MITEZ 50-YEAR FREIGHT INFRASTRUCTURE PLAN / INTERIM REPORT / FEBRUARY 2012

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AND NORTH WEST
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Australian Government
Infrastructure Australia


townsville
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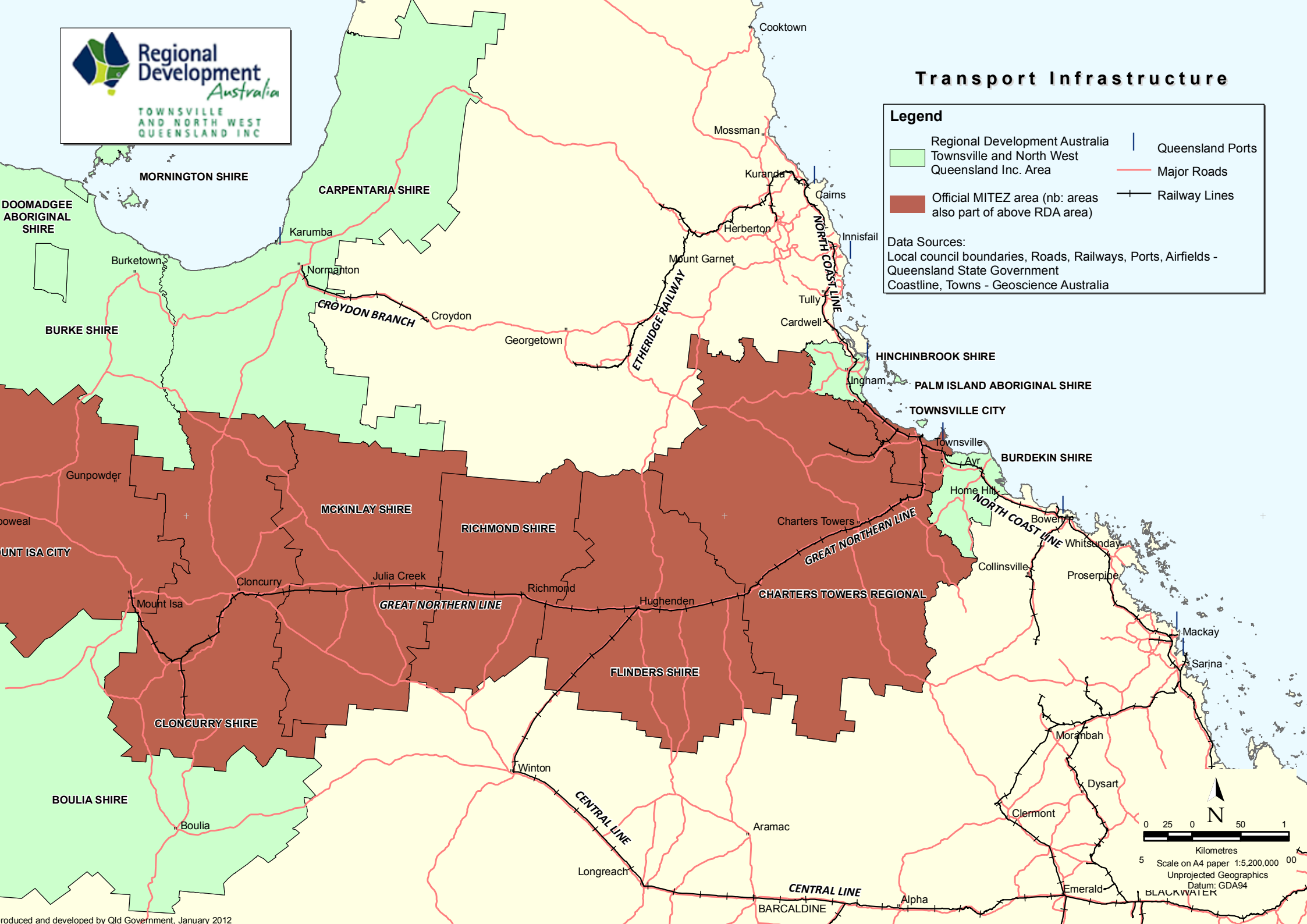

Regional Development Australia
TOWNSVILLE AND NORTH WEST QUEENSLAND INC
Transport Infrastructure
Legend
Regional Development Australia Townsville and North West Queensland Inc. Area
Official MITEZ area (nb: areas also part of above RDA area)
Queensland Ports
Major Roads
Railway Lines
Data Sources:
Local council boundaries, Roads, Railways, Ports, Airfields - Queensland State Government
Coastline, Towns - Geoscience Australia
MORNINGTON SHIRE
CARPENTARIA SHIRE
DOOMADGEE ABORIGINAL SHIRE
BURKE SHIRE
MCKINLAY SHIRE
RICHMOND SHIRE
CLONCURRY SHIRE
FLINDERS SHIRE
CHARTERS TOWERS REGIONAL
HINCHINBROOK SHIRE
PALM ISLAND ABORIGINAL SHIRE
TOWNSVILLE CITY
BURDEKIN SHIRE
BOULIA SHIRE
Cooktown
Mossman
Kuranda
Cairns
Innisfail
Herberton
Mount Garnet
Karumba
Burketown
Normanton
Croydon
CROYDON BRANCH
ETHERIDGE RAILWAY
NORTH COAST LINE
Tully
Cardwell
Georgetown
Ingham
Townsville
Ayr
Home Hill
Bowen
Whitsunday
Collinsville
Proserpine
Mackay
Sarina
Gunpowder
Mount Isa
Cloncurry
Julia Creek
Richmond
Hughenden
Charters Towers
GREAT NORTHERN LINE
GREAT NORTHERN LINE
Winton
CENTRAL LINE
Boulia
Aramac
Longreach
CENTRAL LINE
BARCALDINE
Alpha
Emerald
Clermont
Dysart
Moranbah
BLACKWATER
N
0 25 0 50 1
Kilometres
Scale on A4 paper 1:5,200,000
Unprojected Geographics
Datum: GDA94
roduced and developed by Qld Government, January 2012

introduction/

The Mount Isa to Townsville Economic Zone (MITEZ) covers in the order of 20% of the land mass of the state of Queensland. It stretches east to west over 1,000 kilometres of northern Queensland, from far western Queensland's mineral rich outback around the town of Mount Isa, through fertile black soil plains to the tropical Pacific coast at Townsville; it stretches out north and south along this corridor to embrace hundreds of mine sites, large pastoral holdings and communities. The area is home to around a quarter of a million people.

This region forms a supply chain of *national significance* – with a gross regional value-added contribution to the economy of around **$15 billion dollars** in 2011-12.

Demand forecasts suggest that this region warrants far greater freight infrastructure investment and much better supply chain coordination and regulation. If these things can be achieved, the region will stand ready to contribute far more to Australia's long-term prosperity.

Comprehensive new econometric analysis commissioned for this interim report by the Mount Isa to Townsville Economic Zone Inc (MITEZ) economic development organisation supported in kind by Queensland Government Treasury and other agencies offers an unprecedented view of the region's value and promise: Juturna's modelling suggests that by 2050, forecast world commodity demand levels will see this region's gross value-added production value rise to between **$44 billion** (low case) and **$84 billion** (high case). Such growth (that is, from the current $15 billion value) contains significant challenges and opportunities for the freight infrastructure of this supply chain. The value of transport to this region, which is currently around **$525 million**, is forecast to rise to between **$1.4** and **$2.4 billion** by 2050. This analysis is detailed in the demand chapter of this report.

These very considerable growth opportunities place stark choices at the feet of the region's industries, communities and governments. The region and its supply chain must prepare itself to respond to the demand opportunities ahead in the best possible fashion – as it were, *to prepare for success*. This means much greater infrastructure coordination, higher freight infrastructure investment – especially from the private sector - and better planning and regulation of investment and operations will be essential. Its mining and agricultural sectors and port, road and rail freight tasks have long histories and assured futures. But this supply chain is significantly fragmented – both the freight infrastructure and its coordination can be improved dramatically. The demand for commodities produced in the region and the opportunities for efficiency improvements in the transport of these goods are both high, as this draft report will explain. **The region has enormous capacity to improve dramatically on its already significant contribution to national productivity.**

This interim report is not a draft of 50 years' worth of investment projects 'selected' arbitrarily by a small group of mining, road, rail, port and local government self-interests. Rather, it offers a first step towards a comprehensive economic forecast and promotes a coordinated infrastructure planning and investment approach that will drive the Mount Isa to Townsville supply chain forward for the coming 50 years.

The plan begins with a new concept to guide it: that the greatest dividends of this sort of planning process lie in allowing the supply chain's communities and industries *themselves* to lead the planning and analysis for *their* region's future. The region should therefore take the lead role and partner with higher governments and especially the global private investment sector. The region - its businesses, industries, current and potential investors and communities - should have a much greater and more transparent 'say' in what freight infrastructure it wants for its own supply chain for the long term: a 'say' commensurate with its stake in the future performance of this infrastructure. This will help the region to attract private investment in real projects of timeliness and value and thereby maximise the supply chain's contribution to national productivity.

In 2012 infrastructure planning and investment in the Mount Isa to Townsville region is a crowded space: many parties – road, rail and port owners, state and federal government agencies and local governments – are developing or pursuing many different

'masterplans', 'infrastructure plans', and sundry 'strategies' aimed at promoting regional development. Yet none of these plans capture in total the national significance and value of this region and its supply chain, and how it might contribute to even greater national productivity and strategic interest into the future.

Recognising this, the MITEZ group, supported by the advice and encouragement of Infrastructure Australia, has commissioned a demand-driven, long-term infrastructure plan to bring focus to all planning and investment efforts, so that the region might make the most of the bright opportunities ahead and thereby contribute the maximum amount of prosperity to Australia.

Shaping regional community and urban planning

This plan is not only about productivity for its own sake. The MITEZ region is home to many settled communities, and the city of Townsville is the third largest in Queensland behind Brisbane and the Gold Coast. The amenity of these communities for the long term depends in considerable part upon how well the region anticipates, plans for and protects a 'place for freight'. Long-term decisions around freight expansion benefit from the early involvement of those communities that must live with these long-term choices. In reflecting these issues, this plan has drawn upon the thinking in Infrastructure Australia's *National Freight Network Strategy* discussion paper (2011) in seeking to develop a freight plan that will *'protect the (freight) network's land corridors from urban encroachment and make sure they are not lost to other activities'.* It is Infrastructure Australia's view that such efforts over a 50-year horizon will *'save money, ensure the timely delivery of new or upgraded infrastructure and maximise community amenity'.*

Key objectives for this 50-year freight infrastructure plan:

- **Build awareness of a nationally-significant supply chain** This region can do more to contribute to national prosperity through the wealth it creates, the investment opportunities it poses and its significance to maintaining national defence interests
- **Increase private sector freight infrastructure investment** The region wants to see this supply chain become more efficient and ready to take full advantage of world demand by attracting much greater long-term private investment in this region's freight supply chain infrastructure, under conditions of greater investment certainty for private capital; and
- **Help State and Federal government to help this supply chain** The region needs to take the lead and influence higher governments (state and federal) about freight investments for this supply chain, which in turn must lead to government regulatory outcomes in support of better planning and much greater, more timely and stable private sector investment in this supply chain.

