
NON-AGENDA

With the view of causing an increase to take place in the mass of national wealth, or with a view to increase of the means either of subsistence or enjoyment, without some special reason, the general rule is, that nothing ought to be done or attempted by government. The motto, or watchword of government, on these occasions, ought to be — Be quiet. . . . Whatever measures, therefore, cannot be justified as exceptions to that rule, may be considered as *non-agenda* on the part of government.

— Jeremy Bentham (c.1801)

The Alice Springs-Darwin Rail Line: National Development Project or Political Gesture?

Keith Trace

THE Australian government's recent allocation of \$100m to help 'kick-start' the Alice Springs-Darwin rail project has renewed debate about the benefits and costs of this long-promised but controversial rail link. First mooted seriously in 1911, the north-south rail link has a chequered history. The South Australian government's narrow gauge line from Port Augusta to Oodnadatta (SA) was opened in 1891, being extended to Alice Springs by the then Commonwealth Government Railway in 1929. This line, subject to frequent flooding and washouts, was later replaced by a standard gauge line, built on a new alignment, from Tarcoola (on the east-west transcontinental line) to Alice Springs. Earlier, a line running south from Darwin to Pine Creek, built by South Australia, was opened in 1889. The Commonwealth government assumed responsibility for this line in 1918, extending it to Larrimah in 1929. The opening of these lines in the late 19th and early 20th centuries may be thought of as an attempt to develop a north-south link incrementally or by stealth. Closure of the Darwin line in the 1950s left Alice Springs as the railhead for the Northern Territory.

There have been a number of investigations of the feasibility of an Alice Springs-Darwin rail line. Recent studies include those by the Committee on Darwin (1995), headed by former New South Wales premier Neville Wran, by the Daewoo Corporation, and a post-Wran study by the South Australian and Northern Territory transport departments. The Committee on Darwin concluded that: the rail line

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was not presently viable; public interest arguments alone would not justify its immediate construction; and the \$1 billion rail link should be built only when it becomes economically viable, probably after 2005. The Wran Committee found further that building the line in the immediate future would require the Commonwealth government to commit \$588m on top of existing commitments of \$100m each by the South Australian and Northern Territory governments (Committee on Darwin, 1995). Predictably, the Wran Committee's findings were not greeted with any enthusiasm by the South Australian and Northern Territory governments.

The Daewoo Corporation's 1995 feasibility study of the Alice Springs-Darwin rail line and associated Darwin port development suggested that an investment of \$1 billion would be required to build the 1,500km line linking Darwin to the national rail network, while a further \$200m would be required to build new port facilities at Darwin. Daewoo's managing director was quoted as saying that he was confident that the project would attract \$600m of private sector investment, so long as Australian governments agreed to match the private sector contribution (*Daily Commercial News*, 10 July 1995).

The Howard Government's recent \$100m offer thus falls well short of the commitment sought from the Commonwealth by the South Australian and Northern Territory governments and considerably short of that considered necessary by the Committee on Darwin and by the Daewoo Corporation, thus raising doubts as to the Commonwealth's enthusiasm for the project. However, the Commonwealth has pledged to give the Tarcoola-Alice Springs line to the private sector consortium chosen to build the Alice Springs-Darwin line and has also raised the possibility that the chosen private sector developer will be able to raise capital by issuing infrastructure bonds.

The Commonwealth government's commitment may still be characterised as lukewarm. But the project appears to be developing some momentum. The South Australian and Northern Territory governments, which have each committed \$100m to the rail project, have set up the AustralAsia Railway Corporation to oversee the tendering process (*Daily Commercial News*, 27 August 1997). South Australian Premier John Olsen has announced a global advertising campaign designed to attract potential private sector investors. The Northern Territory government is developing new port facilities at East Arm in Darwin, viewed as integral to any attempt to develop Darwin as a shipping hub, and has pledged to transfer part ownership of the port to the chosen private sector investor(s).

The Adelaide-Alice Springs-Darwin rail line faces potential competition from an even more grandiose project seeking to link Melbourne, Brisbane and Darwin through a high-speed trunk railway. This project envisages a standard-gauge link between Melbourne and Brisbane via Albury, Cootamundra, Parkes, Dubbo, Moree and Toowoomba. There are plans to extend the line from the Darling Downs, through the grazing districts of inland Queensland, to Katherine and Darwin. The completed Melbourne-Darwin line is estimated to cost \$10 billion.

