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EXECUTIVE SUMMARY

This submission has been prepared in response to a reference directed to the House of Representatives Standing Committee on Primary Industries and Regional Services to inquire into and report on the role of infrastructure in assisting the economically sustainable development of Australia's regional areas.

The committee is to, among other matters, consider and make recommendations about:

- Deficiencies in infrastructure which currently impede development in Australia's regional areas;

- Factors that would enhance development in these areas, including the provision of infrastructure such as energy, transport, telecommunications, water supplies and facilities that deliver educational, health and financial services;

- The potential for development in regional areas;

- The extent to which infrastructure development would generate employment in regional Australia;

- The role of the different levels of government and the private sector in providing infrastructure in regional areas;

- The benefit to the national economy of developing regional infrastructure.

This submission sets out the benefits that have accrued from providing infrastructure in the Northern Territory, and examines the deficiencies in, and potential gains from, improvements in infrastructure.

It outlines the unique nature of the Northern Territory in terms of its:

- Demographics,
- Climate,
- Environment, and
- Economy.

The submission also highlights the disparity between the cost of providing services to the Northern Territory population compared with the cost elsewhere in Australia. The Territory's population of fewer than 200,000 is spread over 1.3 million square kilometres. With the socio-demographic composition of the population and the Territory's isolation, this results in the cost of providing services being nearly two and a half times the national average.

In addition, the submission focuses on industries and service groups that depend on good infrastructure for efficient and economical activity and which contribute to, or

have the potential to contribute to, economic development to benefit the Northern Territory and Australia.

RECOMMENDATIONS

It is recommended that the Committee recognise that significant deficiencies in infrastructure are impeding economic development in the Northern Territory, particularly in its remote areas.

The Committee is urged to recommend that the Commonwealth Government develop a long-term action plan to address these deficiencies in the Northern Territory and other jurisdictions, in the interests of overall national economic wellbeing and development.

The following are particular areas of deficiency:

- ***The provision of telecommunications services,***

- ***The provision of assistance to improve and extend:***

  - ***The surface transport network, both road and rail, which lacks development and, in many areas, a lack of alternative route options, and***
  - ***Aviation services.***

- ***The provision of infrastructure in remote areas to support the efficient supply of education, health, housing and community services, and***

- ***The provision of a body of research and development knowledge to assist the growth of primary industry.***

It is recommended that the Committee review and comment on the role of the National Competition Council (NCC) and the Australian Consumer and Competition Commission (ACCC) in reviewing and applying National Competition Policy (NCP) to "greenfield" developments in regional areas and undeveloped markets.

There is a need for the NCC and ACCC to recognise the difference between applying economic theory based on the value of competition in mature markets and applying it to undeveloped markets. The existence of third party access has raised the risk profile and reduced expected profitability for projects that may become subject to the regime. Risk has been increased because of the uncertainty as to whether a project will become subject to the regime or not. Profitability has been reduced by:

- Higher upfront costs incurred through having to assess whether a project will come under the regime and, if so, through then having to develop a position on access, and
- Proponents having to deal with access seekers.

In addition, given the uncertainties and risks associated with the access regime, project proponents have no incentive (in fact may have a disincentive) to provide surplus capacity because of the additional costs incurred through third party access.

Deficiencies in infrastructure which currently impede development in Australia's regional areas.

People in remote areas are entitled to expect access to levels of infrastructure service comparable to people in less remote areas. To deny them access, denies them opportunity to work towards a sustainable future and, unless addressed, will lead to increasing disparity between remote and other parts of Australia. If no action is taken on a national scale, these areas will continue to require increasing levels of Government assistance and support.

Telecommunications

Of most concern is the fact that people in regional and remote areas of the Northern Territory do not have access to affordable and quality telecommunications services comparable to those available in other regional and remote areas of Australia. This affects their quality of life in regional and remote areas and impedes development in the following ways:

- Agriculture: Businesses involved in remote area agricultural industry in the Northern Territory do not have the same opportunity to access information available to their counterparts elsewhere (Internet and fax services are not available). These services would enable them to maximise efficiencies in the conduct of business.

- Health: People are denied access to, and the effective delivery of, health services through the use of modern high speed data transfer, leading to lower health outcomes, higher service costs and reduced opportunities in the long term to engage in employment.

- Education: Telecommunications is important in the effective delivery of education services. Students and teachers in remote areas do not have access to a range of resources that would enhance educational outcomes and their quality of life because the telecommunications network does not provide sufficient capacity. (Transmission speeds are too slow to provide efficient Internet and fax services). The long term effect of reduced educational outcomes hampers people's capacity to undertake long term employment and, as a result, increases reliance on unemployment benefit payments and other social services.

- Law and order: The effective and efficient delivery of police services relies on high speed data transfer.

- Tourism. The opportunity for development of remote area tourism is impeded because of a lack of access to the benefits of high speed data transfer and facsimile services. This impedes the capacity of remote area operators to access

such amenities as Electronic Funds Transfer at Point of Sale (EFTPOS) and E-mail services.

The Northern Territory asserts that a recently announced proposal to provide on demand access to enhanced data downlink capacity, as mentioned elsewhere, does not address equity issues in terms of cost of access or capacity.

Roads

The Northern Territory road network lacks development and alternative routes in the case of disruption due to bad weather or other factors. The network is essential to all facets of the Territory's business and social development. Virtually the whole Northern Territory road network is subject to closure during periods of extreme wet weather. Development in remote areas is impeded in the following manner:

- Industries such as tourism, agriculture and mining, which are keys to economic and sustainable development, require year round access to enable them to remain competitive in the market place and in terms of return on funds invested. Lack of year round access raises the perceived riskiness of projects to investors and restricts the ability of the businesses to continue production.

