Working on the Railroad

The Alice Springs to Darwin Railway

By Larry Bannister

A Historical Perspective

This has long been the dream of leaders in Australia with responsibility for the Northern Territory to have a railway connected between Adelaide and Darwin.

In 1858, only four years after the first railway was opened in Australia, the South Australian Government received a proposal from an entrepreneur on behalf of a London syndicate to build the railway, in return for land grants along the line (Stevenson, 1979). This was despite the fact it wasn’t until 1863 that South Australia assumed responsibility for the Northern Territory from New South Wales.

References to the ‘Port Augusta to Port Darwin Railway’, the ‘Great Northern Railway’, the ‘Trans-continental Railway’, and the ‘Trans-Australian Railway’ were numerous throughout the 1860s, culminating in 1872 with the Hon. Arthur Blyth moving during the Committee stages of the South Australian Parliament that, among other things:

"... a Railway from Port Augusta to Port Darwin would materially conduce to the prosperity of this Province."
(South Australian Government, 1872, p.92).

Once again the land grant system figured in the debate; an idea that was to reverberate up until the early part of this Century. It was clearly the intention of successive Governments in this period for the line to be constructed by private enterprise. The size of the land grant proposed was substantial, being “…to limit the grant to 100 million acres.” The proposal was for the land to be granted in alternate blocks along the line where the Government possessed land, but not within 200 miles of Adelaide nor 50 miles of Port Darwin. The motion was passed in Committee but the Bill subsequently lapsed (South Australian Government, 1873).

A year later in 1873 another proposal to build the railway was put to the Government by a private group, asking in return for 150 million acres “…to induce capitalists to invest their money in the undertaking.” (South Australian Government, 1873). This proposal was to also lapse, perhaps because of the political difficulties of vesting such large tracts of land under (private) monopoly control.

In 1886 Glyde moved a motion in the Legislature for the ‘Transcontinental railway’ to be constructed by private enterprise, in return for which would be offered land ‘to such an extent as may be agreed upon by the Legislature’. The motion was passed, but with the amendment that the railway ‘be constructed by the State or by private enterprise’. All references to land grants were removed (South Australian Government, 1886).

Subsequently a Transcontinental Railway Commission was established, the first of many government inquiries to take evidence on the project over the next 100 hundred years.

The Commission was chaired by Simpson Newland, a long time advocate of the railway, and reported to the Parliament in 1887. The Commission was interested among other things in whether trade may arise with Asia as a result of the construction of the railway. The Government Resident in the Northern Territory (the equivalent of the current day Administrator of the Northern Territory, or Head of Government), the Honourable J L Parsons, was in no doubt that it would. He spoke before the Commission of trade between Adelaide and other parts of Australia with India, China, Singapore and the ‘Eastern Archipelago’ (Indonesia) (South Australian Government, 1887a).

The recommendation of the Commission to proceed with the project was not followed through.

The proposal for the construction of the railway using the land grant system reached its zenith in 1902, when the Transcontinental Railway Act was passed by the South Australian Parliament, allowing tenders for the project to be called. At that time a narrow gauge railway had been built as far north as Oodnadatta in South Australia, together with a 200 kilometre section of narrow gauge line in the Northern Territory from Palmerston (now Darwin) south to the goldfields at Pine Creek. About 1700 kilometres of the railway remained to be completed.

The tender was titled ‘Land-Grant Railway Across Central Australia’, and was published in Australia and England on 10 December 1902. A maximum of 75,000 acres per mile of rail constructed was the ‘prize’, or just under 80 million acres of land lying along the route of the proposed railway (total distance 1,063 miles) (Newland, 1902).

Promotional material accompanying the call for tenders talked of Port Darwin being ‘the key to the East’, and:

“It is for South Australia to seize the present golden opportunity and force her railway across the Continent from Oodnadatta to Port Darwin with all speed, for, if ever time meant money, it does now to the welfare of this State; and not this State alone, for assuredly this railway will prove for the reciprocal advantage not only of the Territory more immediately interested, but of the entire Commonwealth of Australia.” (Newland, 1902, p7).

At the time the South Australians had their eye on the imminent completion of the Trans-Siberian Railway which, when linked with Australia via the railway to Port Darwin and a fast steamer service, would allow mail services between London and Australia to be cut by ‘at least a week or ten days’.

