction of a number of other commodities (for example, sand) is possible although there is no firm evidence to suggest that volumes will be large for these products. Therefore a figure of 100 000 tonnes (corresponding to an estimated task of 22.1 million net tonne-kilometres) was adopted under all three scenarios to reflect the contribution of minor commodities throughout the forecast period.

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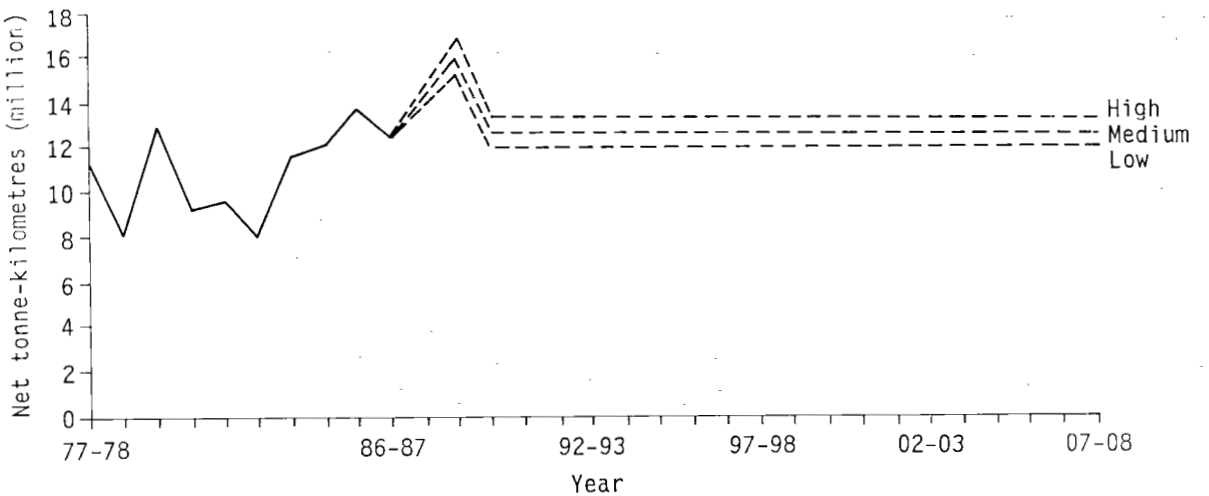
1. See Chapter 3 for further details of the proposed APPM Wesley Vale pulp mill.



Sources Australian National (pers. comm. 1987). BTE estimates.