Looking ahead: a total 50-year economic infrastructure plan

The MITEZ group views this first interim report as the beginning of what it is anticipated will be a wider 50-year *economic infrastructure plan* for the region which will drive greater private investment and more supportive and well-informed government regulatory responses for the water, telecommunications, energy and transport needs of this region and its communities and businesses. The MITEZ group is ambitious in seeing this plan as a 'prospectus' for infrastructure investors, a 'policy guide' for government reformers, planners and regulators, and a 'clearing house' for local communities and industries, where these groups can think and act strategically to build a more prosperous region and contribute more to Australia's future.

key challenges ahead for the region's infrastructure/

There are two key investment and planning challenges in which the region's first 50-year plan takes place:

Investment challenge: new approaches are needed

Across Australia, traditional approaches to freight infrastructure planning, management and investment have involved the state and federal government assuming the role of funder of almost all freight infrastructure investment – and this has had the effect of making the government the decision-maker in questions of what economic investments need to be made.

But relying heavily on state and federal government planning and taxpayer infrastructure funding will be much more difficult in future, given the very significant shift that is occurring in infrastructure investment, where cash-strapped sovereign governments across the world appear less likely to have taxpayer funds to spend on economic infrastructure, and where instead, the limited taxpayer funds will be occupied in other purposes, such as supporting greater health spending, driven by an ageing population, and other social infrastructure like education, the costs of which are growing.

In this context, the focus of governments is understandably likely to be on using tax revenue to fund social infrastructure like health and education, while productive economic infrastructure (such as some roads, rail and ports) will increasingly be expected to be invested in and improved with private capital. The challenge for the region is therefore to build the right structures and pipelines in which the private sector feels it has the visibility and certainty to invest with confidence in the region's economic infrastructure.

It is logical that if a greater share of private capital is sought to contribute to economic infrastructure like freight and supply chains, then private investors should be given a greater say about what infrastructure is needed, when it is needed and what sort of planning and regulatory certainty is required in order to make these investments viable.

Planning challenge: thinking beyond current investment priorities is vital

Higher governments have not always planned for and protected the *development corridors* that are necessary for Australia's freight infrastructure to expand. This has led to the productive potential of many freight corridors being constricted over time by competing developments and land use.

However, any 'missed opportunities' in the past are understandable when it is recognised that there have been no clear, 'industry-agreed' and authoritative demand projections for regional freight – meaning planning can become a matter of qualitative guesswork and open to challenge by competing land uses, such as housing development.

The challenge for attracting future private investment will be in ensuring that the government is protecting and even enhancing the value of those private investments over the long term through effective infrastructure planning. The importance of long-range planning for freight infrastructure growth cannot be underestimated: it is a major theme of Infrastructure Australia's *National Freight Network Strategy* and *National Ports Strategy.*

In all things, it is said that 'the squeaky wheel gets the oil'. The Mount Isa to Townsville supply chain and its long-term planning requirement needs to be much more visible and vocal to planners for the sake of the region's future success.

Both funding and planning are therefore at the core of this MITEZ 50-year plan.

interim report analysis/

As part of its inaugural 50-year plan development, a thorough review of all existing 'masterplans' and policies for the freight infrastructure of the region has been undertaken, and interviews have been conducted with freight infrastructure owners and operators across road, rail, port and shipping. These interviews will continue as a final report is developed.

From analysis to date, it seems clear that the Mount Isa-Townsville freight corridor inherits:

- **A highly-fragmented supply chain** – characterised by multiple monopolies controlling segments of the chain, numerous interfaces, poor visibility of actual capacity and efficiency from one part of the freight supply chain to the next, limited visibility of contractual arrangements between parties in the chain and no whole of chain planning, such as synchronised maintenance and downtime schedules;
- **Little private sector investment in freight infrastructure** due to very poor visibility of commodity production (and therefore demand for freight) over the longer repayment periods generally required by freight infrastructure investors;
- **An overwhelming reliance on taxpayer funds** to finance freight infrastructure development in the region – thereby restricting development to what taxpayer funds can afford to be spent on this region from year to year, creating risks that projects might be changed or delayed at little notice; this has also forced more economic infrastructure investments to compete directly for limited public funds with pressing social infrastructure needs such as schools and hospitals;
- **Investment decisions mostly in the hands of government** and correspondingly little ability for communities and industries themselves to influence freight infrastructure planning and investment intentions or help to build and agree a freight infrastructure pipeline of projects that match social amenity expectations of these communities;
- **No prioritised and published long-term freight expansion planning** and land and sea corridor protection for the supply chain;
- **An inadequate development and regulatory approval process across the supply chain** that fails to provide lower-risk private sector freight infrastructure investments;
- **Lack of clarity on Port of Townsville interaction with neighbouring ports and supply chains** such as the Port at Abbott Point, even as the freight task for the region may face a potential marked increase in bulk commodity freight task from this region (ie coal, rock phosphate and iron ore) alongside continual increasing production and movement of traditional commodities along the Mount Isa corridor (cattle, sugar, copper zinc, lead, etc).

acknowledgements/

A new partnered approach

The development of this interim report has benefited greatly from the support shown by Infrastructure Australia, the Queensland Treasury and a number of Queensland government agencies, most notably the Geological Survey of Queensland and the broader Department of Employment, Economic Development and Innovation (DEEDI) as well as the Department of Defence, which retains strategic interests in this region. This support has been complemented by data and analysis offered freely and enthusiastically by many industry sector representatives such as Agforce and the Queensland Minerals Council. All of these parties – private sector businesses, industry associations and government policy and funding agencies alike – stand to gain as partners in a comprehensive and transparent approach to making the best long-term economic infrastructure planning, management and investment decisions for this region.

The MITEZ group offers this plan as a transparent, public-access document that it is hoped will:

- *remove the fragmentation* that constrains this supply chain;
- *provide demand certainty* to potential infrastructure investors;
- *guide governments to a better understanding of getting the right policy settings in place in order to attract the maximum private investment in this region's freight infrastructure.*

how this plan works/

This interim report of the MITEZ 50-year freight infrastructure plan – the first of its kind – proposes that six distinct matters be considered to achieve more efficient and effective freight infrastructure planning and investment in its region:

SUPPLY CHAIN STATUS
Recognise a supply chain of national significance

DEMAND
Establish robust 50-year freight demand forecasts for the supply chain

SUPPLY STRATEGY
Resolve strategic questions about the supply chain

SUPPLY OPERATION
Confront operational efficiency, innovation and capacity

FREIGHT FUNDING CHALLENGES AND RISK
Address barriers to private investment

NEXT STEPS
Looking ahead: holistic 50-year economic infrastructure planning

The plan's recommendations will be acted upon to drive future success

Key interim recommendations are offered at the end of each of these sections. Together, they form the first iteration of a 50-year freight supply chain action plan for the information of industry, local communities, state and federal governments as well as for the attention of the global market for large-scale private investment in the region's freight infrastructure. These recommendations, once agreed, are things that must be pursued and achieved to drive the supply chain forward.

Feedback and input is vital

It is hoped that stakeholders to the plan – which include MITEZ members, higher governments, potential private investors in freight infrastructure and the wider regional community – will provide feedback on these interim recommendations. The final version of the first MITEZ 50-year freight infrastructure plan will be produced by early April 2012. The MITEZ group, working in partnership with industry, investors and government, will then work through the recommendations in the interests of improving the supply chain and its contribution to the nation's wellbeing and security.


JEWEL OF NIPPON

supply chain status/

Recognise a supply chain of national significance

Mount Isa to Townsville: Australia's biggest 'forgotten' supply chain?

The collective economic effort of the Mount Isa to Townsville 'corridor' and the surrounding areas that rely on this logistics link, combined with the strategic importance of the Port of Townsville and its transport linkages to Australia's Defence Force, make this supply chain one of truly national significance. Yet to date, broad recognition of this fact - in a way that would drive better national regulatory and investment policies for this supply chain - has not been forthcoming. To date, this has limited this supply chain's ability to contribute to national prosperity.

Some supply chains are more obvious than others…

In recent years the mining boom has seen national awareness of supply chain 'bottlenecks' and 'port congestion' raised considerably. But in most cases, the subjects of this media and government attention were large bulk commodities, for example, coal reserves in the Hunter and Goonyella supply chains. These large coal supply chains move hundreds of millions of tonnes *per annum* in 'low value, high volume' minerals. Accordingly, the sight of dozens of enormous bulk ore-carrying ships 'queued up' across the horizon waiting to load coal has become a powerful image with which to drive supply chain investments and management improvement. Equally, the capital city road and rail congestion exacerbated by the large shipping container trade in big cities – where millions of shipping containers are handled annually - has also brought public, policy and investment attention to containerised freight supply chains.

However, the Port of Townsville and the MITEZ supply chain is different. It does not at present deal in such large tonnages and it does not host such large containerised freight volumes and their interaction with traffic that would rival capital city-level congestion problems. Traditionally, this region has been a 'high-value, low-volume' minerals zone, where incredible wealth has been created, but where the tonnages are not so large as the more obvious coal supply chains. Without the 'headline issues' of huge tonnages or big container numbers, it has been harder to direct public attention to the shortcomings of this 'forgotten' supply chain. National productivity is suffering from this lack of policy and investment attention, as the inefficiencies that exist in the Mount Isa Townsville supply chain appear to be holding back significant potential.

If this situation continues, it is safe to predict that the region will not be in a position to deal efficiently with future forecast growth and will forego much of the potential growth on offer as a result.

By the numbers: how 'significant' is Port of Townsville and its supply chain?

The following table compares the Port of Townsville's export tonnage, its total value of exports and its value per tonne with two other ports generally acknowledged as being of national significance – the Port of Brisbane, servicing Australia's 3rd largest city, and the Port of Newcastle, which is the world's largest coal export port, servicing the Hunter Valley coal fields:

Table 1. Townsville, Brisbane and Newcastle Exports and Imports – A comparison

	Townsville 2010-11	Brisbane 2010-11	Newcastle 2009-10*
Export tonnage (million)	4.725	15.750	99.511
Export value ($ billion)	$6.206	$10.489	$11.513
Export unit $ value/tonne	$1,313.40	$666.00	$115.70
Import tonnage (million)	5.044	13.265	1.063
Import value ($billion)	$2.043	$21.250	$0.763
Import unit $ value/tonne	$405.00	$1,602.00	$718.00
Total port tonnage (million)	**9.769**	**29.015**	**100.574**
Total port value ($ billion)	**$8.249**	**$32.29**	**$12.076**
Total unit $ value/tonne	**$844.40**	**$1,112.87**	**$120.07**

Analysis: Key Points:

- **Townsville exports are very high value now and could be even higher value in future** - By total export value, the Port of Townsville is of a scale at least comparable to the Port of Newcastle. This has been achieved despite the fact that unlike the Hunter Valley, there is as yet no coordinated supply chain structure in the Mount Isa to Townsville supply chain;
- **A productive supply chain, but…** if tonnage or total container movements are the only performance measures of interest, Townsville is easily overlooked;
- **High value exports suggest big dividends from finding future supply chain efficiencies** - Port of Townsville exports are far more valuable per tonne than either Brisbane or Newcastle, suggesting a focus on supply infrastructure investment and reform in this northern supply chain could yield relatively greater productivity gains for the nation's export performance; and
- **An import destination of note** - The Port of Townsville is a significant 'value adding' import destination, notably through major industries in nickel refining and sulphuric acids as inputs to wider mining activity in the region's supply chain.
- **Statistics don't capture Townsville's defence significance** – simple tonnage and value measures cannot capture the strategic importance to the nation of the Port of Townsville as one of only two northern 'staging posts' for major taskforce operations and force projection.