Current Viability

The volume of freight currently flowing to and from Darwin appears insufficient to warrant construction of the Alice Springs-Darwin line. Darwin's exports, valued at \$1.1 billion in 1994/95, consist mainly of minerals and fuels mined in the Northern Territory and the northwest of Western Australia, including zinc and lead concentrates, bauxite, alumina, uranium and crude oil. Other exports include the shipment of live cattle to Indonesia, Malaysia, the Philippines and Brunei, a trade which has grown rapidly in the 1990s. The dominant import trade is in petroleum products.

Darwin is primarily a bulk port, with seemingly limited opportunities for the capture of bulk freight flows by the proposed Alice Springs-Darwin railway. The volume of freight that the line could potentially capture has been the subject of debate. The Wran Committee concluded that the base load freight capturable by the line was of the order of 800,000 tonnes (Travers Morgan et al., 1995:32). However, the Northern Territory government has disputed this estimate, arguing that the proposed rail line should be able to capture 50-60 per cent of the 2.5m tonnes of interstate freight estimated by the Australian Bureau of Statistics (as quoted *Daily Commercial News*, 21 July 1995) to be shipped annually to and from the Darwin region. If correct, this would imply an annual freight flow of between 1.25 and 1.5m tonnes, excluding landbridge traffic (*Daily Commercial News*, 21 July 1995). Given the nature of freight flows to and from Darwin, the Wran Committee's estimates appear more realistic: the proposed rail line is unlikely to capture a significant proportion of either interstate bulk mineral cargoes (which are more suited to sea than land transport) or the live cattle trade (which appears likely to be retained by road transport). The volume of current traffic capturable by rail would not be sufficient to warrant the construction of the new line.

The present pattern of Darwin shipping services reflects the special needs of its export and import trades. Most vessels calling at Darwin are bulk carriers employed in the carriage of minerals or fuel. Exports of live cattle are handled by specialist shipping operators. Relatively small volumes of general (containerised) cargoes are handled by the port: Darwin handled only 2,000 container movements a year in the mid-1990s, compared with about 700,000 at Melbourne. The small scale of container shipment to and from Darwin limits the number of scheduled sailings to and from Singapore to around two a month. Flexible local operators employing small vessels (c.200teu¹ capacity) offer a mix of scheduled and unscheduled voyages linking Darwin with a number of Asian ports. Given the limited size of vessels employed, freight rates are relatively high. The limited volume of trade between Darwin and Asian ports discourages major operators entering the trade.

The scale of present freight flows does not justify the construction of the Darwin-Alice Springs rail line. The viability of the line depends essentially on the flows of freight and passengers that might be created following its construction.

¹ 20-foot equivalent unit.

Long-run Viability

The long-term viability of the Alice Springs-Darwin rail line depends on the flows of passengers and freight that can be persuaded to use the new artery.

The South Australian and Northern Territory governments argue that the Adelaide-Darwin rail line will make possible the export of substantial volumes of coal and minerals from as yet unopened mines in the northern part of South Australia and the Northern Territory; Premier Olsen claims that completion of the north-south rail link '(has) the potential to open up vast mineral resources in the northern part of SA and provide the State's exporters with the same capacity to access Australian markets which Queenslanders and Western Australians have enjoyed for decades' (quoted in *Daily Commercial News*, 27 August 1997). However, sea is a much more efficient mode of transport than rail for bulk cargoes: economies of ship size enable bulk cargoes to be carried by sea at a fraction of the cost of rail or road transport. Under normal circumstances, mineral ores, coal, and agricultural products are therefore railed to the nearest port for on-carriage by sea. Nor is it clear why mines in the northern parts of South Australia depend on the construction of the Alice Springs-Darwin line, given the likelihood that their products would flow southward on the already completed Tarcoola-Alice Springs line for export through South Australian ports.

Prospective mining projects are subject to detailed feasibility studies and may or may not come to fruition. While some mines may indeed come on stream, and a proportion of these may use the line if built, it would seem unwise to base the case for the line's opening on freight flows which may or may not eventuate.

The long-term viability of the Alice Springs-Darwin rail line appears to depend heavily on the scale of container flows that can be attracted to the Port of Darwin. Darwin aspires to be the northern end of a North-South 'landbridge', making its port a hub for trade between Australia and Asia. The Northern Territory government hopes to encourage the railing of freight flowing in either direction between Sydney/Melbourne and Asia to Darwin, for transshipment on to fast freighters bound for Asian hub ports. Proponents of a Darwin hub argue that it offers significant time savings over the direct sea voyage from Sydney/Melbourne to Asia.

As is the case with bulk cargoes, economies of vessel size mean that it is much cheaper to transport containers by sea than by land transport. The cost of transporting a container by ship from Sydney/Melbourne to Singapore, Hong Kong or Kaohsiung is significantly lower than the cost of railing the container to Darwin for on-carriage by ship, even if the vessel sailing from Darwin to Singapore is comparable in size to that employed between Sydney/Melbourne and Singapore. The benefit of using the rail-sea route via Darwin is the saving in time, not in out-of-pocket costs.