According to the Premier of South Australia, the Hon. J G Jenkins:
"South Australia would become, by construction of this line, the intermediary between Great Britain and the whole of Australia and New Zealand as far as quick transit was concerned... When that occurred, Port Darwin, in the Northern Territory, was bound by the very necessity of things to become a very important town." (Newland, 1902, p10).

The themes of reducing transit times for goods and services and enhancing trade with Asia were to return at the end of this Century. When tenders closed on 2 May 1964 not a single tender was received.

With this track record behind them, the South Australian Government decided it could no longer afford to maintain its interest in the Northern Territory. The State entered into negotiations with the Commonwealth Government for the latter to assume responsibility for the Territory. This occurred when the Northern Territory Acceptance Act 1910 came into force on 1 January 1911.

It was a condition of the Act for the Commonwealth Government to complete the railway to Darwin.

The fascination of the project continued to attract interest from some enterprising people. In August 1919, Australia's cattle king Sidney Kidman in partnership with Joseph Timms, put a proposal to the Commonwealth Government to construct the railway from Oodnadatta to Pine Creek at a cost of eight million pounds (Bowen, 1987).

Timms said at the time:

"We will find the whole of the money and take payment in government bonds and we will have the rails through in three years... Our offer is for a single line fully ballasted. Regarding gauge, weight of material, curves, grades, width of cuttings, banks and bridges—these details will be fixed by the Commonwealth Government and the work will be done under strict supervision. It will be a first class line either 4 feet 8 1/2 inches or 5 feet 3 inches, which would permit a speed of 60 miles an hour and with a proper start we could employ 5000 hands." (Bowen, 1987, p 256).

The South Australian Government pressed for a response, with the Commonwealth Government replying that the matter was being given 'serious attention' (Bowen, 1987).

By 1929 the Commonwealth Government had extended the line as far north as Alice Springs, and as far south as Birdum, the latter being 500 kilometres south of Darwin. The gap between railheads was about 1000 kilometres, the shortest it has ever been.

With the coming of the Second World War there came yet another twist in the story. The logistical problems faced by the military in supplying and resupplying the Top End reliably and safely were extraordinary. In the circumstances, the Americans offered to build a standard gauge railway from Adelaide to Darwin at no cost to Australia. The offer was declined, apparently because of the proposal to use skilled African Americans on the plate laying (Dermody, 1989). Probably the proposal placed the Commonwealth Government in a difficult position regarding its own industrial relations policy.

In the aftermath of the war Australia embarked on a programme of post war reconstruction. Planning had commenced during the war, including a report by Harold Clarke on standardising Australia's railway gauges (Commonwealth Australia, 1948).

The Clarke report resulted in the Chifley Government passing the Railways Standardization Act 1949, which stated the Commonwealth's intention to build a standard gauge railway to Darwin, including conversion of all existing narrow gauge railways.

With a change of Federal Government in 1949 the project collapsed. This was not to be the last time the railway promised by a government immediately before an election failed to appear. It was the intention of the Federal Government in 1949 to complete the railway, as Calwell subsequently revealed at a public meeting in Darwin in May 1952. By the latter time Calwell was the Deputy Prime Minister, and it was in this capacity he commended the next Labor Government to complete the railway (Stevenson, 1979).

By 1961, some 50 years after the original commitment to Commonwealth Government to construct the railway condition of taking control from South Australia to Northern Territory, the South Australian Government lost patience. In that year it took the Commonwealth Government to the High Court in an attempt to compel completion of the line. The action failed on the ground that no time period was specified in the legislation (Commonwealth of Australia, 1963).

Nevertheless the Whitlam Government once again pick the cudgels and decided to proceed with an all new standard gauge railway, with the title the Northern Territory Railway from Darwin to Alice Springs. This time the claim that Government in 1975 did not result in the Government resolve withering, and the line was built under a Government between 1975 and 1980.

It was also significant that in 1978 the Commonwealth Government granted Self Government to the Northern Territory.

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1 The North Australia Railway from Darwin to Birdum was closed in 1976, widening the gap once again to 1400 kilometres between Alice Springs and Darwin.

2 This episode in part gives rise to the title of this paper: "I've been working on the railroad" is a traditional American song, sung by African Americans as they worked to build the Northern rail lines across the mid west in the middle of the last century (Ralph, 1964).
“South Australia would become, by construction of this line, the intermediary between Great Britain and the whole of Australia and New Zealand as far as quick transit was concerned,... When that occurred, Port Darwin, in the Northern Territory, was bound by the very necessity of things to become a very important town.” (Newland, 1902, p10).