- Restricted access for people who live and work in remote areas acts as a disincentive to remaining in remote areas or to people who might consider establishing or taking up activities in support of major industry groups already there. This leads to higher service costs as employers must provide higher remuneration packages to encourage employees to work in these areas and, despite this, face higher staff turnover. They may also face fringe benefits tax for providing accommodation or other benefits.

- Additional costs in the provision of other community and social infrastructure, including health, housing, education and power, water and sewerage facilities.

Other infrastructure

Deficiencies in the remote area housing stock are impeding development because of the impact on health and educational outcomes. As an example, inadequate housing provides a poor study environment. Housing deficiencies impact on the ability of the remote area population to take advantage of opportunities to engage in long term employment that might be presented by improvements in infrastructure.

Impediments to service delivery in education affect skills levels among people in remote areas and limit opportunities for employment.

Factors that would enhance development in these areas, including the provision of infrastructure such as energy, transport, telecommunications, water supplies and facilities that deliver educational, health and financial services.

As already indicated, access to high quality telecommunications is possibly the most pressing need in remote areas. High quality telecommunications promote efficiency and encourage new opportunities in the following areas:

- Tourism, through greater access to the benefits of e-commerce and ability to market tourist destinations.

- Remote area arts and crafts industries through more efficient and diverse marketing methods (that reduce the reliance on urban marketing agents and increase the level of control the artists and crafts people have over the marketing and sale of the products).

- The more efficient and cost-effective provision of Government services, including health and law and order.

- Access by agricultural businesses to current market and other information increasing their potential to make efficiency gains and increase profitability.

- The chance to enhance and increase skill levels in remote areas through the efficient delivery of education and other information services.

- Greater population stability.

Mention has already been made that recent proposals to enhance access to some telecommunications services do not fully address issues of equity in terms of cost or capacity provided.

It is argued that 100% coverage of telecommunications services is required on an equally affordable basis, at a local call cost, to achieve a reasonable quality of life and address issues of equity in regional and remote areas. The Northern Territory believes that State and Territory Governments should be involved in the specification of new services under telecommunications Universal Service Obligations (USO) and carrier licence obligations, to ensure that the required levels of service delivery meet actual needs. It argues that the provision of 128 Kilobits per second (Kbps) capacity should be the minimum standard to ensure adequate service levels to remote and regional areas.

Access to efficient transport networks, including shipping, aviation, roads and railways will enhance:

- The ability of agricultural business to optimise prices with, for example, efficient marketing of produce, particularly fresh produce that is time and price sensitive.

- The growth potential for tourism and tourism service industries by providing safe, comfortable, secure and reliable access to tourists as well as general business efficiencies to operators.

- The efficiency of service delivery to remote areas.

- The amenity of people living and working in remote areas with consequent benefits in terms of stabilising population drift and reducing costs of delivering Government services.

- Efficiencies in terms of access and production in the mining and energy industries, ensuring continued viability and competitiveness.

- The possibility of additional service and light manufacturing industry following significant regional development.

Much of the infrastructure that is essential to sustainable economic development is important in the enhancement of education and health outcomes, ie access to communications, power and water, waste disposal and transport.

The potential for development in regional areas.

The Northern Territory has significant potential for development in a number of key areas, as outlined in the body of this submission. However, achievement of this potential will not be maximised without the removal of a number of impediments. The Northern Territory is relatively underdeveloped. With the right infrastructure in place in terms of access, communications, housing and social amenities, development in the following areas will be expedited:

- Agriculture, including intensive and broad acre crops, and aquaculture.

- Mining and energy development.

- Tourism, particularly in underdeveloped areas and in niche markets.

- The creation of sustainable local community employment in road and civil construction, housing and infrastructure maintenance and community or municipal services.

Details of the specific prospects in each of these areas are provided in the body of this submission.

The extent to which infrastructure development would generate employment in regional Australia.

There appears to be an implicit assumption in urban Australia that business can only take place in urban areas and not in rural and remote Australia. While there has been

a continued loss of activity from rural and remote areas, this does not mean that businesses cannot prosper.

With the right infrastructure and social and legal frameworks in place, significant levels of sustainable employment can be generated. As is amply illustrated in this submission, the provision of adequate infrastructure provides opportunities for sustainable development in regional and remote areas. It is not possible to estimate the extent of these but several examples are provided to support the proposition.

A whip maker at Howard Springs in the Darwin hinterland conducts the majority of his business through his Internet homepage. Mick Denigan of Mick's Whips, is at www.mickswhips.com.au. With high speed data access to remote areas other practitioners of similar arts and crafts may also realise the benefits of using technology to sell their wares – spawning new cottage industries.

A new service provider offering Internet based international share transactions and advice has emerged in Katherine, rendering time and distance irrelevant and reducing performance indicators to the capacity and ability to perform. The web address is www.nt-tech.com.au/guppy/gup31.htm. Katherine is a major service centre with access to wide band high speed digital data capacity.

Alice Springs telephone book-making service, Centrebet, had a client base of 6,000 Australia-wide when it was decided to go online. Now, it has more than 30,000 punters from 100 countries and a $150 million annual turnover. Online betting accounts for about a quarter of Centrebet's business. Operator Terry Lillis attributes 50% of the growth to the Internet. It was the second company of its type in the world. The company's web address is www.centrebet.com.au/regframes.html

The role of the different levels of government and the private sector in providing infrastructure in regional areas.