Figure 10.1 Tasrail timber and sawlog task, 1977-78 to 2007-08

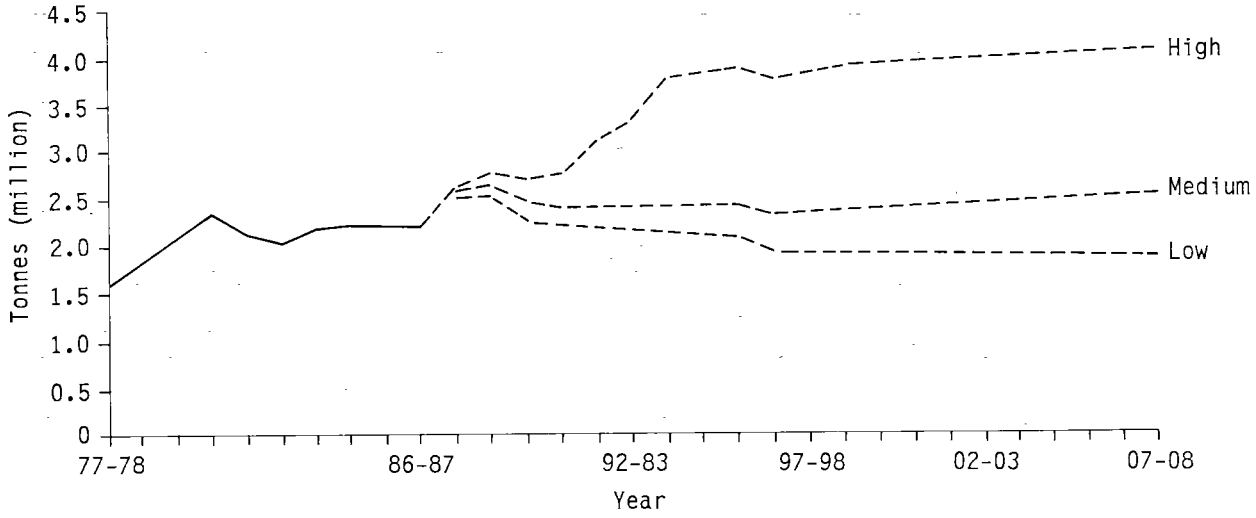
CHAPTER 11 AGGREGATE FORECASTS

The previous chapters have provided details of traffic forecasts for each of the commodities carried by Tasrail for the period 1987-88 to 2007-08. This chapter considers forecast movements in both tonnage and the freight task at the aggregate level, before some brief concluding remarks canvass some special circumstances which may move Tasrail traffic levels outside the forecast lower and upper bounds.

TOTAL TRAFFIC ESTIMATES

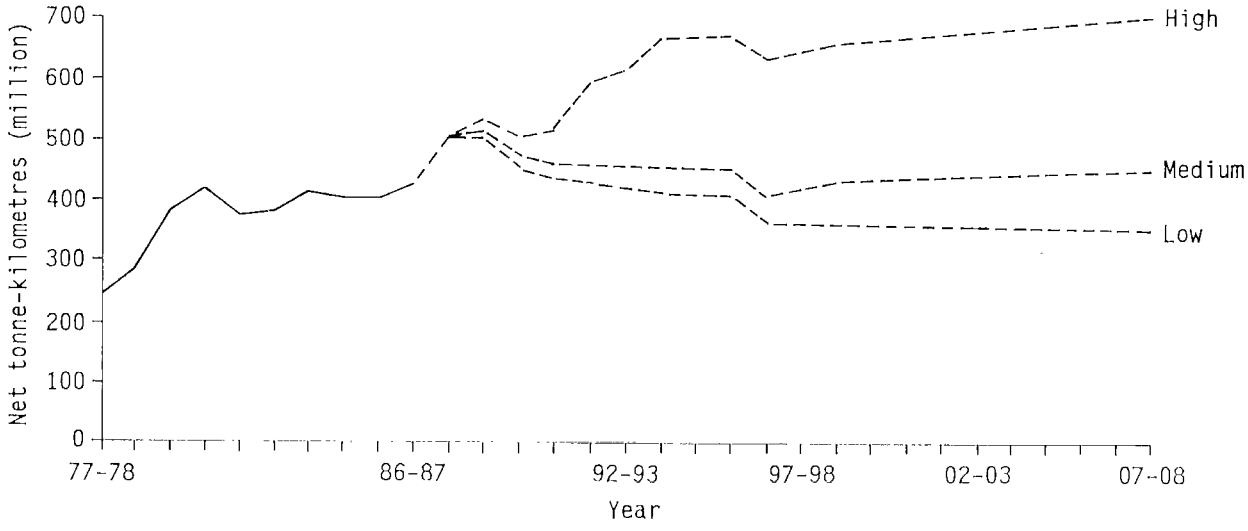
Under the three scenarios developed for Tasrail traffic, total tonnage is expected to move from 2.22 million tonnes in 1986-87 to between 1.8 and 4.0 million tonnes in 2007-08, while the freight task is forecast to change from 428.9 million net tonne-kilometres to between 349.5 and 701.5 million net tonne-kilometres (see Figures 11.1 and 11.2). Details regarding aggregate tonnage and the freight task are contained in Table I.9.

The expected average annual growth in Tasrail traffic under the three scenarios is presented in Table 11.1. The decline under the medium and low growth scenarios between 1988-89 and 1992-93 is primarily due to forecast declines in woodchip log movements to Long Reach from 1989-90. Under the high growth scenario, this is offset by the inclusion of traffic to and from the proposed Wesley Vale pulp mill from the early 1990s. A notable change influencing aggregate growth rates during the 1993-94 to 1997-98 period is the replacement of pulpwood logs currently railed to ANM (Boyer) by pulpwood locally sourced by road from 1996-97. Little change in the composition or magnitude of Tasrail traffic is anticipated under all three scenarios following the mid-1990s. In terms of tonnes carried, long-term growth rates (that is, 1987-88 to 2007-08) over the entire forecast period are 2.9 per cent (high growth), 0.5 per cent (medium growth) and -0.9 per cent (low growth). Associated growth rates applicable to the freight task are 2.4, 0.2 and -1.0 per cent respectively.