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The Clapp report resulted in the Chifley Government passing the Railway Standardization (South Australia) Agreement Act 1949, which stated the Commonwealth’s intentions to build a standard gauge railway to Darwin, including the conversion of all existing narrow gauge railways.

With a change of Federal Government in 1949 the project lapsed. This was not to be the last time the railway was promised by a government immediately before an election, only to see the project fester with the newly elected government. It was the intention of the Federal Labor Government in 1949 to complete the railway, as Caldwell subsequently revealed at a public meeting in Darwin in July 1952. By the latter time Caldwell was the Deputy Federal Opposition leader, and it was in this capacity he committed the next Labor Government to complete the railway (Stevenson, 1979).

By 1961, some 50 years after the original commitment by the Commonwealth Government to construct the railway as a condition of taking control from South Australia for the Northern Territory, the South Australian Government had lost patience. In that year it took the Commonwealth Government to the High Court in an attempt to force completion of the line. The action failed on the grounds that no time period was specified in the legislation (Commonwealth of Australia, 1963).

Nevertheless the Whitlam Government once again picked up the cudgels and decided to proceed with an all new, all weather standard gauge railway between Tarcoola in South Australia and Alice Springs. This time the change of Government in 1975 did not result in the Government’s resolve withering, and the line was built under a Fraser Government between 1975 and 1980.

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2 This episode in part gives rise to the title of this paper. The song ‘I’ve been working on the railroad’ is as old as American railways, sung by African Americans as they laboured across the mid west in the middle of the last Century (Raph, 1964).
Territory. The fledgling Territory Government made completion of the line an immediate priority, an objective it continues to hold to firmly.

Following the opening of the line to Alice Springs in 1980, he Commonwealth Government gave a clear signal of its intention to continue work by allocating $10 million for route survey between Alice Springs and Darwin. In January 1983 the Commonwealth Government announced the railway to Darwin would be completed by the Bicentennial year 1988. The 1983 federal election campaign immediately ensued in February of that year, with the Opposition matching the Government’s commitment to complete the line to Darwin.

However, upon gaining power the newly elected Hawke Government decided that there were insufficient funds for the Commonwealth Government alone to carry out the work. The capital cost of construction was estimated at $578 million in 1983 dollars (Commonwealth of Australia, 1984).

Instead the Commonwealth Government offered to fund 60 per cent of the work if the Northern Territory Government agreed to provide the remaining 40 per cent. In hindsight it was unfortunate the Territory Government declined this offer.

Political debate between the two governments followed, laced with numerous economic studies undertaken by each Government. The debate has continued for the entire period of the Hawke-Keating Governments.

The Symbolism of the Railway

The history as outlined above has accompanying it an undertone of the concept of imagined symbolic space (Thompson, 1996).

It is remarkable that a non-existent railway at worst, and incomplete at best, should occupy such a notable place in the history of Central Australia. The railway has been the stuff of dreams - in the mind’s eye of political and business leaders from Adelaide to Darwin - for more than a century. It has certainly been about what could be rather than what is, and thus remains in the imagination rather than filling real space.

Just as a structural engineer might look at a site for the first time and imagine what bridge structure might span a gulf, so too political leaders and entrepreneurs have viewed the vast expanse of central Australia and also imaged. But it is not about imaging a physical reality alone.

The “Friendship Bridge” spanning the upper Mekong River between Laos and Thailand was no doubt a challenge for structural engineers. But before the bridge was conceived as a structure, its raison d’etre had first to be thought about by decision makers, it had to be imagined. Such matters as the importance of the bridge in facilitating social and economic intercourse between the two countries would have figured prominently in thinking about the bridge.

So it is with the Railway from Alice Springs to Darwin, linked as it will be to Australia’s national gauge railway system, and to Asia via a new deep water port at Darwin, but more about this aspect later.

The term “spatial” has been considered as something physical and external to society:

“...a part of the ‘environment’, a part of the setting for society... rather than a formative structure created by society.” (Soja, 1989, p.80).

But space is not just a physical entity. Theoretical writings by geographers and others in the late Twentieth Century have elevated space to join with time (history), as having an inherently social quality. Space’s organisation is a social product, not:

“...an empty dimension along which social groupings become structured, but has to be considered in terms of its involvement in the constitution of systems of interaction.” (Giddens, 1984, p 368).