The Northern Territory experience has been that Government needs to provide infrastructure (such as schools and hospitals) where there is little or no chance for this to be commercially viable. In some instances, the initial infrastructure development has been seeded and proven by Government for later sale to operators. This has been the case with significant tourism infrastructure projects such as the Ayers Rock and Kings Canyon Resorts. In other instances, for example the provision of roads, there is very little prospect of these ultimately being sold to the private sector.

The Northern Territory Government continues to seek opportunities to involve the private sector in the development of infrastructure. However, economic factors are the sole determinant of success and the size of the Northern Territory market place is a significant inhibiting factor to private provision in many cases.

The Committee should note, however, that the Northern Territory makes extensive use of private sector contractors rather than maintain a large day labour force.

The Northern Territory does not have sufficient capacity to reverse the infrastructure deficiencies that are impeding development. Some of these are clearly the responsibility of the Commonwealth Government or within the scope of the Commonwealth to address. For example, the deficiencies in the telecommunications system or the relatively low flood immunity of the national highway system and deficiencies in the intrastate and secondary road network.

Local and community government bodies in the Northern Territory have demonstrated that given the right conditions, they can play a significant role in fostering opportunities to create meaningful or sustainable local employment in areas of high unemployment.

The benefit to the national economy of developing regional infrastructure.

Benefits to the national economy include those which flow from:

- A stable regional and remote area population, reducing the drift to urban areas,
- The impact of the additional income generated on Gross Domestic Product,
- Additional tax revenues to Government,
- Reduced Social Security outlays,
- Reduced outlays on health,
- Reduced costs of service provision in remote areas for such things as health, education, and policing,
- Reduced costs associated with the present transient nature of the population, and
- Increased diversity in the Australian population.

However, the Committee should note the timing of the benefits is usually lagged behind provision of the infrastructure (as should be expected).

In some sections of infrastructure provision, the danger exists that the gap between services to remote areas and those available in urban areas is widening and may reach a point where it is extremely expensive to bridge.

This may result in outcomes for Northern Territorians (and residents in other remote areas) in a range of areas that will be so far below the rest of Australia that economic development will be severely constrained in a national context.

ADDITIONAL RECOMMENDATIONS

The following recommendations have resource and infrastructure implications and arise from a detailed examination of the issues associated with particular industry

groups and types of infrastructure. Although they do not specifically address the terms of reference, the Northern Territory considers it important that they be brought to the Committee's attention.

It is recommended the Committee recognise the need:

- For the resolution of matters relating to future development of land potentially subject to native title,

- For the resolution of Aboriginal land claims over the sea bed,

- To streamline the process that allows access for people to, and development on, Aboriginal land within the framework of the *Aboriginal Land Rights (Northern Territory) Act 1976*, that meets the needs of Aboriginal people and the wider community,

- To review and increase benefits and tax incentives aimed at maintaining a stable population base in remote areas, and

- For an inter Government and inter sectoral approach to community advancement through regional infrastructure development.

Primary Industry

It is recommended that the Committee recognise the Northern Territory's need for additional resources to:

- Undertake research and development to gather adequate information on Northern Territory soil, vegetation and water, including mapping and identification at a level appropriate for production and conservation use.

- Undertake market research and development for tropical production, especially those products of use to developing Asian markets.

- Ensure the preservation of representative ecosystems for future generations.

Tourism

It is recommended the Committee recognise the need to:

- Increase efforts to market interstate and secondary interstate tourist routes by the Australian Tourist Commission in recognition of the importance of tourism to sustainable regional development, and

- Identify and develop new areas that can be opened to tourism through the provision of access, services, and infrastructure.

Aviation

It is recommended the Committee recognise:

- The importance of the Remote Air Service Subsidy (RASS) scheme to air mail delivery and communications for outback residents and businesses, and support the continuance of the subsidy as an essential element of service delivery in remote areas.

- That the Aboriginal and Torres Strait Islander Commission (ATSIC) should consult the Northern Territory Government over the siting, construction and on-going maintenance of outstation landing areas.

- The value of the Aerodrome Technical Advice to Aboriginal and Torres Strait Islander Communities in Northern Australia consultancy. The inspections and maintenance provided by this consultancy should be continued and extended to communities south of the 19^{o}S parallel.

- That when essential monopoly community infrastructure is privatised, appropriate regulatory arrangements should be established to ensure that there is no overcharging for the use of the infrastructure.

Major infrastructure

That the Committee recommend that the Commonwealth reconsider its approach to, and policy position on, the funding and support for infrastructure projects of national importance.

Health

It is recommended the Committee recognise:

- That the success of any economic infrastructure development and employment in regional areas is dependent on a healthy population.

- The significance of infrastructure development for achieving health improvements in regional areas.

- The need for the Northern Territory to be given additional support to overcome infrastructure deficiencies that lead to health and other social disadvantage in remote communities.

Local Government

It is recommended that:

- Resources provided to the Community Development Employment Project (CDEP) are expanded to all communities that want it, thereby giving people in

remote areas a means to achieve greater dignity, self-respect and gain additional skills.

- The Aboriginal and Torres Strait Islander Commission, training authorities and industry organisations such as the Indigenous Housing Authority of the Northern Territory (IHANT) be encouraged to develop strategies that foster the movement of CDEP workers into full time employment.

- Support be targeted for enterprises based on Aboriginal families or clan groups to ensure that they develop into viable enterprises and that a range of opportunities including family enterprise and joint ventures be explored.

- Greater and more effective coordination occur between the National Aboriginal Health Strategy (NAHS) and IHANT over the transfer, as soon as possible, of NAHS funding for housing to IHANT.

- The Commonwealth reviews the level of funds being provided for local road development in remote areas with a view to addressing deficiencies in the road network and creating additional employment opportunities for people in these areas.