Sources Australian National (pers. comm. 1987). BTE estimates.

Figure 11.1 Tasrail tonnage, 1977-78 to 2007-08



Sources Australian National (pers. comm. 1987). BTE estimates.

Figure 11.2 Tasrail freight task, 1977-78 to 2007-08

TABLE 11.1 FORECAST AVERAGE ANNUAL GROWTH RATES FOR TASRAIL TRAFFIC, 1988-89 TO 2007-08

(per cent)

Forecast	*1988-89 to 1992-93*	*1993-94 to 1997-98*	*1998-99 to 2002-03*	*2003-04 to 2007-08*
Tonnes				
High	4.9	2.8	0.7	0.4
Medium	-1.4	-0.4	0.8	0.3
Low	-3.3	-2.3	-0.3	-0.3
Net tonne-kilometres				
High	3.7	1.2	1.0	0.6
Medium	-2.3	-1.5	1.0	0.4
Low	-3.5	-2.9	-0.3	-0.3

Source BTE estimates.

CONCLUDING REMARKS

The three scenarios developed for individual commodities have, as far as possible, included probable rail traffic gains and losses. The most likely or medium growth scenario will see Tasrail carry 2.48 million tonnes in 2007-08 and an associated task of 449.2 million net tonne-kilometres. The potential for much greater freight volumes is largely dependent on whether a pulp mill is established at Wesley Vale which is also linked to the Tasrail network. The high growth forecast incorporates substantial coal, log and kraft pulp traffic to reflect such a development. Conversely, the low growth forecast sees freight volumes fall well below the medium growth forecast largely due to declines in woodchip log, pulpwood log and container volumes, which are not offset by growth in other traffics.

While not included explicitly in the task projections, there are some possible developments generating changes in the composition of the future Tasrail task and these are briefly outlined below.

Potential increases in the rail task

- If HFP are not granted an export woodchip licence, APPM and Forest Resources woodchip export tonnage could at least be maintained at current levels. This would avoid the substantial loss of rail traffic following the expected commencement of HFP operations from 1989-90. Long Reach rail woodchip tonnage is expected to decline by around 20 per cent or 180 000 tonnes per annum at this time.

Potential declines in the rail task

- It is possible that one or more major Tasmanian coal consumers could source coal from the mainland in the future. Given their proximity to suitable port facilities, APPM (Burnie) and ANM would be the most likely consumers to consider such a change. Together, these two companies consume around 200 000 tonnes of coal moved by rail annually.
- The current Commonwealth Government inquiry regarding the Lemonthyme and Southern Forests is considering the future of some 30 per cent of the Southern Concession and 50 per cent of the ANM Concession. Any decision to completely stop logging in these areas may greatly impact upon future ANM and HFP operations.
- The future shipment of all Tioxide acid requirements by sea to Burnie would reduce the acid rail task from about 40 million net tonne-kilometres to between 1 and 2 million net tonne-kilometres, although the tonnage would remain constant.
- The removal of the rail protection scheme may result in the loss of some rail tonnage to road transport.

APPENDIX I FORECAST RAIL TONNAGE AND TASK

Tables I.1 to I.8 contain details of the individual forecasts prepared for each of the commodities carried by Tasrail, while Table I.9 presents the aggregate forecast of Tasrail tonnage and net tonne-kilometres.

TABLE I.1 FORECAST WOODCHIP LOGS CARRIED BY TASRAIL, 1988-99 TO 2007-08

('000)

	Year				
Forecast	*1988-89*	*1992-93*	*1997-98*	*2002-03*	*2007-08*
High					
Tonnes	925	856	956	956	956
Net tonne-kilometres	201 100	183 100	203 100	203 100	203 100
Medium					
Tonnes	850	629	629	629	629
Net tonne-kilometres	190 700	140 800	140 800	140 800	140 800
Low					
Tonnes	850	597	597	597	597
Net tonne-kilometres	190 700	133 700	133 700	133 700	133 700

Source BTE estimates.