So is created unequal development between regions, the creation of central spaces and peripheral spaces, viz:

“In the geographical landscape of capital, there will be areas of greater and lesser productivity, high and low capital to labour ratios...varying rates of profit all within the same integrated market for commodities. Market exchange thus becomes a vehicle not only for the transfer of value between firms and sectors but also for a geographical transfer of value. Certain areas will experience a net gain in value terms while others incur a net loss, and this will have some effect on the geography of accumulation, on the formation of centres and peripheries at every spatial scale.” (Soja, 1989, p 113).

The railway serves as a paradigm of this process, with the focus of power shifting east from Adelaide to Melbourne at first in 1911 and then Canberra from 1927, so beginning a long period of relative frustration by the people of South Australia and the Northern Territory in respect of the railway. The perception is that relative to the eastern seaboard the central Australian corridor is in the periphery. The decisions made by the centre in respect of this periphery demonstrates how:

“...the operation of allocative and authoritative power regulates the formation of centres and peripheries across the whole range of locale-settings.” (Soja on Giddens, 1989, p.149).

One of the theoretical arguments used by the centre against construction of the railway is that demand for transport is a derived demand, derived from the factors of production and consumption. The theoretical construct has been accepted thinking in transport economics for some time. According to this theory, transport is a second order effect in demand and supply terms. For the Alice Springs to Darwin railway, so the
argument goes, there is insufficient production and consumption to justify the railway.

By implication such an argument also undermines the existence of the current railway to Alice Springs\(^3\), as it does any talk of landbridge trade between Australia and the Western Pacific Basin occurring along the corridor. As the historical perspective has demonstrated, landbridge trade has been a formative part of the imagined space of the project for more than a century. This potential trade has been an important component of the symbolism projected by leaders when talking about the railway.

The postmodern approach provides an alternative way of thinking to conventional transport economics, one more relevant to our epoch. The approach is to view the processes of transport, together with production and consumption, as being much more interactive, with one requiring the other or reacting back upon the other. Just as transport cannot be theorised without the geographical dispersion of production and consumption, so too is it extremely difficult to practise production and consumption without transport (Gregory, 1978; also see Sojn, 1989).

Given this approach it is wrong to view the railway as somehow waiting in a theoretical vacuum until its time has come, until in effect trade is sufficient between the Top End and the rest of Australia, and between East Asia and Australia. One will lead the other, and vice versa.

In any case it has been demonstrated the current market estimate for domestic trade alone is sufficient for economic viability, and it is to this that the paper now turns.

Recent Economic Arguments

Following the Territory Government’s rejection of the 60:40 funding offer, the Commonwealth Government moved in late 1983 to establish the Independent Economic Inquiry into Transport Services to the Northern Territory, chaired by David Hill who was then Chief Executive of the State Rail Authority of New South Wales. The conclusion of the Independent Economic Inquiry was that:

> “Even by adopting an optimistic view of the future growth in the Northern Territory, the Inquiry found that investment in the railway between Alice Springs and Darwin cannot be justified and would constitute a major misallocation of the nation’s resources.” (Commonwealth of Australia, 1984, p 19).

The inquiry estimated the railway would move 849,000 tonnes of freight in its initial year of operation, assumed to be 1993. The economic analysis indicated a net present value of (negative) $374 million, and a benefit cost ratio of 0.28.

These key results were to set the tone of the Commonwealth Government towards the railway for the next 12 years.

Faced with a reluctance by the Commonwealth Government to participate in the project, the Northern Territory Government has attempted to attract finance from the private sector over the course of the last decade to complete the line.

In doing so it has commissioned or received proposals from, *inter alia*:

- Canadian Pacific Consulting Services (1985);
- Railway Executive Group (1986);
- Railnorth (1988/89); and

For the Commonwealth’s part, that government received a review of the economic benefits and costs of the project in 1993 (Australian National, 1993).

As a means of attracting other participants to the project, the Territory Government has pledged $100 million towards construction of the railway, now estimated to cost $1 billion. It is also well advanced on the construction of a new deep water port at Darwin, considered an integral part of the railway as a landbridge to Asia, with stage one due for completion next year at a cost of $75 million.

There was encouraging news from the Commonwealth Government when, at the time of the last federal election in 1993, it pledged to fund $3 million for the completion of the route survey between Alice Springs and Darwin. This money will run out in the 1995/96 financial year.