OVERVIEW

Arguably nowhere else in Australia has the role of infrastructure in sustainable regional development been demonstrated so amply than in the Northern Territory … and the impact of deficiencies shown so clearly.

Since achieving self-government in 1978, the Northern Territory Government has been:

- An advocate in the interests of its people to have infrastructure built or provided,
- A developer of infrastructure in its own right, and
- By preference, a facilitator for the private industry provision of infrastructure.

This has resulted in the expansion of economic activity across all sectors.

Despite this, the Northern Territory remains the most under serviced section of Australia in terms of access to the sort of basic infrastructure taken for granted elsewhere in the country. As a consequence, it has been unable to optimise development, particularly in remote areas. Development of employment opportunities in remote areas of the Northern Territory has been significantly retarded.

The difficulty of providing services has been recognised by the Commonwealth Grants Commission.

Key areas of disadvantage include:

- The structural constraints on the telecommunications system, by the historical context in which it was developed. Development has been retarded by the current Universal Service Obligations standards and carrier licensing conditions,
- Flood immunity deficiencies on the Northern Territory's three national highways,
- The undeveloped state of the intrastate roads network that is subject to prolonged closure in wet periods and therefore unable to provide any redundancy if any national highway is closed,
- Significant deficiencies in the level of services in health, education, power, water and sewerage infrastructure, and
- Significant challenges in terms of the small market size, isolation, the dispersed nature of the population and its socio-demographic composition, and climatic and environmental conditions.

Economic research in Australia and the USA has shown that investment in infrastructure raises private sector productivity and stimulates investment and growth. Yet the proportion of Gross Domestic Product invested in infrastructure in Australia has remained low following falls in the 1970s and again in the 1980s. Public investment in infrastructure fell from 8% of GDP in the 1960s, to 7% in the early

1980s and to around 5% in the early 1990s. Private investment similarly fell from above 10% in 1960 to around 8% in 1993.[1]

World markets and the demands created by the surging growth of Asia should be driving national infrastructure development. Yet, with few exceptions, Australia lacks any cogent planning for infrastructure on a national scale. The Adelaide to Darwin railway is one exception and is aimed at positioning Australia to serve the growing populations to the north. The Outback Highway, linking Winton in Western Queensland with Laverton, Western Australia, is another.

The Northern Territory is significantly different to other mainland jurisdictions in terms of its environment, both physical and social.

It is relatively underpopulated. Only about 6% of Australia's population lives north of the Tropic of Capricorn, and 75% of those live in Northern Queensland. Yet the same region produces about 24% of Australia's exports.

The Northern Territory population is estimated at 192,000 persons at December 1999, about 1% of the nation's population.[2] The estimated population growth for the Territory during 1998 was 2.0%, second only to Western Australia and greater than the Australian average, of 1.4%. At June 1996, the Territory population was 181,800. Under a medium growth scenario, the Australian Bureau of Statistics forecasts it to reach 245,400 by 2011.

In 1996, the Aboriginal population was 29% of the Territory's total population. Forty percent of Aboriginal people live in urban areas of more than 1,000, 27% in communities between 200 and 999 population, and 33% in communities smaller than 200 in varying degrees of hardship. About 50% of the Northern Territory land area has been granted as Aboriginal freehold title or is subject to claim under the *Aboriginal Land Rights (Northern Territory) Act 1976.*

Self-government for the Northern Territory was achieved in 1978 after years of what has been described as the Commonwealth Government's relative neglect. Much of the infrastructure in existence then was built in a hurry during World War II[3]. This includes roads and the Darwin water supply. Other infrastructure in Darwin was being rebuilt after being damaged during Cyclone Tracy.

At self-government, the Northern Territory had no sealed road connection between Darwin and Brisbane, Adelaide or Perth.[4]

[1] Steve Dowrick, Assessing the economic value of infrastructure investment, Australian Urban and Regional Development Review, 1995. Public investment in infrastructure includes all infrastructure, including schools, hospitals as well as other "hard" infrastructure.
[2] NT Treasury, Northern Territory Economy, April 1999
[3] Speech, Peter Caldwell, NT Treasury, IBC Conference, Darwin, 24 Nov.1998
[4] ibid.

The provision of services and amenities at a similar standard to those available in more settled areas are key elements in the retention of population in, and the development of, regional areas. In summary, these are:

- Reliable and safe access,
- Adequate and affordable social infrastructure ie. housing, health services, water and power supplies, education, and
- Adequate and affordable communications.

A Phone that Works…
Until around 10 years ago, radiotelephone was the primary source of voice communication to many remote parts of the Northern Territory. Then, the expressed need of people who were restricted to this network was for a phone that "worked most of the time" – an expression of the frustration many felt waiting for the radio frequency to clear so they could make a simple telephone call. Now the Digital Radio Concentrator System (DRCS) delivers voice communications, people in remote areas want more – access to the efficiencies delivered by high speed digital data transfer that are unavailable through DRCS. They seek the same access to up-to-date information such as market prices and the cost of feedstock available to their counterparts in less remote areas. This information would enable them to make strategic decisions about the conduct of their business.

Issues of equity include the cost of access. Through an accident in history, many remote communities in the Northern Territory do not meet the criteria that Telstra uses to provide Integrated Services Digital Network (ISDN) or equivalent services. This discriminates against government and private organisations operating in those towns. The Northern Territory Government argues that ISDN or its 64 Kilobits per second[5] (Kbps) capacity does not deliver sufficient capacity to address issues of equity. The Northern Territory Government acknowledges a recent proposal to increase access to a satellite based digital data transfer system. However, it believes because the proposal includes a requirement for subscribers to contribute 50% or more of the capital cost, issues of equity remain unaddressed.