TABLE I.2 FORECAST COAL CARRIED BY TASRAIL, 1988-89 TO 2007-08
('000)

	Year				
Forecast	*1988-89*	*1992-93*	*1997-98*	*2002-03*	*2007-08*
High					
Tonnes	383	513	643	656	665
Net tonne-kilometres	84 200	110 500	136 800	139 500	141 900
Medium					
Tonnes	373	387	401	407	410
Net tonne-kilometres	82 300	85 000	87 800	88 900	89 500
Low					
Tonnes	363	360	356	352	349
Net tonne-kilometres	80 200	79 500	78 700	77 800	77 000

Source BTE estimates.

TABLE I.3 FORECAST CEMENT CARRIED BY TASRAIL, 1988-89 TO 2007-08
('000)

	Year				
Forecast	*1988-89*	*1992-93*	*1997-98*	*2002-03*	*2007-08*
High					
Tonnes	438	573	731	742	753
Net tonne-kilometres	20 100	23 400	27 500	28 400	29 300
Medium					
Tonnes	377	445	524	529	535
Net tonne-kilometres	18 700	20 400	22 400	22 700	23 200
Low					
Tonnes	301	301	301	301	301
Net tonne-kilometres	15 600	15 600	15 600	15 600	15 600

Source BTE estimates.

TABLE I.4 FORECAST CONTAINER TRAFFIC CARRIED BY TASRAIL, 1988-89 TO 2007-08

('000)

	Year				
Forecast	*1988-89*	*1992-93*	*1997-98*	*2002-03*	*2007-08*
High					
Tonnes	308	522	555	591	631
Net tonne-kilometres	52 000	121 500	128 500	136 200	144 800
Medium					
Tonnes	303	314	329	345	362
Net tonne-kilometres	51 100	53 000	55 500	58 200	60 900
Low					
Tonnes	284	260	234	211	192
Net tonne-kilometres	47 500	42 700	37 500	33 000	29 200

Source BTE estimates.

TABLE I.5 FORECAST SULPHURIC ACID CARRIED BY TASRAIL, 1988-89 TO 2007-08

('000)

	Year				
Forecast	*1988-89*	*1992-93*	*1997-98*	*2002-03*	*2007-08*
High					
Tonnes	158	183	195	208	221
Net tonne-kilometres	31 900	40 700	45 100	49 500	54 000
Medium					
Tonnes	158	178	185	192	198
Net tonne-kilometres	31 900	39 000	41 300	43 700	46 000
Low					
Tonnes	158	173	173	173	173
Net tonne-kilometres	31 900	37 100	37 100	37 100	37 100

Source BTE estimates.

TABLE I.6 FORECAST PULPWOOD LOGS CARRIED BY TASRAIL, 1988-1989 TO 2007-08

('000)

	Year				
Forecast	*1988-89*	*1992-93*	*1997-98*	*2002-03*	*2007-08*
High					
Tonnes	302	200	38	103	113
Net tonne-kilometres	75 400	51 400	9 500	26 200	28 600
Medium					
Tonnes	302	200	34	93	101
Net tonne-kilometres	75 400	51 400	8 600	23 600	25 700
Low					
Tonnes	302	200	0	0	0
Net tonne-kilometres	75 400	51 400	0	0	0

Source BTE estimates.

TABLE I.7 FORECAST FERTILISER CARRIED BY TASRAIL, 1988-89 TO 2007-08

('000)

	Year				
Forecast	*1988-89*	*1992-93*	*1997-98*	*2002-03*	*2007-08*
High					
Tonnes	75	78	82	86	91
Net tonne-kilometres	26 100	27 200	28 600	30 100	31 600
Medium					
Tonnes	74	76	78	80	82
Net tonne-kilometres	25 800	26 300	26 900	27 600	28 300
Low					
Tonnes	72	70	68	67	65
Net tonne-kilometres	25 000	24 500	23 900	23 300	22 700

Source BTE estimates.