Historical reference: the past shapes the future

The Mount Isa to Townsville freight supply chain has a long history of doing more or less exactly what it is still doing today – mining and pastoral activities, supported by settled communities. Mining west of Townsville has been active since Ernest Henry founded the Great Australia copper mine in 1867. Pastoral activity in the region predates even mining. Railway transport from Townsville first reached Cloncurry in 1908 and Mt Isa around 2 decades later. Put simply, the region has been and continues to be a mining and pastoral zone, with a road, rail and port supply chain at its heart, with communities along the corridor. The region's industries and communities therefore retain a very good understanding of themselves, and they attach great importance to the freight corridor to the port of Townsville for the prosperity of the entire region. This sense of the importance of freight infrastructure to a community is notable, as it might be argued that it has been lost in many other places in Australia.

The Defence significance of Townsville also has long historical reference: the city's port and airfield in particular were critical staging posts for the Allied campaign in the Pacific during World War 2; in 2012, senior Defence advice provided to this process confirms that Townsville remains (alongside Darwin) one of only two northern strategic staging ports for the Australian military's projection of amphibious capabilities.

A 'natural' region with a common goal, not an administrative region 'invented' by government

Why is this historical context so important to the MITEZ 50-year plan? Because since Federation, State and Federal governments -with the best of intentions - have imposed many 'administrative regions' 'planning zones' and 'regional development areas' and 'strategies' on geographic areas whose local communities industries and underpinning economic infrastructure may not collectively have much in common, all in an effort to try to do what is 'best' for these areas in terms of taxpayer-funded infrastructure investment and planning.

As a direct result, Australia over 100 years or more has to a significant extent *lost* a sense of the 'natural' or 'organic' supply chains that in many cases have served communities without altering significantly since white settlement. This has almost certainly impacted adversely on the quality of successive higher government attempts to plan for and invest in the economic infrastructure of Australia's regions. To that extent, this failure has taken away from the nation's productive potential.

The Mount Isa to Townsville corridor is one of these 'natural' or 'organic' infrastructure supply chains. Fortunately it is also a supply chain that has retained (or at least rediscovered, in the form of MITEZ) a very active and organised community and industry group to advocate on its behalf to higher government planning and investment processes. This appears to be a view shared by Infrastructure Australia – the nation's independent adviser to Prime Minister and Premiers on economic infrastructure planning and investment - which has been instrumental in encouraging the MITEZ group to develop its own comprehensive, long-term freight infrastructure plan to influence future infrastructure investment in this important supply chain.

MITEZ believes this thinking and approach to planning is not only important for increasing this region's economic contribution to national prosperity; it also stands as an example of how government and industry can do better regional supply chain infrastructure planning in the future, to contribute to greater prosperity for the nation.

Stop. Think. Partner. Act

In pursuing its planning objectives, the MITEZ group recognises the value of taking time to pause first and consider the pivotal strategic investment and planning challenges, and how public and private sector can work best together for the region's freight infrastructure, before pushing ahead with individual investment proposals. In this sense, the MITEZ group sees itself in lockstep with the thinking of Infrastructure Australia, which advised in its 2011 report to the Council of Australian Governments that its future emphasis would be on:

- *'Establishing the right strategic settings in the infrastructure sector;*
- *Financing reform, particularly developing practical solutions to deliver additional private funds for investing in necessary infrastructure;*
- *An expanded infrastructure pipeline, with a strong emphasis on projects that could be privately funded and projects in regional Australia; and*
- *Communicating a more mature (and challenging debate about our infrastructure and how we pay for it'*[1]

The risks involved in leaving all freight planning and investment to government: two examples

The basic MITEZ freight supply chain – minerals and agricultural activities to the west, north and south of the Port of Townsville and manufacturing in and around the port itself, linked to that port by road and rail – has in most part existed since well before Federation and has not changed significantly in its core business since this time.

Since Federation, both State and Federal governments have assumed increasingly dominant roles in planning, selecting, setting timeframes and funding most freight infrastructure investments in this region.

But the challenges to taxpayer funding of infrastructure like freight rail and ports means that the current higher government infrastructure planning and funding model is not likely to be sustainable, or even wise, into the future.

In the future, the Mount Isa to Townsville supply chain will benefit from attracting much greater private capital to productive freight infrastructure investment in the region. The most important benefit of this will be supply chain freight operators and investors having a much greater say on what freight infrastructure investments are made, and in what order, and when. In turn, higher governments will be able to be partners in that process by assisting in the productive planning and appropriate regulation of these private investments.

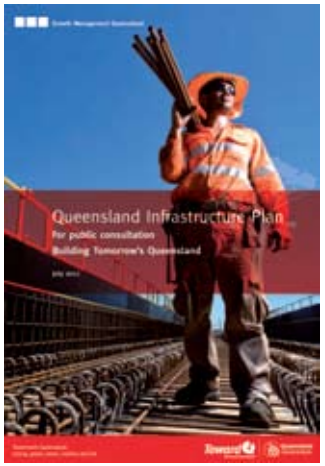
But first two examples illustrate the limiting way that freight infrastructure investment and planning appears to be conducted at present, when local supply chain and state and federal governments do not partner together effectively enough:

Example: Queensland Infrastructure Plan 2011

In 2011, Queensland's Department of Local Government and Planning launched its Queensland Infrastructure Plan (QIP), which 'forms the blueprint that will guide the state's infrastructure priorities for the next two decades and beyond'.

The Queensland Infrastructure Plan (QIP) prescribes an area of Northern Queensland which comprises a similar set of LGAs to the MITEZ area. The QIP proposes a 20-year infrastructure project pipeline with around $17 billion nominally budgeted in infrastructure projects - projects that overwhelmingly the taxpayer would fund: of over 100 projects, only 5 are identified as private infrastructure investments (not including Copperstring and related projects) and well over half of over 100 are identified as being only at the 'preliminary assessment' or 'pre-project' stage. The more-than 100 projects are a mixture of social infrastructure – sporting fields, hospitals, council offices and schools projects – and economic infrastructure projects – roads, rail, ports, energy, water.

These may indeed be government infrastructure priorities and many may set groundwork for growth. But supply chain infrastructure needs can vary with tonnages and values of products and often in principle are open to private investment (sometimes through independent regulation) at least for energy, ports, aviation and railways. While many governments can develop project investment pipelines for economic infrastructure, increasingly this is to attract private investment. This trend can be seen across Australia. In such cases it becomes increasingly important for effective local regional supply chains to partner with government to identify and encourage private investment opportunities.



In the absence of effective local partnering with higher government to identify prospective private freight investments, Government publication of a public planned and funded economic infrastructure 'pipeline' can create an expectation that government will be funding all of these investment opportunities - and this can inadvertently discourage potential private investment in such projects.

A major government focus on funding freight and other economic infrastructure (the very infrastructure that market investors would otherwise be most interested in) with taxpayer funds limits the quantum value of social infrastructure projects available to the community from government, as every public dollar spent on economic infrastructure such as ports and rail is a dollar than cannot be spent on schools, hospitals and sporting facilities.

Finally, what investors want is certainty. Timeliness, stability, coherence and above all predictability in regulatory and approval processes is needed whether investors are public or private sector. A government focus too heavily on funding can distract from this. Funding is not the only way that governments can help to deliver infrastructure. Higher governments can and should play a role, but so should private investors.

The timeliness of the investments is also a problem for taxpayer-funded infrastructure plans such as the QIP– its projects can only progress at the pace of taxpayer funds available, and these projects will always remain at risk of politicization from year-to-year, including even cancellation, as electoral priorities of government shift over time.

The current QIP should be a starting point for stronger investment and planning interaction between the supply chain, industry, community and higher governments. If this occurs, it offers an opportunity for the local MITEZ freight market to work more closely with higher governments to identify, publish and secure freight infrastructure investment and planning priorities. The supply chain itself should help to build and publish a clear pipeline for sound freight infrastructure investments by private capital, with government providing important regulatory and planning support to such a pipeline. These options are explored in a later section of this document (below).

Example: The Auslink/Nation Building Corridor Strategy for Mount Isa - Townsville

The Nation Building Infrastructure Program – formerly known as the Auslink Program – is the Federal government's strategic funding program for road and rail infrastructure; it attempts to 'assist national, regional economic and social development by the provision of funding aimed at improving the performance of land transport infrastructure'[2]. A primary means of planning and forecasting and prioritising investments on this national network is through 'corridor strategies' which attempt to forecast demand for roads and rail and examine the current condition of existing networks to draw planning and investment conclusions for future Federal budgets.

The last Federal government Auslink/Nation Building corridor strategy was produced 5 years ago in 2007[3]. At the time, this study identified some of the inherited road and rail deficiencies along this 1,000 km corridor. When it came to addressing the ability of the corridor to manage forecast traffic demand, the picture painted was reasonably optimistic:

'Rail: Queensland Rail is meeting current demand on the corridor. If all of the possible growth on the corridor was to come on line at the same time, and peak at 5.1 million tonnes of product by 2010-11, it is unlikely that sufficient above or below rail capacity exists to accommodate this rate of growth. However, the long gestation periods required for such projects would provide adequate time for mining companies and above rail operators to reach agreement on the level of service and capacity required and for Queensland Rail Network Access to design and construct any new below rail infrastructure'. [4]

Accordingly, there has not been significant Federal investment in this road and rail corridor since 2007. 2012 advice from the Nation Building office in Canberra is that there has been no update to the (Mt Isa to Townsville) studies since they were first released and there are no plans to do so.

But the actual situation raises questions about this decision: the assessment is already proving out of date. In 2012, Mount Isa line usage across its more intensive sectors (ie from Cloncurry eastwards, where the movement of magnetite has already begun on a large scale) is already at 4.7 million tonnes per annum. 'Contractable' additional capacity on this rail network (that is, the capacity that can actually be sold to potential clients, rather than a higher but largely theoretical capacity measure) is already scarce[5]. This scarcity is compounded by significant current train path capacity being sacrificed to ongoing life-cycle maintenance and remediation of the ageing line, including the replacement of steel sleepers with concrete ones.

This state of affairs is not meant as a significant criticism of higher governments. Rather, it underlines the risk of local industries and planning bodies – who experience supply chain challenges on a daily basis – falling out of touch with higher government planning and investment processes.

As with the previous example, the Auslink corridor study matter suggests that a 50-year plan, armed with a more complete picture of commodity production and freight demand for the supply chain, and working more collaboratively with the Federal and State government planners and policy makers, can make significant inroads into better higher government planning and regulation of better freight infrastructure investments.

Interim recommendations:

1. Higher governments should recognise the national significance of the Mount Isa to Townsville supply chain and its region, so that the region receives more comprehensive and targeted planning, policy reform and investment facilitation attention in future; and
2. Higher governments should recognise the positive opportunity posed by having a 'natural' economic supply chain led and its development led and driven by local industries and communities, with higher governments acting as a partner to these efforts in order to maximise efficient and sustainable planning and investment decisions.

demand/

Establish robust 50-year freight demand forecasts for the supply chain

For any export supply chain to become efficient, it must try to answer three simple questions:

1. **WHAT IS THE LONG-TERM WORLD DEMAND FOR THE COMMODITIES WE PRODUCE?**
2. **CAN WE PRODUCE AN AMOUNT OF THESE COMMODITIES THAT MEETS LONG-TERM WORLD DEMAND?**
3. **HOW WELL WILL OUR CURRENT SUPPLY CHAIN INFRASTRUCTURE FACILITATE LONG-TERM WORLD DEMAND?**

For these questions to be answered supply chains first need robust long-term world demand forecasts for their commodities and they need to know what level of commodities they are likely to be able to continue producing for the long-term.