The development of the Northern Territory has been constrained by a lack of knowledge of the potential that exists or the benefits that can flow from infrastructure investment.

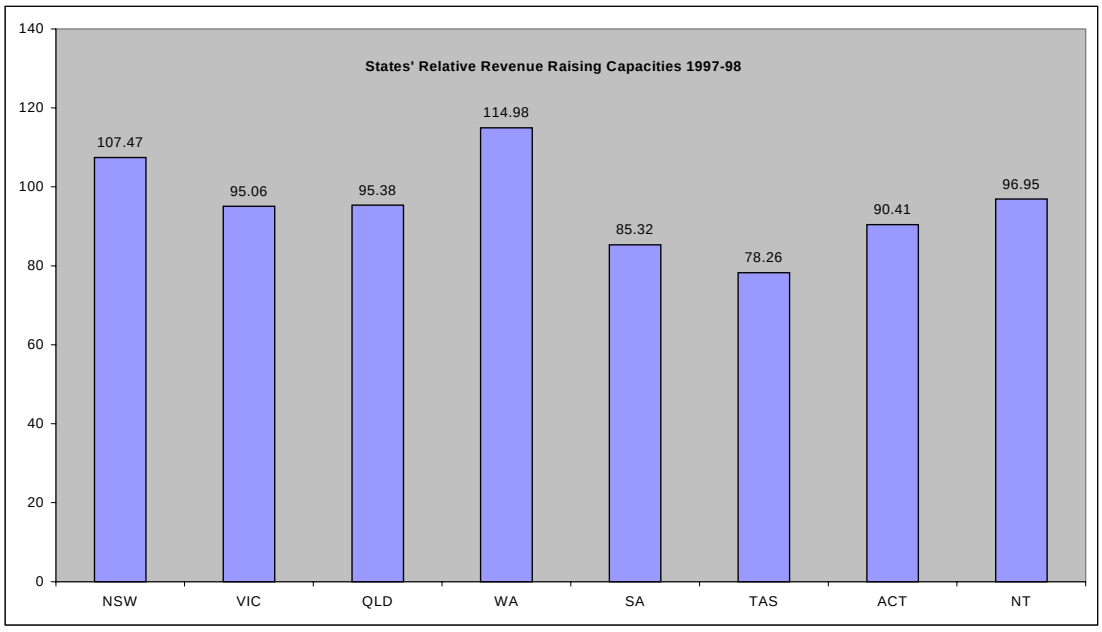
The growth of the Northern Territory tourism industry shows the value of infrastructure investment. When the first meaningful data was collected in 1981/82, tourism brought in 330,000 visitors, the Northern Territory had 2,400 motel and hotel rooms and tourists spent about $80 million on travel. No details are available of how many people were directly employed in the tourism industry. By 1997/98, visitor numbers had grown to 1.16 million, the number of rooms available (including

[5] A bit is the smallest unit of computerised data. Bandwidth is usually measured in capacity to handle bits-per-second. A full page of English text is about 16,000 bits (16 Kb). A fast modem can move about 15,000 bits in one second. The speed in bits per second is equal to the number of bits transmitted or received each second. Full-motion full-screen video would require roughly 10,000,000 bits-per-second (10 Mbps), depending on compression.

serviced apartments, to 6,973 and tourists' spending to $702 million[6]. Tourism directly employs 8.7% of the Territory's population, compared with 7.2% nationally.

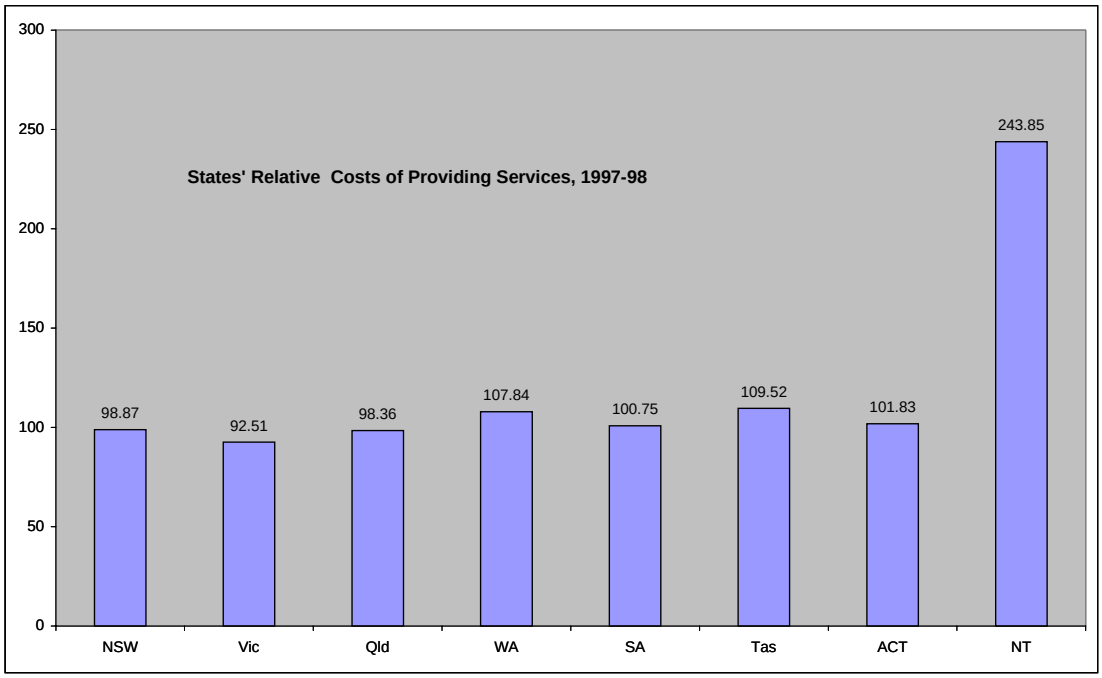
Commonwealth Grants Commission

The relative disadvantage faced by the Northern Territory as a result of its isolation is recognised by the Commonwealth Grants Commission in its 1999 Report on General Revenue Grant Relativities. The report examines the relative abilities of the States and Territories to raise revenue, as well as the relative costs of providing services. The Commission conclusions show that the Northern Territory's capacity to raise revenue was slightly below average in 1997-98 and, with its population of fewer than 200,000 spread over 1.3 million square kilometres, the cost of providing services was nearly two and a half times the national average.[7]