Equally important was the decision of the Commonwealth Government to establish the Committee on Darwin in 1993. The Committee was chaired by the Honourable Neville Wran AC QC. It was the Committee’s task to examine ways in which the Commonwealth and Northern Territory Governments might foster the development of Darwin to take advantage of its proximity to East Asia.

The Committee on Darwin produced as part of its report an analysis of the financial and economic viability of the railway to Darwin. The analysis, released in 1995, is the most recent publicly available study on the railway.

The report’s conclusion on the railway was:

> “The Committee’s final judgement on the rail is not if, but when.”

> “On the basis of detailed economic analysis, the Committee concludes that the rail link will be viable early in the new century.” (Commonwealth of Australia, 1995, p six).

This report was welcomed by the Northern Territory Government, in that it represented a major turnaround from the conclusion of the Independent Economic Inquiry.

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\(^3\) The railway to Alice Springs is profitable, unlike the railways linking Melbourne with Brisbane via Sydney (Symonds Travers Morgan, 1995).
Northern Territory Government took note of the Committee on Darwin when it said:

"The Committee notes, however, that freight flows at substantially increased levels, if confirmed, would have an important bearing on economic and financial assessments of the project and would bring forward the date at which it [the railway] would become viable." (Commonwealth of Australia, 1995, p 139).

In this context the Committee also noted new data was becoming available at the time its report was being finalised. With this new information indicating "freight flows to and from Darwin could be higher than previously estimated".

The new data has been compiled by the Australian Bureau of Statistics (ABS), providing estimates for four quarters of freight movements from the June Quarter 1994 until the March Quarter 1995.

Using this market information, the Northern Territory Department of Transport and Works estimated the market size assuming a railway existed in 1994, in line with the assumptions of the Committee on Darwin. The approach also drew upon the distribution matrices for land freight developed by the University of Wollongong, and now with FDF Management of Melbourne.

The work was verified for the most important market segment, that of interstate freight, using road counts and the ABS Survey of Motor Vehicle Usage, the latter providing the cross-sectional profile.

A separate and independent exercise was conducted by the South Australia Department of Transport, using Culvy to provide accurate data for the estimation of the interstate freight market to and from the Northern Territory.

Both exercises provided verification as to the reliability of using ABS data as the base. The preferred approach was shown to be conservative, falling some 110,000 tonnes or thereabouts under either alternate approach.

The Northern Territory Government engaged Symonds Travers Morgan to conduct a cost benefit analysis using the new freight data. It was this firm who did the analysis for the Committee on Darwin, so the same computer model was employed. The comparative analysis is summarised below.

<table>
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<tr>
<th></th>
<th>Committee on Darwin Market est.</th>
<th>Latest Market estimate</th>
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</thead>
<tbody>
<tr>
<td>Rail Freight Market in 1994 tonnes (m)</td>
<td>0.8</td>
<td>1.1</td>
</tr>
<tr>
<td>Net Present Value (NPV) (S$m)</td>
<td>(169)</td>
<td>193</td>
</tr>
<tr>
<td>Benefit Cost Ratio (BCR)</td>
<td>0.78</td>
<td>1.27</td>
</tr>
</tbody>
</table>

The new freight market information demonstrates the railway is economically viable now. The benefits of the project will exceed the cost over the appraisal period of 50 years by $193 million in net present value terms. The benefits of the railway as defined by the Committee on Darwin and followed through in the revised analysis included differences between road and rail operating costs, accident costs avoided, transfer cost savings, and reduced rail costs for existing traffic.

Another way of viewing it is that for the Australian community as a whole, the ratio of benefits to costs taking into account the time value of money is comfortably greater than unity, with a BCR of 1.27.

The only parameter to be changed in arriving at this conclusion is the size of the freight market, and as stated above the revised market size is based on information provided by the ABS.

All other assumptions as used by Symonds Travers Morgan for the Committee on Darwin remain the same including:

- an estimated capital cost of construction of $947 m (1994 dollars);
- a freight growth rate of 3% per annum;
- a discount rate of 8% per annum;
- an inflation rate of 4% per annum; and
- a rail market share of 30% for the Adelaide-Darwin sector, progressively lowering for other and longer sectors.

The ABS data has been titled 'Experimental Estimates', and perhaps not surprisingly has become a contentious point in some quarters.

Short of conducting a full financial feasibility study at an estimated cost of $5 million or more, including a comprehensive and independently produced market analysis, the freight estimates provided by the Bureau represent the most recent and best data available today.