Some background on demand forecasting – the challenges in this supply chain

Traditionally, commodity production and demand forecasting has been far easier for some export supply chains than others. The large export chains in the Pilbara in Australia's north-west, for example, are generally fully *vertically integrated* – that is, one company owns the mine, the rail, the port and ships for exporting the ore. It is therefore more straightforward for such ports to forecast world demand for their products in the longer term and make efficient and timely infrastructure investments on this basis. Importantly, this point is also much more *obvious* to an owner of such a supply chain – one company has a great deal to lose if production and demand forecasts are wrong, so there is an incentive to plan these matters very thoroughly and make sure that these plans guide timely major supply chain investments.

Mount Isa to Townsville's supply chain has no comprehensive, long-range demand and production forecast for its commodities. There are many different commodity producers, service providers and infrastructure owners in the Mount Isa to Townsville supply chain – the importance of a single comprehensive view of production and demand can be less obvious to these parties.

A failure to establish robust demand that would underpin sensible investments has been an enduring feature of the MITEZ supply chain, as history reveals:

"(In 1924) the Queensland Royal Commission on Public Works twice visited the west to decide whether Mt Isa merited a railway. Taking evidence in stores and courthouses, the seven politicians considered five railway routes, all of which could link Mt Isa…ironically the Royal Commission was allowed to adjudge the merits of the five routes on a method of crude guesswork which was not once criticized. Mt Isa paid for the railway negotiations. It paid such fantastic freights on the 600 miles of railway to Townsville that the life of the mine was often endangered"

Geoffrey Blainey *Mines In the Spinifex: A History of Mount Isa Mines*

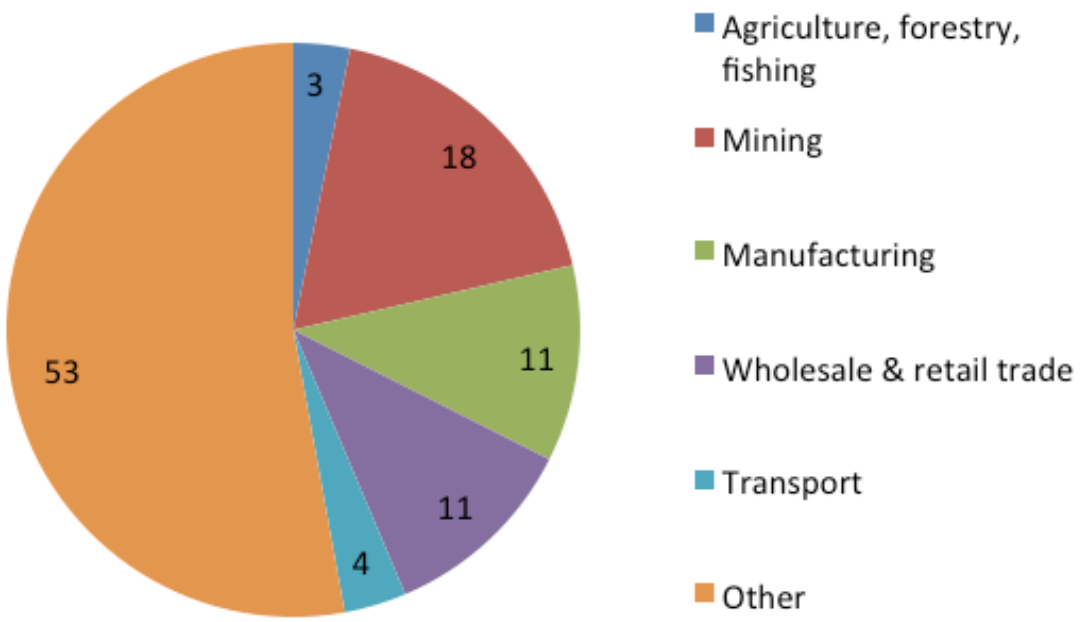
Have production and demand forecasts been considered in infrastructure plans to date?

To date, analysis and interview feedback suggests that current masterplans and other infrastructure investment decisions have been made on a 'best endeavours' basis by seeking advice from existing commodity producers (such as working mines) on likely production levels in the 5-10 year range, along with more rudimentary statistical analysis over longer time periods. Longer-term total regional production potential and indeed longer-term dynamic global demand forecasts do not seem to be present in the master planning forecasts of the region. A better approach is required.

Creating a comprehensive regional economic picture: more than mines and cattle

While the MITEZ region is known to rely heavily on minerals and agricultural production it also has a significant manufacturing sector. The mining, agricultural and manufacturing sectors are in turn served by a strong services sector that supplies essential inputs to these industries (and, of course, relies upon them). This mix of the region's economy and its value is shown below (NB the services sector is included in the 'other' category in Table 2 adjacent. This large category also includes products such as government services and entertainment.).

Table 2: Mount Isa - Townsville region's Gross Value Added Product-% by sector 2011-12 (adjacent)



All sectors of the MITEZ economy utilise transport services, to varying degrees, to enable the efficient production and delivery of the goods and services they produce. Thus the methodology developed to forecast the demand for transport services in the MITEZ region must be capable of incorporating estimates of the demand for transport services in all sectors of the region's economy.

Dynamic modelling of demand for the region's economic output

General equilibrium models can provide a comprehensive picture of the demand and supply of inputs in economies. Furthermore, with recent development of dynamic general equilibrium models, it is possible to track the development of national and regional economies through time.

For the longer term, it is desirable to develop a general equilibrium model that includes the Mount Isa to Townsville supply chain and surrounding region as a fully modelled region. However, this was not possible in the time available for Interim Report publication. Rather, the approach adopted has been to develop a model that contains a region that already includes this regional supply chain (ie. Queensland) and then links the output from that model to input-output data for the MITEZ region.

For this exercise, a bespoke version of the Deloittes Access Economics model of the world economy was developed to track the demand for transport services in the modelled economies over the period 2012 to 2050. Table 3 (overleaf) illustrates that the model had three regions and in each region production of 23 commodities was allowed for:

Table 3: Commodities modelled in the MITEZ production and freight demand model

Regions	Commodities	
Queensland	Sugar cane, sugar beet	Electricity
Rest of Australia	Other Crops	Water
Rest of World	Cattle	Construction
	Other animal products	Trade
	Fishery and Forestry	Transport
	Coal	Communications
	Oil	Finance and Insurance
	Gas	Other Business Services
	Other minerals	Recreation & Other Services
	Meat Products	Govt Services
	Other Processed Food	Ownership of dwellings
	Manufacturing	

The demand forecasting methodology in detail

The forecasts were generated by simulating changes in each region in:

1. regional gross domestic product;
2. regional labour supply/working age population; and
3. regional population

Forecasts of the magnitude of these variables over the period 2012 to 2050 were obtained from the Centre d'etudes prospectives et d'informations internationale (CEPII). Using these data, two growth scenarios were developed.

The low growth scenario used data directly provided by CEPII for Australia and the 'Rest of the World'. Estimates of the above variables for Queensland were calculated as a proportional increase in the CEPII projected growth rates for Australia but adjusted upwards to take account of the fact that Deloittes Access Economics forecast higher growth in Queensland compared to the Australian economy.

The high growth scenario used the CEPII forecasts for Australia and the Rest of the World but used the actual forecasts for Queensland developed by Deloittes Access Economics. These forecasts for Queensland and Australia project significantly higher growth compared to the CEPII forecasts. Therefore, the key difference between the two scenarios is the difference in the projected economic growth in Queensland compared to the Australian average.

Growth rates in value added for the 23 commodities included in the general equilibrium model were obtained for the period 2012 to 2050. These growth rates were assumed to provide a reasonable approximation to the expected growth of the respective sectors in the MITEZ.

Gross regional value added forecasts were derived by applying the growth in value added by industry estimated for QLD in the Deloittes Access Economics dynamic general equilibrium model for the world economy to data on value added for the MITEZ region obtained from the publication: The North Australia Research Group 2010.

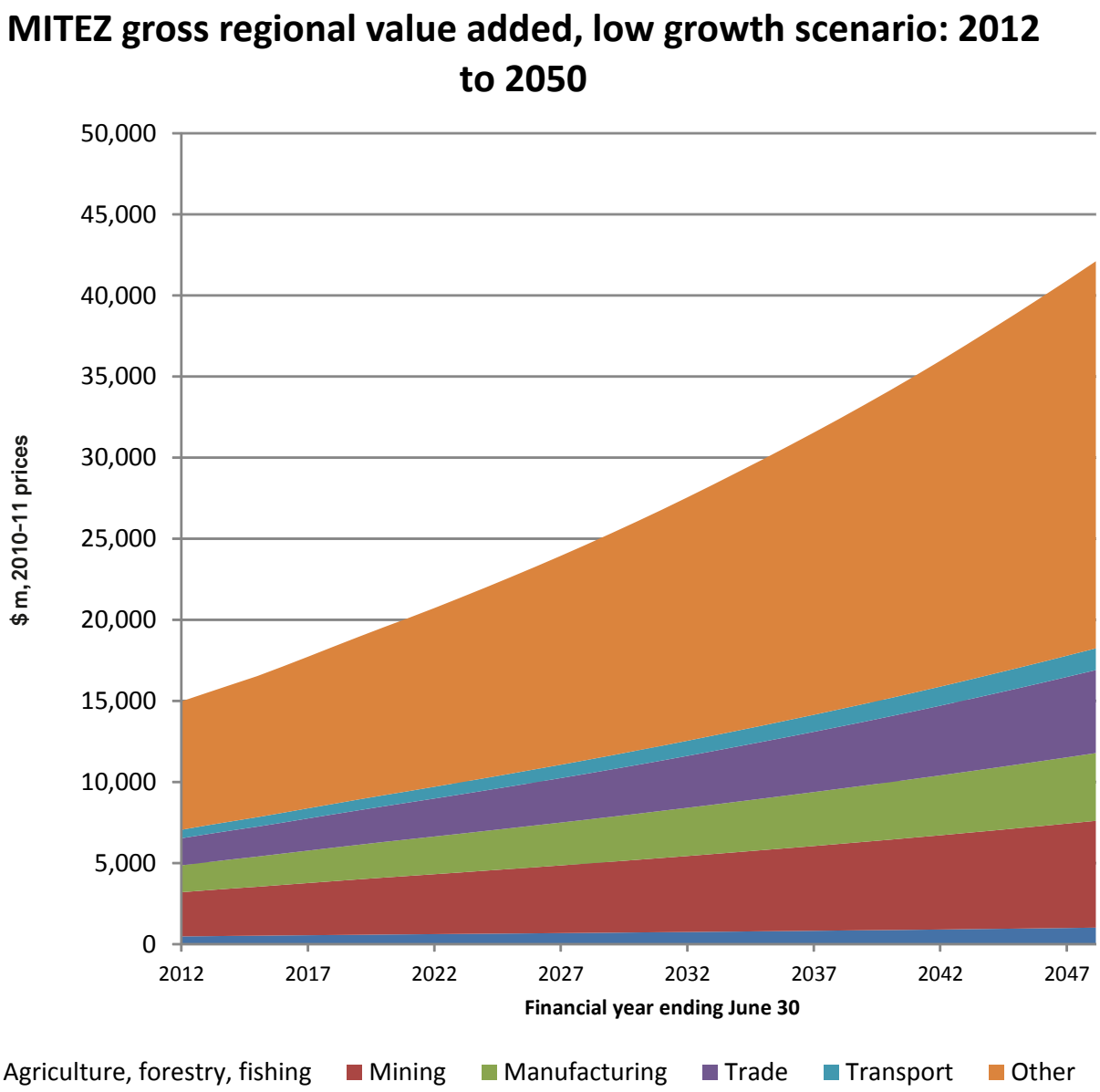
Ongoing work to ensure robust demand planning for the region