TABLE I.8 FORECAST TIMBER AND SAWLOGS CARRIED BY TASRAIL, 1988-89 TO 2007-08

('000)

	Year				
Forecast	*1988-89*	*1992-93*	*1997-98*	*2002-03*	*2007-08*
High					
Tonnes	81	66	66	66	66
Net tonne-kilometres	16 900	13 300	13 300	13 300	13 300
Medium					
Tonnes	77	63	63	63	63
Net tonne-kilometres	16 100	12 700	12 700	12 700	12 700
Low					
Tonnes	73	60	60	60	60
Net tonne-kilometres	15 300	12 000	12 000	12 000	12 000

Source BTE estimates.

TABLE I.9 FORECAST TASRAIL TRAFFIC, 1988-89 TO 2007-08

('000)

	Year				
Forecast	*1988-89*	*1992-93*	*1997-98*	*2002-03*	*2007-08*
High					
Tonnes	2 770	3 311	3 806	3 948	4 036
Net tonne-kilometres	529 900	609 700	647 500	681 400	701 500
Medium					
Tonnes	2 614	2 392	2 343	2 438	2 480
Net tonne-kilometres	514 000	450 700	418 000	440 200	449 200
Low					
Tonnes	2 503	2 121	1 889	1 861	1 837
Net tonne-kilometres	503 700	418 800	360 700	354 700	349 500

Source BTE estimates.

APPENDIX II ORGANISATIONS CONTACTED IN THE COURSE OF THE STUDY

The following organisations were contacted in the course of the study:

Australian Newsprint Mills
Australian Pulp and Paper Mills
Brambles Seacargo
Cornwall Coal Company
Electrolytic Zinc Company of Australasia
Forest Industries Association of Tasmania
Forest Resources
Goliath Cement
Hammond Palmer Transport
Holyman's
Sea Pak Transport Services
Tasrail
Tioxide Australia
TNT - Seafast
Tradex
Webster - ANL

REFERENCES

Abbreviations

ABS Australian Bureau of Statistics
AGPS Australian Government Publishing Service

Australian Bureau of Statistics (ABS) (1986a), *Mining Tasmania, 1984-85,* cat. no. 8401.6, and earlier issues, Hobart.

__ (1986b), *Agricultural Land Use and Selected Inputs Tasmania, 1984-85,* cat. no. 7411.6, Hobart.

__ (1987a), *Sawmilling, Woodchipping Etc. Statistics - Tasmania, September Quarter 1986,* cat. no. 8203.6, and earlier issues, Hobart.

__ (1987b), *Exports of Major Commodities and their Principal Markets Australia, 1985-86,* cat. no. 5423.0, and earlier issues, Canberra.

__ (1987c), *Monthly Summary of Statistics Tasmania, August 1987,* cat. no. 1303.6, and earlier issues, Hobart.

__ (1987d), *Monthly Summary of Statistics New South Wales, August 1987,* cat. no. 1305.1, and earlier issues, Sydney.

__ (1987e), *Monthly Summary of Statistics Victoria, August 1987,* cat. no. 1303.2, and earlier issues, Melbourne.

__ (1987f), *Shipping and Cargo Australia, June Quarter 1986 and 1985-86,* cat. no. 9211.0, and earlier issues, Canberra.

Australian Financial Review (1986), The Analyst, 8 September, 43.

Australian National (1987), AN News, December 1986 - January 1987, Adelaide.

Australian Newsprint Mills Limited (ANM) (1985), *1985 Report to Employees,* Boyer.

__ (1986), *Annual Report 1985-86,* Boyer.

__ (1987a), *Newsprint Log,* July 1987, Boyer.

__ (1987b), *ANM in Tasmania to 2000 and Beyond,* Boyer.

Bureau of Agricultural Economics (1986a), *Quarterly Review of the Rural Economy,* August 1986, Canberra.

__ (1986b), *Commodity Statistical Bulletin, January 1986,* Canberra.

__ (1987), *Quarterly Review of the Rural Economy, February 1987,* Canberra.

Bureau of Mineral Resources (1985), *Australian Mineral Industry Annual Review 1984 Preprint, Aluminium,* Canberra.

__ (1986a), *Australian Mineral Industry Annual Review 1985 Preprint, Coal,* Canberra.

__ (1986b), *Australian Mineral Industry Annual Review 1985 Preprint, Titanium,* Canberra.

Bureau of Transport Economics (1985), Tasmanian Non-Bulk Sea Freight Movements 1979-80 and 1980-81, Reference Paper No. 94 (unpublished).