Highly valuable and/or highly time-sensitive cargoes are normally shipped by air. Since rail-sea via Darwin would take significantly longer than air transport, highly valuable and/or highly time-sensitive cargoes will continue to be shipped by air. Similarly, the shippers of lower value and/or less time-sensitive cargoes will be

unwilling or unable to pay a premium for the more costly rail-sea via Darwin alternative. So the Darwin rail-sea route will attract only a portion of the total cargo shipped between Australia and Asia: cargo for which air freight is too expensive but which requires faster transport than is currently offered by shipping lines. The size of this pool of eligible cargo may be disputed, but it is unlikely to constitute more than a small proportion of total containerised cargo flowing between Australia and Asia. Other things being equal, the size of the pool will depend on the time savings available by routing cargo through Darwin and on the size and speed of vessels employed between Darwin and Asia. Does the Darwin hub offer significant time savings? And is it likely to be economically viable?

The time taken to ship a container from Melbourne to Singapore by sea may be compared with the time taken in future to ship a similar container by rail to Darwin for on-carriage by ship to Singapore. According to the *Daily Commercial News*, 30 containership sailings were scheduled between Melbourne and Singapore in September 1997. The distance between Melbourne and Singapore is 3,855 nautical miles (BTCE, 1995), and voyage time ranges from ten to 30 days (*Daily Commercial News*). Ignoring the four sailings by Wilhelmsen and MSC, routed via East Asia and therefore not competitive on an elapsed time basis, we are left with 26 scheduled sailings (one every 1.15 days). The average voyage duration for these sailings was 12.3 days, vessels normally calling at Adelaide and Fremantle en route to Singapore. Vessels sailing non-stop to Singapore typically arrive in less than ten days.

How long might it take to ship a container from Melbourne to Singapore via Darwin, assuming the Alice Springs-Darwin line is built? The rail distance between Melbourne and Darwin is about 4,100kms. Assuming an average speed of 80kms/hr, well above that currently achievable and requiring substantial investment to improve sections of track between Melbourne and Tarcoola (SA), the rail haul to Darwin would take 2.13 days. We assume further a twelve-hour transshipment delay in Darwin. The distance by sea between Darwin and Singapore is approximately 2,150 nautical miles. Assuming that there are no calls at intermediate ports, an 18-knot vessel would take five days to sail from Darwin to Singapore, while a 20-knot vessel would take 4.50 days. This would imply that it would take between 7.13 and 7.63 days to ship a container from Melbourne to Darwin. Under these assumptions, which must be considered very favourable to the Darwin option, time savings of between three and five days appear possible by routing cargo via Darwin.

Such time savings depend crucially on the provision of a 'seamless' rail-sea service via Darwin. To match the current frequency of direct sailings from Melbourne, there would have to be at least a daily rail service between Melbourne and Darwin. Similarly, the rail-sea route would be competitive if and only if there were daily sailings between Darwin and Singapore. Less frequent sailings would erode time saving, implying that the Darwin route would not only be more costly but would offer little if any time saving. A recipe for disaster! Since the cargo flow through Darwin would be unlikely to support daily sailings by large vessels, the cost differential between vessels employed on the Melbourne-Singapore and Darwin-

Singapore services would be significant. Shipowners offering Melbourne-Singapore sailings would probably react to any leakage of cargo via Darwin by offering speedier transit (by using faster vessels and/or by reducing port calls en route) between Melbourne and Singapore.

The proposed Alice Springs-Darwin line should attract passenger traffic. We would expect such a trip to attract tourists, making it worthwhile to provide several services a week, perhaps even a daily service. However, under Australian conditions passenger services rarely contribute much towards the fixed costs of the rail line over which they travel. At best, we would expect passenger services to cover their variable costs and make a small contribution towards overhead costs.

An Assessment

For many Australians, especially those living in the Northern Territory and South Australia, the Alice Springs-Darwin line is a symbol of nationhood, of the linking of northern and southern Australia, in precisely the way that the construction of the Transcontinental Railway Line was of significance to Western Australians. It is also seen as a way of 'doing something' for the depressed regional economy of South Australia, providing substantial employment in the construction phase and some hope for more rapid economic growth in the future. While acknowledging the power of such symbols, this should not prevent us from examining the soundness of the underlying economics of such development projects.