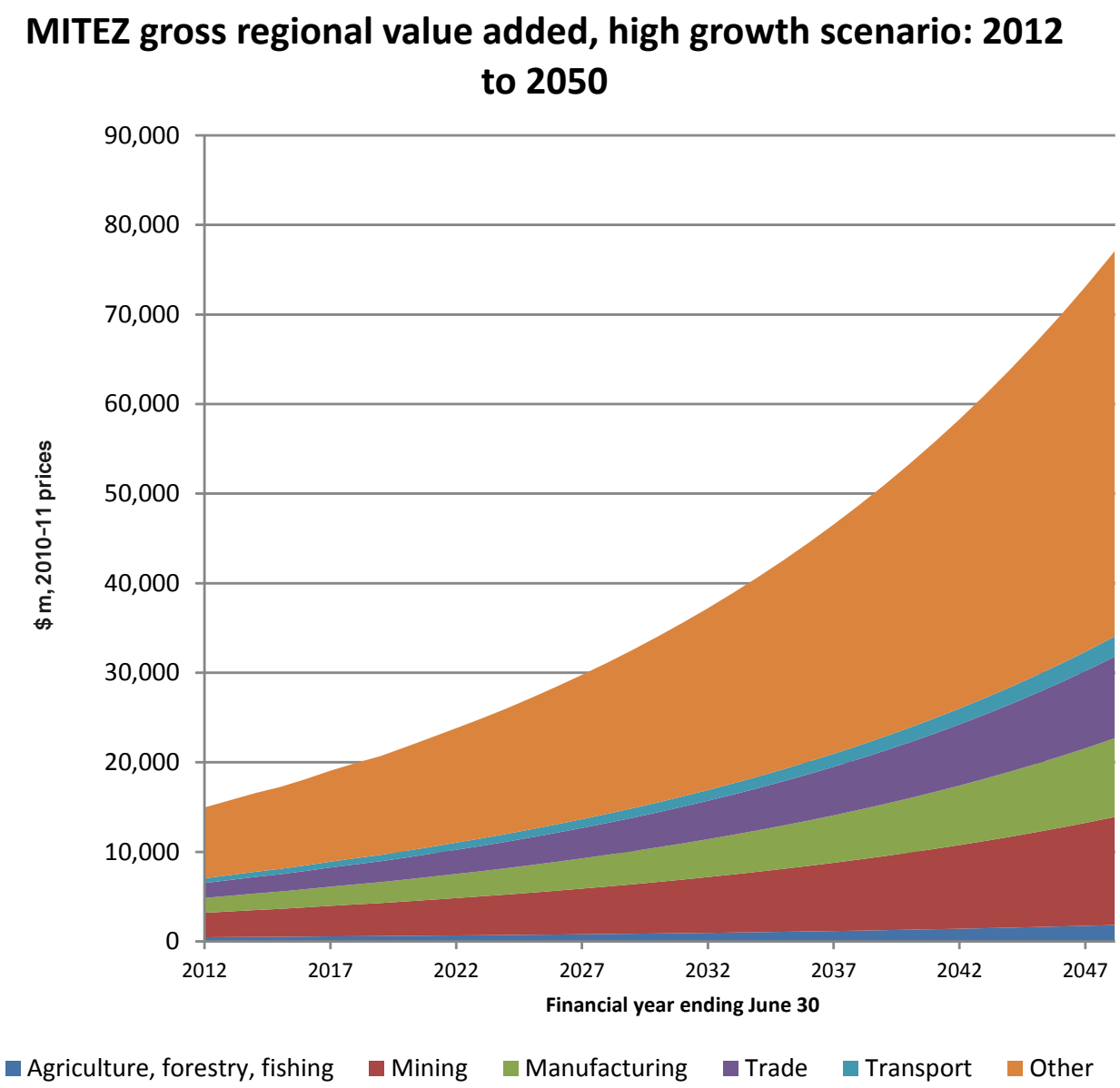
The inaugural final report of the 50-year plan seeks to have detailed demand projections and production capacities for all major commodities in the region for the coming 5 decades. This work is ongoing and has received strong 'in-kind' support from within relevant Queensland government agencies. Prior to the final report the completed commodity production and demand forecasts will be auspiced by several eminent parties to ensure that future investors and policy makers can have faith in the commodity supply and demand analysis that it offers.

High and Low Demand Estimates for the Regional Economy in 2049-50

A high and a low base case for the coming 40 years suggested that from a current regional economy of around $15 billion, world demand would see the region grow by 2049-50 to an economy worth:

- $44 billion (low case) – or an almost 300% increase; or
- 84 billion (high case)- or an almost 600% increase
- Accordingly, the regional transport economy would grow from $525 million today to between $1.4 and $2.4 billion by 2050.





Interim Report Analysis:

The demand model suggests that the region has a bright future ahead in terms of global demand, but making the most of this demand will rest on the ability to produce the amount of commodities the world seeks and to transport these commodities in a manner cost-effective to world prices into the future.

In this sense, the question for the region is not whether the region will grow, but how well the region's economic infrastructure planning and investment can anticipate and prepare to take advantage of that demand as it increases.

Are these growth forecasts robust?

The Interim Report growth forecasts detailed in the above figures imply annual average growth rates for the MITEZ minerals sector of 4.0 per cent per annum (high growth) and 2.5 per cent per annum (low growth). To determine if these growth rates are feasible a model of minerals supply in the MITEZ is also being developed.

The model incorporates all prospects and mines encompassing copper, gold, silver, tin, lead, zinc, nickel, antimony, limestone, phosphorous, iron magnetite, uranium, tungsten, earthy lime, production stone, gemstones, gypsum, vadium, perlite and silica, oil shale, diatomite, fluorite and coal.

Similarly, the model draws on the most current and accurate reported production levels of other commodities, such as livestock, sugar, timber and a range of other products that are considered to have a material impact on freight infrastructure supply.

The ongoing development of this model has benefitted particularly from transparent access to all of Geoscience Australia and Department of Employment, Economic Development and Innovation's public access information on the mineral deposits of the region, including both active mines and, importantly, prospective identified reserves (ie both active and inactive prospects). While the information is yet to be finalised , and requires testing against mine estimates of available resource and other checks, the analysis to date has yielded the following comprehensive minerals information of relevance to the MITEZ supply chain in the infrastructure planning context:

- There are 411 mine sites in the region: 58 being active, 248 being 'active prospects' and 105 being classed 'inactive prospects' ;
- The 58 active mines are estimated to have up to around 245 million tonnes of resource available to them;
- The active prospect mines have a similar level of resources available to them (excluding shale oil and phosphate rock);
- There are estimated to be approximately 2 billion barrels of shale oil in the region;
- There are estimated to be approximately 2 billion tonnes of phosphate rock in the region;

Remaining uncertainties in the demand model

Before final reliable forecasts of production capacity at different production rates, for different minerals can be developed based on forecast world demand, more proofing and analysis needs to occur over the data. Data on minerals produced at the operational mines appears to be unreliable as production data is unreliable - because data is unavailable for some mines and in the instances where data is available it is not provided for the same year. For the final plan, mine production data will be sought from current and active prospect mining operations themselves, to act as a check on the government's estimates. This information will be vital in establishing commodity production capacity analysis against forecast world demand over the coming 5 decades.

A 'data room' for all potential infrastructure planners and investors in the region

The demand model being developed represents an unparalleled view of the total productive potential of a region's commodities, and how this interacts with freight infrastructure requirements. This information will prove very powerful to prospective infrastructure investors in the region, as it allows them to model and analyse the region and its need for infrastructure at a commodity-by-commodity basis, and even at a mine-by-mine basis.

It is intended that this demand model, once complete and fully dynamic for analysis purposes, be maintained by government agencies over time and, through MITEZ, be available to all future planners and investors in the region.

Interim recommendations:

3. A single, transparent and comprehensive demand model, auspiced by eminent third parties, will provide 'investment grade' information to public and private sector alike about the opportunities in the region's freight infrastructure. Once produced for the final version of the first 50-year freight plan, this model should be maintained by government and made available through MITEZ to any interested parties in the interests of maximising smart investment and planning in the region.
4. The region's stakeholders, including higher governments, should note the commodity shifts and global demand analysis offered in this Interim Report. Noting the limitations of this interim analysis and the need for further work to be done, broad thinking should begin about the long-term implications that this analysis might have for freight infrastructure planning and investment decisions in the region.

supply strategy/

Resolve strategic questions about the supply chain first

This report has assessed the entire Mount Isa to Townsville freight supply chain using a combination of:

- An extensive review of the published literature concerning the infrastructure, the regional freight task and regional development objectives, including modal masterplans
- Interviews with the operators and in some cases owners of the different parts of this supply chain infrastructure, from road and rail operators and builders to shippers and their agents
- Development of a freight commodity demand model of unprecedented scope and quality for this supply chain; and
- Analysis in the context of known 'best practice' port and supply chain planning elsewhere, most notably in the form of the recent inroads made in making more efficient coal supply chains in Australia.

This work has suggested several strategic or 'pivot' issues facing this supply chain and the prospect of it contributing more to national productivity.

Reflecting on these 'pivot' issues first will be the best investment of time the region and higher governments can make, so as to avoid rushing to specific infrastructure planning and investment decisions inside the supply chain that may in the end be put at risk by strategic circumstances. The pivot questions are as follows:

1. **'IS MOUNT ISA TO TOWNSVILLE A 'SUPPLY CHAIN' IN NAME ONLY?'**
2. **HOW IS FREIGHT DEMAND CHANGING AND HOW COULD IT INFLUENCE FUTURE INFRASTRUCTURE INVESTMENT?**
3. **'WOULD THE SUPPLY CHAIN BE BETTER SERVICED IN FUTURE BY TWO PORTS, RATHER THAN ONE?'**
4. **'HAVE WE FULLY ACCOUNTED FOR DEFENCE'S STRATEGIC INTERESTS IN THE PORT OF TOWNSVILLE?'**
5. **'DO REGULATORY APPROVAL PROCESSES ACROSS THE CHAIN SUPPORT PRIVATE INFRASTRUCTURE INVESTORS?'**
6. **'ARE THE SUPPLY CHAIN'S PORT AND RAIL MONOPOLIES ADDING TO INFRASTRUCTURE SUPPLY INEFFICIENCIES?'**

'Does the lack of coordination mean the region is still a 'supply chain' in name only?'