During the course of the deliberations of the Committee on Darwin two further significant events occurred.

In 1994 the South Australian Government, in recognition of the importance for the State of completing the railway from Adelaide to Darwin, joined with the Northern Territory in committing $100 million to the railway. The Governments of South Australia and the Northern Territory continue to work closely together to achieve this objective.

The other significant event was the signing in April 1995 of a Heads of Agreement between the Northern Territory Government and the Daewoo Corporation of Korea to further the financing, design, and construction of the railway.
Some Engineering Observations

One notable speech during the debate on the Report of the Transcontinental Railway Commission in 1887 was made by Basedow when he said of the question to proceed:

"It depends, of course, very much upon the capital cost of the line. Unfortunately the South Australian practice has been to make our railways an expensive monument to the skill of the engineer. I hold that our railways ought to be constructed cheaply and managed with economy, and given those conditions I believe the Transcontinental line might be made a remunerative undertaking." (South Australian Government, 1887b, p 19).

The same sentiments were picked up by Canadian Pacific Consulting Services (CPCS) in 1985. That firm recognised a railway, with an initial tonnage of around 1 million tonnes spanning thousands of kilometres, needed to be constructed as economically as possible. CPCS proposed as one of its options the Least Cost Option, reducing the Australian National estimated cost down from $378 million over a 9 year construction period, to $561 million over a construction period of 3 years (1983 dollars).

This reduction in cost was achieved by making use of 265 kilometres of existing subgrade and bridges from the abandoned North Australia Railway, and employing wooden trestles for new bridge structures. Additionally, earthworks were reduced considerably by narrowing the formation width, and second hand rail was proposed for some track. While curves and grades in the old alignment between Katherine and Darwin would lower train speeds, the principle was to improve the track as demand allowed (CPCS, 1985).

The same philosophy was employed by engineers involved with the Tennessee Valley Authority earlier this century. These same engineers recognised the time value of money, and in doing so developed the first cost benefit techniques to assist construction projects. The basic principle is that three thirds - in other words a development over time - is as good as one whole. It is this same principle that can be just as successfully applied to the Alice Springs to Darwin railway today. The capital cost of construction plays an important part in determining the economic viability.

The most recent estimated cost has been prepared by the Northern Territory Department of Transport and Works, in conjunction with the Henry Walker Group. The capital cost of construction is estimated at $933 million in 1995 dollars. The basis of the estimate is as follows:

- Australian National (AN) alignment adopted, with 1983 AN quantities used as a basis of the 1995 estimate;
- length of main line 1,410 kilometres with 30 kilometres of spurs and loops;
- formation reduced from 9.0m to 7.5m;
- new bridges at the Elizabeth (SKM) and Katherine (5SM) Rivers;
- depth of ballast reduced to 150mm; and
- 47 kg rail (C$900 per tonne supplied);

The cost components are shown in the table below.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Estimate (Sm)</th>
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<tbody>
<tr>
<td>1. Engineering Survey &amp; Design</td>
<td>Item</td>
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<td>(to complete)</td>
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<td>2. Establishment / Mobilisation</td>
<td>Item</td>
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<td>3. Clearing &amp; Earthworks</td>
<td>cu-m</td>
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<td>4. Bridges &amp; Culverts</td>
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<td>No</td>
<td>1,221</td>
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<td>5. Ballasting</td>
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<td>6. Sleepers</td>
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<td>Supply &amp; Place</td>
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<td>7. Rails &amp; Fastening</td>
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<td>8. Tracklaying</td>
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<td>Transport, Rolling</td>
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<td>Stock &amp; Tracklaying</td>
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<tr>
<td>9. Building &amp; Services</td>
<td>Item</td>
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<tr>
<td>10. Communications</td>
<td>Item</td>
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<tr>
<td>11. Other Works</td>
<td>Item</td>
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<tr>
<td>(fencing, gates, etc)</td>
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<td>12. Project Management - 3%</td>
<td>Item</td>
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<td>25</td>
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<tr>
<td>13. Contingency - 10% (if not in</td>
<td>Item</td>
<td></td>
<td>83</td>
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<td>individual items)</td>
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**Project Total** 933

Note: Preliminary Quantities-design yet to be completed.
Source: NT Department of Transport & Works / Henry Walker Group.
The estimate of $933 million compares with that of the Committee on Darwin of $975 million (1995 dollars).