__ (1987), *The Tasmanian Rail System: An Assessment of Costs and Benefits,* Report No. 62, AGPS, Canberra.

Cornwall Coal Company No Liability (1986), *Centenary 1886-1986,* n.p.

Electrolytic Zinc Company of Australasia (1984), *Annual Report* 1984, and earlier issues, Hobart.

Falkiner, Collins & Co. (1987), Tasmania Focus, *The Companies and the Economy,* Launceston.

Federal Department of Transport (1986), *Sea Transport Statistics, Coastal Freight Australia, and earlier issues, 1984-85,* Canberra.

__ (1987), Sea *Transport Statistics, Port Authority Cargo Movements, 1985-86,* and earlier issues, Canberra.

Goliath Cement Holdings Limited (1986), *Annual Report 1985-86,* n.p.

Hobart Mercury (1987a), Deal clears way for $40m pulp mill, 19 May, 4.

__ (1987b), Tioxide plans $23m growth, 31 March, 3.

Hydro-Electric Commission, Tasmania (1985), *Annual Report 1984-85,* Hobart.

__ (1986a), *Annual Report 1985-86,* Hobart.

__ (1986b), *Energy Planning in Tasmania, First Progress Report,* Hobart.

Industries Assistance Commission (1985), *Fertilisers,* Report No. 372, AGPS, Canberra.

__ (1986), *Draft Report on the Pulp, Paper Products and Printing Industries,* Canberra.

Inter-State Commission (1985), *An Investigation of The Tasmanian Freight Equalisation Scheme,* Vol. 1, AGPS, Canberra.

Joy Report. *See* Tasmanian Railways.

Launceston Examiner (1986), Clay helps keep mills competitive, 30 October, 28.

__ (1987a), Projects jinxed by log ban, 26 February, 5.

__ (1987b), $7m upgrade keeps Goliath on top.

__ (1987c), Warning on road trains, 8 Janaury, 14.

National Institute of Economic and Industry Research (1987), *The State Working Party, 25 February 1987,* Melbourne.

North Broken Hill Holdings Limited (1986), *Annual Report 1986,* and earlier issues, Melbourne.

Tasmanian Railways (Report, S. Joy, Chairman) (1977), AGPS, Canberra.

Tasmanian Woodchip Export Study Group (1985), *Environmental Impact Statement on Tasmanian Woodchip Exports Beyond 1988,* Tasmanian Government Printer, Hobart.

Transport Tasmania (1981), *Paper on the Movement of Fertilisers ex-Risdon with Particular Reference to Rail Carriage and Out-of-Area Permit Fees,* Transport Policy Unit Paper No. 1/81, Hobart.

__ (1985), *Tasmanian Transport Bulletin 1984-85*, Vol. 15, No. 4, Hobart.

__ (1987), *Rail Protection Fees for Road Transport of Rail Preferred Goods,* issue 7, 1 September 1987.

Wallace, M., Maxwell, J., & Sledge, P. (1986), *Export Potential for Australian Hardwood Pulpwood to Japan*, Bureau of Agricultural Economics, Canberra.

ABBREVIATIONS

ABS	Australian Bureau of Statistics
AN	Australian National
ANL	Australian National Line
ANM	Australian Newsprint Mills Limited
APM	Australian Paper Manufacturers Limited
APPM	Australian Pulp and Paper Mills
BAE	Bureau of Agricultural Economics
BMR	Bureau of Mineral Resources
BTE	Bureau of Transport Economics
EZ	Electrolytic Zinc Company of Australasia
GDP	Gross Domestic Product
HEC	Hydro-Electric Commission, Tasmania
HFP	Huon Forest Products
IAC	Industries Assistance Commission
ISC	Inter-State Commission
LCL	Less than container load
MV	Merchant Vessel
NIEIR	National Institute of Economic & Industry Research
TFES	Tasmanian Freight Equalisation Scheme
TPFH	Tasmanian Pulp and Forest Holdings
USS Co	Union Steam Ship Company of Australia Pty Ltd