There is a high degree of fragmentation along the supply chain, characterised by a lack of transparency and joint behaviour, which in turn has led to delays, cancellations, less than full contractable capacity use of rail and in general terms a lack of understanding from one party in the supply chain to the next about the motives for individual planning, investment and operational decisions of all respective parties in the supply chain. The lack of joint behaviour has also meant there are no agreed and centrally coordinated plans and efficiency metrics for freight throughput across the supply chain. This fragmentation continues to have negative impacts on the freight task:

- There can be significant delays and choke points for ship loading and unloading at the Port of Townsville, leading to berths being occupied for too long and/or multiple ships waiting at anchor for their scheduled loads. According to interviews, up to a dozen vessels were waiting at anchor in mid calendar 2011. This has impacted the Port to the extent that it does not generally offer fixed day berthing lots.

- Maintenance downtime is higher than it probably should be as a total, because maintenance schedules on discrete parts of the supply chain are not centrally-planned, coordinated and visible.

- Visibility of the contractual arrangements between each party in the chain – for example, the above rail operator with the port and mine, the below rail operator with the port, etc, is very low.

This is not to suggest any animosity or tension in the supply chain – all parties are each attempting to work as professionally as possible on their own 'piece of the puzzle', but from interviews and analysis, there is much fragmentation, and this is creating lost efficiency throughout the supply chain – which in effect, means that the Mount Isa to Townsville freight corridor is a functional 'supply chain' in name only.

'Precedents for central coordination of large supply chains exist'

These fragmentation problems are not new. Other supply chains of great value to the nation such as the Hunter Valley Coal Chain have recognised the value of operating jointly and transparently as a coordinated body to maximise predictable freight throughput in the supply chain to drive greater national prosperity.

In 2012, the Port of Newcastle and its logistics links to coal mines in the Hunter Valley forms a world-class, high-productivity supply chain leading to the largest coal export port on earth. This supply chain is one that has grown immensely in terms of its contribution to national productivity - in the past decade, for example, the value of all exports from Port of Newcastle has more than doubled, from $5.1 billion in 2000-01 to $11.5 billion in 2009-10[6]

The upsurge in global demand in coal can explain some of these gains, but the considerable efficiencies driven by effective and transparent supply chain coordination are a major feature of this supply chain's recent success – in effect, better central coordination - has allowed the coal of the Hunter to take full advantage of world demand increases. Mount Isa – Townsville faces a similar challenge – how will the region meet forecast world demand of between 300 to 600 per cent in the coming 40-years successfully? Much of the answer lies in effective, central coordinated planning of the whole supply chain.

Like the Mount Isa to Townsville corridor, the Hunter Valley's rail, road and port network achieves these outcomes even though it contends with multiple freight users, competing passenger trains and other freight activity on the Hunter's road, rail and port network. Centralised coordination is a key to this success.

The Hunter Valley Coal Chain Planning Group was founded in 2003 as a result of significant inefficiencies being experienced by the major parties across the chain which mirrored many of those seen today in the Mount Isa to Townsville freight corridor. In 2009, the Hunter Valley Coal Chain Coordinator – an independent legal entity for the central coordination of this freight effort, comprising all Hunter Valley coal producers and service providers, was established. This arrangement underpins the continued success of this supply chain.

Pivot Question 1: 'How do we start to plan, invest and coordinate our whole supply chain centrally and effectively?'

'The region is facing a changing freight commodity mix in future, with differing freight tasks'

Even though a completed and independently-auspiced commodity production and freight demand model for the Mount Isa to Townsville region to 2062 is not yet complete, the Interim Report has completed enough demand model development to suggest that the freight demand mix for different commodities in this region relative to world demand for these commodities is shifting, and this has implications for the strategic freight infrastructure planning choices for the supply chain.

Initial long-term demand analysis for this report suggests that high-value hard rock mineral concentrates such as copper and zinc appear to be available across the coming 5 decades and that world demand for these products is set to reach levels far higher than present levels. Similarly, cattle and sugar supply levels also seem set to continue in the region for the coming 5 decades, and world demand suggests increased demand for these products (compared with current demand levels) many years from now – although demand for these products is not expected to increase as sharply as for high-value mineral concentrates.

This might lead regional planners and investors to predict with confidence that the infrastructure supply chain solution for the region will involve optimising the Mount Isa to Townsville supply chain for high-value, time-sensitive products. However, shifts in world demand for some of the bulk commodities found in the Mount Isa to Townsville region suggest that long-term planning and investment in the region must also consider the prospect of increased demand for reserves of rock phosphate, iron ores such as magnetite and haematite, shale oil and coal – all of which are found in the region.

'Different commodities drive different freight infrastructure design and investment choices'

The presence of growing demand for the region's 'high value' mineral concentrates, combined with increasing demand for its bulk commodities poses a strategic question about what sort of supply chain the region may need to invest in for the future. Typically, bulk commodities need access to deep water ports and large scale rail-to-stockpile facilities at or near the port. This is not something that is out of the question for the Port of Townsville, but it may involve some significantly different and higher-order investment priorities than simple expansion of the region's high value commodity supply chain. A focus on traditional commodity supply chain investment and upgrade comes with the opportunity cost of bulk commodity investments foregone; *vice versa*, a greater emphasis on preparing the stockpile and deeper-water harbor access required for competitive bulk commodities will create opportunity costs to traditional high value commodities, as well (potentially) as social amenity in the case of open coal stockpiling in or near the city of Townsville. A hybrid approach would spread the opportunity costs more evenly across bulk and high value commodities, but it might at the same time lessen the full returns on offer from pursuing either strategy more fully.

Pivot Question 2: 'What sort of supply chain is being built for the future between Mount Isa and Townsville? – is it one that prioritises high-value traditional mineral products and corresponding freight infrastructure design and investment over other investments, or one that shifts the ranking investment priority to the emerging bulk commodity opportunities in the region, and what are the opportunity costs of the different choices?'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'Could the supply chain best be serviced in future by two ports, rather than one?'

For over 100 years, road and rail commodity exports from the region west of Townsville have been serviced through the Port of Townsville. This has made destination decisions about the supply chain more simple, but in the case of the emergence of bulk commodity export pressures described above, this can also create investment priority challenges for the different logistics tasks that are confronting a single port.

The emergence in recent years of a coal supply chain in the Galillee basin south and south west of Townsville has brought about the construction of a very large, deep-water bulk commodity export port at Abbott Point, around 200 kms south of Townsville.

In the future, the Mount Isa to Townsville supply chain needs to consider whether this port and its capacities as a high-volume bulk commodity port may warrant being actively connected to the existing supply chain to Mount Isa, most likely *via* rail connection of the Mount Isa Line with Abbot Point bulk port *via* the Galilee Basin.

This matter is an important one for consideration of the high value minerals versus bulk commodity investment patterns that the Port of Townsville faces. It is also a concept that some supply chain stakeholders are already familiar with through past experience: several years ago Queensland Rail itself raised the need for rail investments and planning to be made in the context of a clear plan for the port connections, especially where more than one port services (or potentially could service) aspects of the supply chain:

'...existing port and rail planning processes tend to occur in a piecemeal manner. For example, the masterplanning of each port is largely performed in isolation to the planning of other ports and rail systems...one of the greatest lessons learned from the recent experiences with the Northern Missing Link is that the Central Queensland coal system needs to be planned in an integrated manner – the focus should be on the greatest value solution for the Central Queensland coal system as a whole rather than for each port and associated rail corridor in isolation.'[7]
Queensland Rail submission to the Queensland Government Review of Current Port Competition and Regulation (2007)

Pivot Question 3: 'Should the Mount Isa Supply Chain consider adopting a 'two seaport' strategy?'

'Have we fully accounted for Defence's strategic interests in the Port of Townsville?'

Senior stakeholder interviews with the Department of Defence confirm that the Port of Townsville is likely to continue to be one of the two most strategic northern Australian ports to the national security interest. This comes about in part through the port's proximity to a major Australian army base and training facilities as well as Townsville airport's military capabilities. Townsville is a major staging point for amphibious operations. Feedback from Defence stakeholders suggests that the planned basing of US Marines contingents in Northern Australia, combined with the imminent arrival of the very large HMAS Canberra-class Landing Helicopter Dock (LHD) vessels, as well as wider Defence supply aspirations for these tasks all contribute to Defence needs for the port infrastructure being of a strategic nature for decades to come.

At present, interviews with infrastructure stakeholders suggest there is much more to do in reconciling Defence's strategic aspirations for the region with current freight supply chain planning and investment. At present, the port planning proposal is that Defence and cruise ships 'share' access to a single berth in the Port of Townsville. This appears to be an unusual circumstance not in evidence in most other major Defence naval berthing arrangements in other places and it does not chime with Defence's strategic intentions and operational requirements for the port.

It may be that a more strategic consideration of port usage – one that incorporates cruise and tourism while protecting the national defence interests of this port (interests which may well expand in future) is required across the 50 year timeframe.

Pivot Question 4: 'How well are national Defence aspirations and needs for this port and its maritime and land approaches being catered for by wider freight supply chain developments and assumptions?'

'Do the regulatory approval processes across the chain support private infrastructure investors?'

Another 'pivot' question for the Mount Isa – Townsville supply chain to consider is that of how to maximise private infrastructure investment in the region's supply chain. Freight infrastructure serving a high-demand supply chain is a highly prospective investment, but the period of repayment for freight infrastructure is generally quite long – large railways and port and channel investments may take 20, 30 or more years to deliver effective returns on the investors real weighted average cost of capital.

The length of repayment involved in this infrastructure means that investors need planning approval certainty over similarly long time frames. This is especially the case in the Mount Isa to Townsville supply chain, because the major freight infrastructure involved – the railway, the port and the roads – are all in public hands, and the freight supply chain travels through several settled communities. The region and indeed Australians more generally would want to see any freight infrastructure investment made sustainably and in a manner sympathetic to cultural, environmental and safety matters.

With this in mind, it is vital that government planners and regulators consider what sort of 'investment conditions' they offer potential investors, in the form of existing development approval processes for the supply chain. Over the years, several reviews in different states have emphasised the need for regulatory approvals and sundry processes to be turned in to a 'one stop shop' in order to make investment more attractive for potential investors[8]. However, in the case of large scale freight infrastructure investments, it is the regulatory approval horizon – that is, regulatory approvals that remain valid for the number of years required to make returns on that infrastructure - that will do most to lower the significant proprietary risk of potential private investors in the Mount Isa to Townsville supply chain. For example if a proposed port dredging project requires a 30-year repayment period, the environmental approvals horizon must also be valid for 30 years.

The importance of this question to the investment future of the supply chain cannot be underestimated. Private investors will not invest in freight infrastructure where the proprietary risks are seen to be too high. Without addressing this issue, governments cannot expect the private sector to make any significant efforts in infrastructure investment. Long term investments require long term planning certainty.

Pivot Question 5: 'If private investment is to be encouraged, how well do private infrastructure investment approval processes match freight infrastructure repayment timelines? Do the region's current regulatory approval processes encourage or discourage such private investment questions?'

'Are the supply chain's port and rail monopolies adding to infrastructure supply inefficiencies?'

One of the consistent messages received from all stakeholders interviewed in the development of this report was that over many years there has not been enough investment in freight infrastructure in the port or rail network that underpins the Mount Isa to Townsville supply chain.