[6] NT Tourist Commission figures, 1999

[7] Commonwealth Grants Commission, Report on General Revenue Grant Relativities1999, Vol. I, pp 6-8.



Other issues

The continuing expansion of urban sprawl around capital cities has significant implications for Australia's future as a nation. The expansion of suburban areas places increasing demands on Governments to expand infrastructure. It may be opportune to consider the costs of this development in terms of the demand it creates for all levels of Government to respond to infrastructure needs in both urban and regional areas.

It is perhaps time to consider forcing a number of issues, including the active encouragement of decentralisation and the development of regional centres in the interests of building community and economic capacity. An example of how this has worked is the development of the Albury Wodonga region. Many who move into larger centres do so because their infrastructure needs are inadequately met in remote areas, not just for economic, social or climatic reasons. Technological change and the introduction of cost efficient transport infrastructure will provide the opportunity for the development of new industries in regional centres. Regional centres offer a range of benefits, including access to cheaper development and housing land, and lifestyle benefits for the workforce.

In the Northern Territory, as in other jurisdictions, the drift of people from remote areas has significant implications for the provision of infrastructure. These arise from the need to continue providing equitable services to dwindling remote populations while also having to support growing demands from those who have moved to larger centres.

National Competition Policy

Under National Competition Policy Agreements, a national regime was established to provide third party access to services provided by means of "significant infrastructure" where it would not be economically feasible to duplicate the facility. The agreements also provide for States and Territories to establish their own regimes and to have them certified as effective, in order to avoid a “declaration” under the national regime.

This encourages States and Territories to provide access for third parties to infrastructure such as railways, electricity grids, water pipelines and gas pipelines, or risk declaration under Part IIIA of the Trade Practices Act.

The introduction of third party access presents potential difficulties for regional development. For instance, the access regime regulator may take a different view of key project parameters such as economic life and arrive at significantly different, and usually lower, charges for new or third party customers than for the initial developers or users.

The Northern Territory has several examples of assets that are, or could be, subject to access regimes. These include the gas pipeline from Central Australia to Darwin and the proposed Adelaide to Darwin railway.

A need exists for regulators to recognise the differences between mature markets and undeveloped markets. Many infrastructure projects in the Northern Territory may not have proceeded if the proponents had understood that competitors might have rights to any spare capacity in that infrastructure from the moment of commissioning.

In many of these cases, the proponents have looked at a marginally economic project but one that the Northern Territory Government has seen as strategically essential for development. The Northern Territory Government has provided assistance in varying degrees to the proponents through long-term contracts or some other mechanism to reduce their risk.

The prospect of new or third party users being given access at lower prices is a very real issue because of the high up front fixed costs. Such a possibility adds to the higher degree of risk associated with such major developments. The rate of return permitted by regulators in such cases should reflect the risk profile of the project.

An inappropriate approach to the treatment of major infrastructure may lead to detriment in regional areas, because less infrastructure or infrastructure with no spare capacity will be built than would have been the case otherwise.

Taxes

The advent of the fringe benefits tax has had consequences for regional development which probably were unforeseen. These include the trend for mining companies, in particular, to operate using fly-in, fly-out labour. The trend to fly-in, fly out operations reduces the opportunity or requirement for infrastructure development as

well as multiplier effects from spending in adjacent communities and opportunities for local service industry development. While technological advances in terms of more efficient air transport have facilitated this trend, the fringe benefits tax has been a significant element.

Erosion in the value of zone tax rebates and the absence of incentives for business to operate in remote areas has also contributed to the decline of industry in regional areas and its transfer to urban areas.

Potential for growth

The Northern Territory has significant potential for development in a number of key industries but is hampered in its ability to capitalise on opportunities because of a scarcity of resources. This scarcity has led to an inability to fund infrastructure development.

The potential and the deficiencies are expanded upon in the body of this submission but are summarised in the following paragraphs.

Primary Industries

The gross estimated value of all primary production in the Northern Territory was $358 million in 1997, more than double the historical value of $166 million in 1988. The value of production is expected to double again over the next 10 years with the creation of more than 1,000 new jobs. The total number directly employed in primary industries in 1997 was 2,400.

However, almost all sectors are hampered by:

- Problems of all year round access,
- A lack of access due to native title and land claim issues for greenfields developments,
- An immature level of completed research and development, work that has been completed decades ago elsewhere in Australia,
- Tax regimes that act to deter the development of an adequate and stable labour force, and
- The inadequacies and structural inequities of the telecommunications network.

The availability of a stable labour force and a lack of infrastructure to support that labour, in terms of housing, health, education, community amenities, power and water, is likely to be a critical factor in the development of highly prospective agricultural business in remote parts of the Northern Territory.

Mining and Energy

This sector is the largest single contributor to economic activity in terms of Gross State Product (GSP) in the Northern Territory, generating 10.7% of GSP. The sector employs about 4,260 persons, 3.8% of the total work force, excluding the mining service sector or minerals processing following ore extraction. This industry has a

significant impact on the overall economy through multiplier inputs from wages and salaries and the service sector.