It will be possible to reduce the estimate further-partly by relaxing engineering standards, including those relating to efficient and safe operations. By way of illustration, it might be possible to take 10 centimetres off the height of the formation. Over 1,410 kilometres, this would translate into a considerable saving in earthworks (Mitchell, 1979). If it is taken from the base rather than the top then of course the saving is even more significant, since the base is wider than the top. No doubt there are other techniques innovative engineers can employ to reduce capital cost.

The Railway of Tomorrow Today

The paper has provided an outline of the twists and turns the history of the yet to be completed railway from Adelaide to Darwin has followed over the course of the last 138 years. There have been more grades and hairpin curves than the railway train at Disneyland. It is a history littered with political difficulties, lost opportunities and plain bad luck, but still the project lives on.

The proposals have switched from construction by the private sector, with payment based on land grants, to public sector construction alone, and now to a combination of public and private sector participation.

It remains the case that the railway will not become a reality without the public support and financial participation of the Commonwealth Government.

In this context the Committee on Darwin made the point that when the railway is found to be economically viable, it would still have to compete with other proposals for major infrastructure. The implication in the report is there will be projects with benefit cost ratios greater than that achieved by the Alice Springs to Darwin railway, and therefore these would be more worthy.

What this argument fails to recognise is the large NPV for the railway. Project assessment should not rank projects on the basis of BCR's alone, since this has the potential of overlooking investments with large absolute returns.

Furthermore some would argue these debates are technocratic in nature, and not reflective of the realpolitik of Canberra. It may be both technically incorrect and politically naive to recommend to a governing party a list of capital works, ranked according to their BCRs, be followed meticulously by the Cabinet during budget deliberations.

There are numerous examples in support of this statement. The One Nation projects of 1992 for one, including more than $450 million dollars invested in the Australian railway system, with no apparent cost benefit analysis evident to demonstrate the economic rationality of the investment decisions.

This is not to say the Alice Springs - Darwin railway should not be subject to cost benefit analysis. On the contrary the railway is probably the most scrutinised major infrastructure project Australia has considered building. The point to be emphasised here is the requirement almost above all else for there to be the national political will to participate in the railway.

The Northern Territory Government wants to put in place a financial arrangement for the $1 billion railway which includes:

- $100 million from the Territory Government (committed);
- $100 million from the South Australian Government (committed subject to Commonwealth Government participation);
- $500 million from the private sector (which can be facilitated by Daewoo subject to Commonwealth Government participation); and
- $300 million from the Commonwealth Government.

Recent financial analysis undertaken by Macquarie Corporate Finance has demonstrated that this proposal is achievable. Since an earlier financial analysis, also carried out by Macquarie Corporate Finance for the Committee on Darwin, a number of financial parameters have moved in favour of the railway, including:

- Equity returns have fallen 2% to 10% after tax, reflecting increased competition by banks and financial institutions for a share of major (long term) infrastructure projects;
- Interest rates have fallen in the vicinity of 1.5 to 2% since the analysis was done for the Committee on Darwin;
- The market for the Commonwealth Government's infrastructure bond issues has advanced rapidly in the intervening period; and
- The market for CPI bonds issued by transport infrastructure projects has increased significantly.

Applying the latter two financial instruments allows for greater private sector participation, thus reducing public sector contributions to the project (Macquarie Corporate Finance, 1995).

In short, not only can the economic viability of the project be shown demonstrated, but so too can its financial viability, subject to government grants of the order outlined above.

In addition to the economic viability of the railway, the Territory Government believes there are other strong arguments favouring the railway including:

- Saving in excess of 2000 million litres of fuel over the next 50 years, equivalent in economic terms to the initial capital cost of the railway.
- a reduction in carbon dioxide emissions greater than 5 million tonnes over the same evaluation period of 50 years;
- creation of 2000 jobs in construction and 200 jobs in operation;
- national defence objectives, including a readiness to assist our near neighbours in contingent circumstances should this be requested and the request be met by the Commonwealth Government; and
- national development objectives, including an enhanced ability to more efficiently service economic activity from the Kimberley to Carpentaria, and our rapidly developing trading relationships in ASEAN.

To return to the theme of imagined space once again, the Northern Territory commands a strategic position in relation to northern Australia and the nations to our immediate north, and the railway has an important role in developing that position.