A number of reasons have been advanced for this underinvestment during these interviews:

- For rail – road prices do not always allow rail services to compete;
- Contracts from would-be customers can't be secured for long enough lead times to cover the investment payoff period, which, for major infrastructure, might be over 2 decades; some customers may know commodity supply is there in principle for the longer term, but for commercial reasons will not reveal that through signing longer-term freight contracts;
- The high value commodities and great distances make the supply chain especially sensitive to world commodity price and currency fluctuations, making long term investment too risky

Whether the aforementioned claims are altogether accurate, or whether perhaps there are reasonable counter claims to these is not at issue here. What is most important to note is that these port and rail infrastructure concerns relate to two *monopoly-owned-and-operated* infrastructure assets – that is to say, there is *only one below-rail provider* between Mount Isa and Townsville and there is *only one port owner* at Townsville.

In principle, such monopolies can restrict investment – either consciously or not – in only one of two ways:

1. Through pricing:

- **If access prices are set too high**, people will not want to use the rail or port services. In the case of rail, if prices are too high, mines may try to use a road haul alternative or may simply not open their mine at all. In the case of the port, the region's mines (or beef, or sugar, for example) might be seen as unattractive on the world market in part because of the high costs of visiting that port, and these potential customers will look to alternative cheaper regional and global sources of the product.
- **If prices are set too low**, rail or port access seekers today (and their shareholders) receive a saving, but in the longer term the rail or port owner is not charging to recover the cost on and of capital that will see the rail or port network maintained and expanded over time – in the longer term the access seeker and their shareholders) will lose, because operational capacity has been constricted by lack of affordable investment.

2. Through restricting infrastructure supply

- Over time, monopoly owners of the rail and port might not reinvest all of their charges and revenue to maximise future growth, or they might make poor investment choices. They might simply choose to not invest any more than they have to in the rail or port, regardless of the desires of the customers. These decisions by the monopoly provider can harm customers in the long term and restrict how much that piece of infrastructure can contribute to national productivity.

This problem has been detected and addressed in other supply chains in Australia where a monopoly is or was present. In the Hunter Valley Coal Chain, for example, the Australian Competition and Consumer Commission (ACCC) has access to asset management plans for the coal railways, to ensure that the rail owner is not restricting new rail infrastructure investment and capacity through either inaccurate pricing or a simple decision not to reinvest in what demand on the line would otherwise appear to warrant. This ACCC oversight arrangement has worked successfully to reduce the risk that a monopoly rail asset owner is 'holding back' the full potential of the supply chain as a contributor to national productivity. In cases where significant problems are found, the regulator can choose to put the monopoly 'in play' by opening it to (independently regulated) market interest.

Rail and port monopoly supply and pricing deserve independent review

The development of a robust 50-year commodity demand model for the Mount Isa to Townsville supply chain opens up a good opportunity for an independent regulator (such as the ACCC – although it will be worth also raising this matter with the Queensland Competition Authority) to consider adopting a similar regulatory review function on the monopoly port and rail services in this region.

Pivot Question 6: 'How do we know the key freight assets are being priced appropriately and how do we know that infrastructure supply is being provided at levels that are more or less matching demand?'

Interim recommendations

5. The MITEZ group and relevant government, community, investor, wider supply chain stakeholders and independent advisory bodies such as Infrastructure Australia should agree a process for transparent and active consideration of each of these six 'pivot' questions – the results of which consideration will do much to shape the future of this supply chain.

supply operation/

Confront operational efficiency, innovation and capacity

In the absence of clear, long-term demand assessments for the region's commodities, and answers to the 'pivot' questions, it is unfair to expect a single road, rail or port masterplan to advance the 'right' investments in the 'right' order for the supply chain to maximise productive economic outcomes. However, this seems to be the general expectation being placed on the current masterplans. A more useful approach would be to ask the road, rail, port and other stakeholders such as stevedores and shippers to work consultatively with customers and government on two simple questions:

- What can be done now to address the supply chain's ***operational efficiency*** without spending any/much money?
- Once the immediate operational efficiency opportunities are identified and exhausted, what are the key remaining ***capacity*** issues facing the supply chain, and how should these be ranked in order of investment priority?

By doing this in the context of a *single, collective* and agreed view on long-term demand, and some sense of direction on the strategic 'pivot' questions, infrastructure owners and users can begin to consider sensible capacity improvements to the network in a prioritised way that will stand a better chance of being consistent with strategic objectives for the supply chain, and which will pose a much lower investor risk of becoming a stranded or underutilised asset.

Operational and efficiency opportunities to consider

It would be premature of the Interim Report to offer too many recommendations at the efficiency and capacity level in advance of discussion around the strategic issues confronting the supply chain. However, as a way of opening up supply chain discussion around these issues, some obvious modal issues and opportunities have become apparent from interviews with stakeholders, review of the current modal masterplans and a review of best practice and policy developments elsewhere:

Road efficiency in the supply chain – new efficiencies and innovations

The Mount Isa to Townsville supply chain is served by a major east-west highway network – the Barkly/ Flinders Highways – and the Bruce Highway running north-south along the coast. The region is also served by a number of other significant highways and development roads such as the Hann, the Landsborough, Kennedy, Gregory, Burke, Wills and Diamantina.

As in almost all of Australia, this region's roads (excepting some relatively low-kilometre sections of private mine haul roads) are monopoly-owned and operated by the state road agency, Transport and Main Roads Queensland. The Auslink/Nation Building corridor study indicated no major capacity issues on the major east-west link. However, this review did note that engineering improvements for the safety of heavy vehicle movement were required. Analysis of subsequent masterplanning work on this major corridor and the major road networks north of Townsville could benefit from upgrades to 'weather-proof' the road at full freight capacity for greater portions of the year, as the cyclonic season limits full road access and this stifles productivity.

Finding the next productivity gain in road freight

But what are the next major operational efficiencies on offer, noting that the region already has triple (ie Type 2) road train access all the way into Townsville, and the recent eastern access heavy vehicle road provides for better road freight access to the port itself?

There appear to be at least two areas where immediate efficiency gains could be found through innovative heavy vehicle access, planning and investment:

- **Commercial road access pricing introduces higher productivity vehicles to more sites, quicker** Some sites in the supply chain already operate higher productivity vehicles than the triple road train in some areas, including BAB quad road trains. But the process for assessment and approval of these routes and granting of access permits is very slow. This situation is found all over Australia. One way to improve the timeliness of access for these vehicles is to open genuine third-party

commercial access pricing to the market for road freight, whereby the freight user would pay an access charge above current road charges, which represents any road infrastructure improvements or accelerated road wear required for these more highly productive vehicles to travel, above and beyond current fuel excise and truck registration fees. Infrastructure Australia has examined simplified deed arrangements between state road agency and road freight operator where this access can be granted reliably, and far more quickly than under some traditional road agency access approval processes for high-productivity vehicles

- **Go further: treat heavy vehicles like light rail – through time of day 'pathing' methods**

  The Mount Isa to Townsville road corridor has a very high ratio of heavy vehicles to total traffic. This underlines the great importance of the freight task to this corridor. But other road users, such as tourists, local communities, schoolbuses and others also need to share this road. Are there ways that the road freight task could at the same time grow in productivity yet also become safer?

  The path to higher road freight productivity lies in heavier trucks and larger, more cost-effective trailer combinations. But how would these vehicles interact with other road traffic? Traditionally, the answer across Australia has been that this issue is impossible to solve, and larger vehicles, such as BAB Quad combinations, have been highly restricted in their access.

  One innovation that road freight should consider in this supply chain is the idea of 'time pathing' these higher productivity vehicles at limited times of the day – typically very early morning and late evening – when other road users have less need of the road. Within these time slots, aggregating very high productivity trucks into 'convoys' of many vehicles - running under permit and escort - would create freight movements that in their freight capacity begin to resemble light rail. The recent addition of the eastern road access corridor to the Port of Townsville may well make access for these controlled, 'high productivity convoys' viable even to the port itself. There may be static weight restrictions on the current bridge and culvert network that would need to be addressed for this form of intensive but 'community-friendly' high-productivity road freight to occur, but this could be addressed through third-party road access pricing and infrastructure improvement approaches, under deed arrangements, as above.

Exploring this road efficiency innovation could have great benefit to start-up mines that do not yet command the infrastructure or scale to command rail paths for their mine operations, or perhaps are working more remote mines away from the rail corridor. Equally, such innovations might greatly assist in major livestock transport events, such as live export ship loading.

Rail efficiency and capacity issues for further consideration

Much general discussion has referred to the need for a 'new railway' or a 'second line' to be built from Townsville to Mount Isa to accommodate a growing freight task. However, there are many innovative and less costly steps that can be taken to ensure that under current infrastructure constraints, the line is servicing the region's freight task in as efficient a manner as possible. This is important, because not only is it an efficient thing to do, it also forms a sounder baseline of current productive infrastructure from which potential investors in new infrastructure can forecast user demand with greater certainty. From discussions with above and below rail operators in the region and an examination of best practice in train capacity innovation in other supply chains, the following efficiency matters all seem worthy of closer consideration by all stakeholders, including detailed benefit-cost analysis in most cases:

- **Upgrading of rolling stock to allow more freight capacity within existing train lengths**

  The latest low-profile wagons allow for trains to carry more freight within existing overall length restrictions. This innovation should be examined in the context of the competing costs associated with upgrading below-rail infrastructure and schedules to accommodate significantly longer trains.

- **The Inlander: balancing community service obligations and freight opportunity costs**

  At present, the Mount Isa rail line and indeed the northern line - both of which intersect at Townsville – have mixed use, in that they have access 'paths' reserved for both freight uses and public transport requirements. On the Mount Isa line, for example, the Inlander passenger train runs around twice a week. But for understandable safety reasons, the space and length of time that a single passenger train

commands for itself in the daily schedule is far greater than an equivalent 'path' for a single freight movement on the line. Accordingly the potential 'freight pathing' level of the Mt Isa line is reduced significantly by the twice weekly running of the Inlander.

This matter is not raised to suggest scrapping the Inlander service.

Public transport – the subsidised provision of mobility to the general community – is a vital task. However, what may warrant some closer investigation is how subsidised public transport objectives for the Townsville to Mount Isa corridor could best be met while balancing the national productivity dividends on offer from greater freight path availability on the line. It may be that other public transport services such as coach or air - perhaps offered on an alternating subsidised basis alongside a reviewed Inlander schedule, might satisfy or even improve on current public mobility objectives and yet also offer a net dividend in terms of net freight paths available on the current rail infrastructure.

- **Cattle transport by rail – create greater efficiency for pastoralist and miner alike**

  Interview feedback suggests that an enduring issue on the Mt Isa rail line is the matter of rail transport paths made available as *community service obligation* subsidies to the cattle industry, and their effect on mineral and general freight path availability. Once again, this topic appears to be an area where some creative and collaborative thinking between all parties involved may yield efficiencies for all concerned, at the margins. At present, the authors of this report understand that the above-rail operator receives some level of government subsidy for holding an agreed amount of train paths each week for cattle transport services. But not all of these paths are utilised by the cattle sector. Through negotiation and benefit-cost analysis, there may be merit in arriving at a reduced quota of cattle paths for the pastoral sector, provided this sector were to receive an accommodation from government whereby seasonal surge capacity on rail would be retained. From there, current subsidies paid to the rail operator for cattle paths could be hypothecated into a dedicated and ongoing livestock road transport upgrade fund – a 'beef road program', as it were, for the specific remediation of more productive and reliable road transport of cattle in this region. In addition, some part of the charge received by QR Network for the newly-liberated paths might even be hypothecated to the 'beef road program'. These options are offered as simple observations of (perhaps) potential ways of resolving an issue that appears to have languished for some time, with neither mining nor cattle customer pleased with the results.