Apart from a downturn in exploration due to global factors, the industry also suffers detriment from:

- The underdeveloped road network, and
- Tax regimes that encourage fly-in, fly-out operations.

The Northern Territory, and Darwin in particular, has potential to gain from its position to provide shore based service and manufacturing facilities for off-shore oil, condensate and gas fields.

Tourism

Tourism is a key sector in terms of generating employment and has potential to continue providing sustainable employment growth, particularly in remote areas. Access to the Northern Territory's major tourism features, Uluru and Kakadu, is provided for at an acceptable level. Enhancing access to other areas can be expected to contribute to continued tourism growth, and therefore to development and sustainable employment in regional areas.

Tourism is labour intensive. In the Northern Territory, it is estimated about 21% of the workforce, or about 17,000 people, are employed within, or as a result of, the tourism industry. It is also acknowledged as a major earner of export dollars.

Visitor statistics for the Northern Territory show strong growth. Visitor numbers were 330,000 in 1979/80 when the Northern Territory had 2,400 motel and hotel rooms. Tourists spent about $80 million, in historic terms, on travel. By 1997/98, visitor numbers had grown to 1.16 million, with the number of rooms available (including serviced apartments) rising to 6,973 and tourists' spending to $702 million.

The development of tourism in remote areas of the Northern Territory is hampered by, among other things:

- A lack of reliable and safe access,
- A lack of infrastructure such as fuel, food and accommodation services,
- An inability to attract and retain staff because of a lack of services and amenity,
- High operating costs in remote areas, and
- A lack of telecommunications and access to e-commerce.

Health

People in remote areas of the Northern Territory have some of Australia's highest morbidity rates, due to a range of factors, including:

- A lack of employment, environmental health and educational opportunities, and

- A poor level of infrastructure, including access to transport, health services, water supplies and housing.

Simply addressing one or more aspects of the problems and deficiencies affecting people in remote areas in isolation may not significantly improve outcomes in terms of sustainable economic development because of the level of deficiency across the board. The Northern Territory simply does not have the resources to address the difficulties associated with poor infrastructure in remote areas but needs widespread and coordinated assistance from a range of agencies.

Education

Despite significant improvement since self government in 1978 in all areas of educational service delivery, educational performance of students in remote areas still lags behind other jurisdictions. Much of this can be attributed to other factors, including poor health outcomes, lack of employment opportunity in communities, the condition of housing infrastructure and challenges in the ability to deliver educational services due to other infrastructure deficiencies, including telecommunications.

The Northern Territory Government alone does not have sufficient resources to address the deficiencies in infrastructure that contribute to poor educational outcomes. Further, any such measures need to be taken in concert with efforts to improve outcomes in other areas, including health and housing.

The provision of enhanced access to communities and improved telecommunications has potential to reduce costs to Government arising from staff recruitment and retention rates, as well as providing professional support and development to teachers in remote schools.

Local Government

The importance of local government in providing opportunities for regional development and sustainable employment in remote areas of the Northern Territory may sometimes be overlooked. Community government councils in remote areas often provide a focus for employment in a range of areas including:

- Roads and airstrip construction and maintenance,
- Community Employment Development Programs (CDEP), or work-for-the-dole schemes that have been attributed with providing two-thirds of the jobs for indigenous Australians in remote areas, and seeding new small-scale industry, housing maintenance, and development schemes,
- Essential services management,
- The provision of health services,
- Initiating general enterprise development,
- Housing management and maintenance with small building projects,
- Community store operations,
- Art and craft production and selling, and
- Community management roles.

Community government councils face difficulties from:

- Poor economies of scale,
- An inability to recruit and retain qualified and capable staff,
- Their reliance on local government grants money, and
- An inability to raise funds by other means.

Remote communities have the same needs and rights to access equivalent levels of infrastructure as those in less remote areas. These rights include access to effective and efficient telecommunications, roads, health services and education.

Housing

In 1992, the Aboriginal and Torres Strait Islander Commission (ATSIC) commissioned research into indigenous housing need Australia wide. Research was based on analysis of the 1991 Australian Bureau of Statistics Census data and a report, *The Housing Need of Indigenous Australians 1991*, was published in 1995. The report identified homelessness and overcrowding as the most equitable and consistent measure of housing need. The report identified indigenous Northern Territorians as accounting for 32% of the total national indigenous housing need, with 12% of the national indigenous population. More than a quarter of Northern Territory indigenous families were homeless, either living in improvised dwellings or sharing overcrowded multi-family housing, and a further 22% were in housing stress, their dwelling having fewer bedrooms than they need.

Another factor affecting the Northern Territory is the remoteness and small size of many indigenous communities. There are more than 800 identified outstations or homelands in the Northern Territory and though many are only intermittently occupied, a large proportion provides the principle place of residences for people. It has been estimated that more than 80% of indigenous people living in outstations Australia-wide, do so in the Northern Territory.

In addition to the enormous shortfall in indigenous housing, recognition should be given to the fact that much of the existing housing stock is aging or in poor condition. The estimated shortfall in housing in 1992 was $765 million. Rectifying the deficit is well beyond Northern Territory resources.

Telecommunications

The development of the telephone network in the Northern Territory has meant the exclusion of many remote communities from access to high capacity digital data transfer telecommunications.

This has affected the ability of people and Governments to:

- Efficiently deliver other services, such as health, education and law and order,
- Create additional employment opportunities,
- Access current information and technology considered essential to efficient business in the modern climate.