Despite the Territory’s sub national status, it has signed Memorandums of Understanding with the eastern part of Indonesia (1992), with the southern Philippines (1995) and with Brunei (1995). It is anticipated that the Territory will soon be in a position to do the same with eastern Malaysia. The combined four regions make up the BIMP EAGA Growth Area under the ASEAN umbrella. That is, the Brunei Indonesia Malaysia Philippines (BIMP) East ASEAN Growth Area (EAGA). The Memorandums cover cooperation on infrastructure projects, transport and tourism services, professional services and environmental management among other measures.

BIMP EAGA will be a new market for Australia. Landbridge trade via the railway can service this market. The Territory already has regular shipping services by five companies into the region, led by live cattle shipments. In one respect the already large trade in live cattle underscores the potential of the market, with more than 220,000 head of cattle shipped through Darwin last year. sourced from western Queensland across the Territory, and Western Australia (Darwin Port Authority, 1995).

In terms of more mature markets, the Territory is engaged in discussions with an Australian firm promoting very fast shipping movements between Darwin and Japan, linked with landbridge freight services from southern Australia which will ultimately use the railway. These very fast freight vessels are expected to carry around 140,000 tonnes of freight each way between Australia and Japan initially, later expanding to include about 200,000 tonnes of freight between Korea and Australia, together with other Asian ports.

Under this proposal transit time savings of 12 days between Melbourne and Nagoya, for example, are claimed. Herein lies an echo from an earlier epoch, as outlined in the historical perspective.

In the case of Western Australia, the Territory signed a Memorandum of Understanding with the State Government in April 1995 dealing with the expansion of the Ord River Irrigation Area. Up to 50,000 hectares will be developed over the next twenty years. Horticultural production is expected to reach $100 million inside the next decade. The produce will be exported to markets north and south. The railway can provide supplies for this development, and export produce quickly to southern markets.

The Gulf of Carpentaria is one of the largest regions of significant mineralisation in the world, with nine major areas already discovered stretching in a boomerang shape from McArthur River in the Northern Territory through Century and Mt Isa in north western Queensland. While not replacing the existing supply route for these mines, the railway will compete vigorously for the market, offering fast rail freight to Tennant Creek, with transshipment on to triple bottom road trains for transport across the high standard Barkly Highway. This route will compete favourably with existing transport infrastructure across Queensland. The Australian economy can only gain from such competition.

While the railway will bring structural change to the road transport industry, it will not be entirely negative. A decline in road transport employment at the current Alice Springs railway will be partially remedied by the creation of new jobs in construction, operation and maintenance of the railway. In addition, road transport activity east of Tennant Creek and west of Katherine is expected to increase, for the reasons outlined above, so that the focus of the industry is likely to shift north.

Finally and perhaps most significantly for the Territory, a Memorandum of Understanding was signed with the South Australian Government in June 1995. The Memorandum recognises mutual benefit will flow from cooperating in the development of trade and investment opportunities in the region to our north.

The Memorandum acknowledges the long established strategic commercial and cultural links between the Territory and the region, particularly with the eastern provinces of Indonesia. It also notes the emerging developments with respect to BIMP-EAGA.

For South Australia’s part, there is acknowledgment its broadly based technological and manufacturing capabilities can provide a valuable source of products and services to complement the Territory’s linkages to the region. Once again, with this development there are echoes of an earlier era in the State.

When these significant events are connected, the developments in BIMP-EAGA along with those in South Australia, and from the Kimberley to Carpentaria, it may be seen how important the railway is in linking these centres of production and consumption.
the public sector can capture the large external economies of the railway, adding to the justification for the movement of governments in the project.

In recent years, direct Commonwealth Government expenditure in Australian railways fell from $251 million in 1994/95 to an estimated $96 million in 1995/96, as One Nation rail projects approach completion.

In the run up to the 1996 federal election, the Government announced that if it retained power, it would commit $370 million over 5 years to the establishment of Track Australia. Furthermore it would be one of Track Australia’s responsibilities to ‘develop the Alice Springs-Darwin rail link proposal.’

The Federal Coalition has promised ‘facilitation of the Alice Springs to Darwin railway’, giving encouragement to the private sector for the construction of the project. It has also promised to hand over control of the Tarcoola to Alice Springs section of line to the private sector, and to give priority to completing the route survey.

For an outlay of around $50 million per year for 10 years, including financing costs, the Commonwealth Government can facilitate the provision of an up-front grant of $380 million towards the project, sufficient for the Adelaide-Darwin railway to be finally completed after more than 100 years of dreams, plans and work.

Bibliography