- **Maximising train paths on offer to customers – time-of-day pricing**

  Interviews with the below-rail provider suggest that total number of rail paths may not always be the issue of most interest to the market, whereas the time of day departure for any given path is of far more interest. This is the case in other large rail supply chains. Indeed, it is also the observed case in capital city congestion, where all car drivers want to use roads at the same time of day, causing traffic jams. In all cases, the problem is not one of capacity (for example, Sydney freeways are not fully occupied in mid-morning or early afternoon): the problem is demand, and this is something that in rail paths at least, has been solved elsewhere by offering a 'discounts and premiums' pricing strategy, based on time demand for paths. A pricing of paths on this basis on the Mount Isa line might be considered, using market mechanisms to maximise the uptake of all available paths. Only when this is achieved can investors in new rail infrastructure be certain that their demand forecasts for new investment rest on saturated existing demand levels.

- **Maximise the efficiency of every train on the network – offer load incentives on path sales**

  Feedback from both above and below-rail providers also suggested that not all train paths that are booked result in a fully-laden train travelling up or down the line. Feedback suggests that there is a material level of less than 100% loading taking place on occupied train paths at present. Once again, from an efficiency and capacity perspective, this represents latent capacity in the line that might best be dealt with through pricing instruments: offering discounts for fully or heavy-laden trains on booked paths, or alternatively placing additional charges on train paths booked but significantly under-loaded would increase net capacity on the line.

- **Port operational efficiency and capacity opportunities**

  The Port of Townsville has evolved into a high-value export port servicing a great many industries (oils and fuels, mineral concentrates, fertilisers, containers, sugar, timber, live cattle, break bulk, cars, cement, cruise ships, Defence vessels, etc). It is a port with land to expand to, but it is a port in transition, in so far as several of its available berths are not commodity specific, but must 'juggle' servicing of different freights.

- **Address tippler access and capacity at the port**

  Interviews with both rail and shipping parties suggested that even with greater availability of train paths on the Mt Isa line and leaving all other shipping access matters aside, there is a bottleneck in the supply chain for high value mineral concentrates out of Port of Townsville - in the form of rail tippler efficiency at the port (tipplers are mechanisms that unload ore from trains into storage and transfer facilities on the wharf). The two concentrate tipplers are owned privately but permit third party access. An application to construct a third tippler facility with multi-user access was submitted over 2 years ago but (to the knowledge of this Interim Report) has not yet been approved. Some transparent discussion of the role of the tippler as key infrastructure and options for more efficient or broadened operations of such technology at the port seem useful for addressing current operational efficiency.

- **Commission a Panamax-Class vessel access study**

  The port's access availability to larger ships is also an issue for the longer term, as consultation with Maritime Safety Queensland's published access restrictions and advice from shipping agents in Townsville suggests that the port's approaches and berths struggle to accommodate fully-laden vessels above the older Handymax class (ie less than 50,000 deadweight tonnes capacity). Interview feedback suggests that in some cases the world market for ships in this class may progress over time to a preference for the Supramax class vessel (50-60,000 deadweight tonnes capacity) but accommodating such vessels at full loads on all berths may not yet be possible at Townsville. While this report notes that some Panamax class (60,000 deadweight tonnes+) access is available to the port, shipping stakeholder feedback suggests strongly that these larger vessels cannot be fully loaded at berths and can only access and egress under quite limited tidal conditions. It appears to be the case that the recent intervention of Cyclone Yasi has further silted some berths, further compromising draught capacity.

  This information has been somewhat difficult to collate and is far from transparent to users across the supply chain at present, but the accessibility of the port to the scale of vessels that will remain cost-effective on world markets over the next 5 decades is of central importance to the entire supply chain.

  It seems prudent on this basis that an early foundation for further capacity issues would be laid by commissioning a dedicated Panamax-class vessel access study for the Port, which would provide a transparent picture to the entire supply chain and potential investors of the costs of moving to such improved shipping access. This could quickly be aided by the commodity demand and production projections in the Interim Report demand model, to inform viable new investment considerations in channel and wharf-side infrastructure.

  It is worth noting that the Port of Townsville is at present undertaking a port expansion EIS which will flag the matter of Panamax access. This study may be the useful starting point for efforts to reconcile the supply chain's shipping needs and opportunities with the port's current capabilities in a manner easily understood by and transparent to all stakeholders and potential investors.

Interim recommendations

6. All stakeholders in the supply chain should consider the operational efficiency opportunities raised in the Interim Report in consultation with road, rail and port operators and owners; and
7. The wider supply chain should also consider beginning a process of identifying other near-term, achievable efficiency and capacity improvements through a process that involves all relevant infrastructure users and owners.

funding challenges and risk/

Consider the future of investment in the supply chain and identify and address barriers to private investment

In 2012 and beyond, the supply chain must compete smartly and aggressively for public funds which are set to become even scarcer in future. This has been exacerbated by:

- The State government borrowing status downgrade to AA+ level, and the challenges this can create for both budget spending and government trading enterprise investment in some infrastructure classes;
- General demographic/tax revenue trends as seen in Australia's most recent *Intergenerational Report*, which suggest an ageing population that will alter the size of the existing tax base and also place more pressure on the public health services budget.
- The continued dominant influence of south-east Queensland on the *quantum* of state infrastructure spending; and
- The emergence of other 'boom' regions in Queensland (the Bowen basin, the Surat basin, etc), which will compete directly with Townsville-Mount Isa for available public infrastructure funding and planning attention.

All of these factors point to the need for the economic infrastructure of the Mount Isa to Townsville supply chain to look to alternative private investment models as a source of the necessary funds for building productive freight infrastructure in the region to meet forecast global demand.

Risks to private investment in freight infrastructure – and their mitigation strategies

Proprietary risk is high without better production and demand certainty - As discussed earlier, typically long repayment periods for supply chain infrastructure investments are at present not matched with (similarly) long-term commodity production (and therefore freight demand) projections. A comprehensive, commodity-by-commodity, mine-by-mine profile of long-term production potential and indicative long-term global commodity demand will go a long way to resolving this risk

No pipeline and no coordinated structure to attract global private infrastructure investment – It is one thing to have productive supply chain infrastructure to put to the domestic and global capital 'market' for such investments, but it is another thing entirely to market this product offering effectively. The MITEZ supply chain has the beginnings of a significant private sector investment proposition in place - assuming the strategic supply chain questions discussed earlier are considered and acted upon. But higher government and the region need to consider a dedicated structure for marketing, planning and regulating strategic private investments in this supply chain. In this context, government will not necessarily need to develop the 'pipeline' of investments and fund them itself: it may simply coordinate and/or *regulate* private investment intentions and assist in better planning support to a 'pipeline' of significant private infrastructure investments in the region. This requires a significant change in thinking from government.

Regulatory risks are high for long-term private infrastructure investments – as raised in the 'pivot' questions earlier, regulatory support is of vital importance to maximising sensible private sector investment in the supply chain. A nationally-significant supply chain warrants a single regulatory interface, from mine to port, where all of the different regulatory approvals that might be necessary can be collated by government to maximise concurrent approval efforts and minimise overall approval timelines.

The other major regulatory risk to serious private sector investment in the supply chain is in the time horizon of approvals. A nationally-significant supply chain should have all of its regulatory consideration and approval processes calibrated to assist market investment decisions. For example, if significant private investment in the Psort at Townsville requires channel dredging with a return on investment of 30 years, then environmental and other planning approvals must consider a 30-year approval horizon.

To do less is to ensure that the vast global capital market for productive infrastructure investment looks elsewhere when seeking stable investment candidates.

Competing successfully for global infrastructure investor dollars – around the world, nations are recognising that there is significant private capital available for robust and long-term economic infrastructure investments. Many countries are moving aggressively to improve the investment climate for this class of investors. In this context, how will the Townsville to Mount Isa supply chain compete? By declaring a *national supply chain of significance*, higher governments may be in a position to consider different tax treatments for major investments in this supply chain that lead directly and reliably to improved national prosperity. Some of this thinking emerged in Australia's recent *Tax Summit* and warrants closer consideration by this region and higher governments.

Interim recommendations

8. The supply chain stakeholders, including higher governments, should acknowledge the need for private capital to play a much stronger future role in economic infrastructure investment in the region; and
9. The region and higher governments should consider partnering to develop a private infrastructure investment structure and an overseeing body that could ensure that private investment opportunities were well-structured and marketed, perhaps through better tax treatment as a supply chain of national significance and that as private investments in the region are made, they are monitored by this structure to ensure that the investors receive the sort of ongoing regulatory efficiency and certainty that they require to reduce investor risks.


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next steps/

Looking ahead: holistic 50-year economic infrastructure planning

This Interim Report has been published to prompt wider stakeholder thinking and debate about the strategic opportunities and challenges facing the Mount Isa to Townsville supply chain and the region it supports, in the interests of maximising its contribution to national productivity. The interim recommendations here are an attempt to offer a structured way to consider discrete issues. The ongoing development of a very thorough production and demand model for the commodities of the region will assist this process by offering a quantitative basis for making productive and timely supply chain decisions.

The final report of the inaugural MITEZ 50-year freight infrastructure plan is scheduled for publication in mid-April 2012. Up to that time, it is expected that the MITEZ group will consider, amend and/or ratify the content and recommendations in this Interim Report, through a transparent and collaborative process. Most importantly, the period before final report launch will allow for receipt of commodity production feedback from current and active prospect mining interests, in order to improve the accuracy and therefore the utility of the production capacity forecasts offered here.

The final plan must drive specific actions

General consideration of this Interim Report is not only intended to build awareness and consensus. More than this, all efforts beyond this report must be geared towards producing very clear and detailed action plans and identifying responsible parties to achieve this. This will flow from the MITEZ group's consideration of each interim recommendation.

It is intended that the 50-year plan be reprised on a regular basis and it is the hope of the MITEZ group that it will become a catalyst for better planning and investment in the region's infrastructure over time.

Beyond publication of this plan, there is scope to also incorporate other economic infrastructure such as energy, water and telecommunications into a consistent 50-year planning format – making the Mount Isa to Townsville Economic Zone the only region in Australia to have a comprehensive economic infrastructure plan to guide its future.

endnotes/

1. Infrastructure Australia *2011 Report to COAG: Communicating the Imperative for Action* 'Infrastructure Australia's future focus' p.8

2. Quote reproduced from the *Nation Building* website at www.infrastructure.gov.au

3. Auslink *Mount Isa to Townsville Corridor Strategy: Building Our National Transport Future 2007* online at http://www.infrastructure.gov.au/transport/publications/files/MountIsa_Townsville_Corridor_Strategy.pdf

4. Ibid p. 15

5. Figures on throughput and advice on capacity and maintenance schedules on the Mount Isa line were provided by Queensland Rail Network, and rail path capacity concerns were raised more generally through supply chain stakeholder interviews.

6. The 2000-01 figure quotes ABS data for trade through Australian ports for that year; the 2009-10 figure as *per* Federal Department of Infrastructure and Transport sea freight value by port for that year.

7. Queensland Rail submission to the Queensland Government Review of Current Port Competition and Regulation (2007)

8. Notably, the WA Government's Independent *Review of the Project Development Approvals System* (2002)


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