The Commonwealth government has agreed to contribute \$100m towards the Alice Springs-Darwin railway without the benefit of an independent study into the project's viability. As Alan Mitchell has noted (*Australian Financial Review*, 27 August 1997), the Commonwealth government should never invest in major infrastructure projects without first commissioning a cost-benefit analysis, designed to measure a project's net economic benefit, from an expert, independent body such as the Industry Commission or the Bureau of Transport and Communication Economics.

The Alice Springs-Darwin line has already failed independent scrutiny; consultants commissioned by the Committee on Darwin found that the Benefit Cost Ratio of the project was only 0.8 (Travers Morgan et al., 1995). True, a later study by the South Australian and Northern Territory governments estimated a Benefit Cost Ratio of 1.27 (as quoted by *Daily Commercial News*, 27 August 1997); but a study commissioned by such interested parties could hardly be referred to as independent.

Even if one accepts the estimate of the South Australian and Northern Territory governments, the net benefits of the rail project are significantly less than those obtainable from other transport investments, let alone investments in other sectors of the economy. Benefit Cost Ratios for the upgrading of selected sections of Australian National's east-west track are significantly higher than those for the Darwin railway. Further, the Allen Consulting Group (1993) notes that the now abandoned Very Fast Train project reported a Benefit Cost Ratio of 2, while the Victorian Passenger Transport Corporation (Allen Consulting Group, 1993) has reported Bene-

fit Cost Ratios of 2.01 for the electrification of the Sydenham rail line and ranging from 1.59 to 3.40 for the introduction of double-decked trains on the Melbourne suburban system. Benefit Cost Ratios relating to urban road construction are even higher, with estimates of 6.0 for urban arterial roads, 4.8 for urban freeways, and 2.1 for rural national roads (Allen Consulting Group, 1993). In short, there are a range of transport projects which would appear to offer much higher returns than the Alice Springs-Darwin rail line. In Alan Mitchell's colourful language 'if Australia can't find something better to do with the \$1.3 billion plus that build the Alice Springs-Darwin railway, the economy must be very deep in the doo-doo' (*Australian Financial Review*, 27 August 1997).

Alternatives to the Alice Springs-Darwin Railway

Are there alternative, less costly ways to develop Darwin? Freeing up coastal shipping may be one way of lessening the transport cost disadvantage borne by Darwin, thereby encouraging the expansion of the Northern Territory economy. The coastal trading provisions of the Navigation Act reserve Australia's coastal trade for licensed vessels. Licences are issued subject to the conditions that crews are paid Australian wage rates while engaged in coastal trading and that the vessel(s) do not receive foreign government subsidies. While there is provision to allow foreign-flag vessels to trade on the coast under Single or Continuing Voyage Permits, in practice (if not in principle) Australia has adopted a policy of cabotage, reserving its coastal trades for vessels flying the Australian flag. The Coalition government is committed to abolishing cabotage. This should create a more competitive and dynamic coastal shipping industry, encouraging service innovation (especially by allowing shipowners to combine coastal and international voyages) and opening up coastal trades to vessels with lower capital and operating costs.

More intensive use of modern road technology should also help to develop Darwin. The existing Adelaide-Darwin highway provides a high level of service and, given forecast traffic flows, will continue to provide a high level of service until at least 2015 (National Transport Planning Taskforce, 1995). Australian National has pioneered the use of RoadRailers² on the Alice Springs corridor. More intensive use of this system should enable containers to be delivered to Darwin in almost the same time as would be possible using the proposed rail line, and at a fraction of the capital cost. Use of modern multi-trailer units (B-doubles and B-triples) should enable an expansion of bulk commodity exports through Darwin.

Concluding Comments

We may wonder whether the Commonwealth, South Australian and Northern Territory contributions, totalling \$300m, will prove sufficient to call forth private

² A RoadRailer is a road transport trailer that can be transferred directly to rail from road with no lifting. RoadRailer combines the advantages of low cost, high-quality rail line-haul and the convenience of easy road delivery at origin and destination. See Bureau of Industry Economics (1993).

sector investment of \$700m. Cynics may ask whether the Commonwealth's offer of \$100m is a gesture or political stunt. The coincidence of the timing of the rail proposal with elections in the Northern Territory and South Australia should not be ignored.

As presently proposed, the Alice Springs-Darwin line appears a high-risk venture. Independent estimates of Benefit Cost Ratios suggest that the project generates relatively limited benefits, and that the funds already pledged by Australian governments might yield substantially higher rates of return if applied to other projects within or outside the transport sector. Development projects such as the Alice Springs-Darwin rail line attract support through their appeal to the heartstrings. In a world in which resources are limited, choices made on such a basis may detract from long-term growth and prosperity.

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