The Northern Territory Government argues that people in remote areas suffer other disadvantages through the charging regimes of telecommunications providers for initial connections and in on-going user and access costs. It argues that the provision of Integrated Services Digital Network (ISDN) access to remote communities provided for under telecommunications Universal Service Obligations does not provide sufficient capacity to address issues of equity and perpetuates the regime of relatively high telecommunications costs because the ISDN operates on timed calls.

The Commonwealth Grants Commission quotes arguments that the increased use of technology enables all jurisdictions to provide services differently, more efficiently and in a way that reduces diseconomies of scale and population dispersion. However, the undeveloped nature of the telecommunications network in remote areas means the Northern Territory is not in a position to take advantage of these efficiencies.

Roads

The Northern Territory road network suffers from low levels of flood immunity and a lack of adequate alternative access routes or choices (eg air, rail) to enable year round access. The development of key intrastate and secondary interstate routes provides potential benefits in terms of development for the tourism, pastoral and mining and energy industries, as well as improving the amenity and economic prospects for people living in remote communities.

Aviation

Air is the major mode of arrival for tourists to the Northern Territory. It also provides essential links to remote areas, particularly during the monsoon season. The Northern Territory Government has responsibility for the maintenance of 46 airstrips at Aboriginal communities, as well as a further 19 considered strategic.

For many remote communities, mines and pastoral properties, air services provide the main form of communication in terms of mail and freight delivery. It is considered essential that the Remote Air Service Subsidy that supports these mail services be maintained.

Rail

The Adelaide to Darwin railway is regarded as essential to economic development because of the following economic benefits:

- Lower transport costs for existing freight should reduce business and social costs across the Northern Territory,
- An increased share of the Northern Territory's freight demand supplied from South Australia,
- The potential for major mineral cargoes and other freight to be carried at low cost compared with road transport costs, road freight costs are around 5-6 cents per net tonne kilometre, compared with 3-4 cents for rail, and

- The potential to develop landbridging opportunities for imports and exports, particularly from South Australia and Victoria.

National benefit should accrue from the economic growth expected to be generated in the Territory and elsewhere and because of the reduced costs of providing transport services.

Three consortia have lodged detailed bids to build the railway. Selection of the preferred consortium is expected to be finalised in June 1999 and negotiations with that consortium completed by late this year.

EXAMINATION OF INFRASTRUCTURE

The following sections provide a detailed examination of individual industries and infrastructure types, areas of deficiency and issues, and potential for development.

PRIMARY INDUSTRY

BACKGROUND

Primary industry in the Northern Territory has potential to develop into a fully integrated and diverse sector generating significant employment in remote and urban areas. However a number of pre-conditions are needed, including accessibility, adequate water access and storage, improved communications and additional infrastructure to support a workforce dispersed to remote sections of the Territory.

The gross estimated value of all primary production in the Northern Territory was $358 million in 1997, more than double the historical value of $166 million in 1988. The total number directly employed in primary industries in 1997 was 2400.

The value of production is expected to double again over the next 10 years with the creation of more than 1,000 new jobs.

Potential for growth

Pastoral

The gross value of cattle production increased 38% from $108 million in 1988 to $149 million in 1997. In that time, the herd size grew from 1.3 million to 1.6 million. However most of the increase in productivity came from the increase in turnoff that rose from 22% to 32% over the period. The increases were due to disease control, new markets and new technology developed from research.

The currency crises in Asia led to a serious downturn in the live cattle export market. Sections of this market are recovering with increasing currency stability and a steady growth rate is expected to return. In the meantime, new markets with steady growth potential are developing in Vietnam, China and the Middle East. The downturn in the number and value of live cattle exported in 1998 was largely at the expense of Queensland cattle. The value of NT cattle exported live in 1998 is estimated at $68 million.

A shipper claimed losses of $100,000 after cattle destined for the Indonesian live cattle market lost weight after being held in yards for nearly a week on Wave Hill station. Wet season rains meant 10 road trains were caught at Wave Hill because of potential for extensive damage to the Buntine and Buchanan Highways. Losses also included wages for drivers and waiting time for a ship in Darwin Harbour.

Australian red meat exports to Indonesia totalled $35 million in 1996, supplying about 40% of Indonesian meat imports. The Northern Territory supplied less than 0.1% of this and is seeking ways to increase its market share.

Horticulture

The gross value of horticulture (fruit, vegetables and nursery production) in the Northern Territory grew from $17 million in 1988 to $61 million in 1997, a 270% increase. The major crops have been mangoes, but bananas, table grapes, Asian vegetables, nursery and cut flowers are significant new industries. Developments in the mango, banana, table grape and ornamental industries could realise a growth in output from the present $61 million to an estimated $240 million dollars.

Fishing

Recreational

Recent estimates value the recreational industry at $30 million per annum. Development, expansion and promotion of the Territory as a premier recreational and sport fishing destination would be enhanced by:

- Identification and allocation of prime recreational fishing areas,
- Improved access through pastoral and Aboriginal lands to coastal and river areas for recreational fishing
- Provision of infrastructure such as launching ramps and shore-based fishing platforms
- artificial impoundments will increase access for tourism.

Commercial fishing

Gross production from the Northern Territory commercial fishing industry grew by 40% from $90 million in 1992 to $126 million in 1997. Dominant are aquaculture, worth $58 million in 1997, and wild caught prawns, worth an estimated $47 million. Other major wildcatch components include mud crab at $7.7 million and barramundi at $2.9 million. Relatively minor opportunities exist for development of new wildcatch fisheries. Darwin has potential to act as a supply base and support centre for prospective major Australian joint venture arrangements fishing in eastern Indonesia through to Irian Jaya.

Aquaculture

Significant opportunities exist for sustainable regional economic development in this sector in the following areas:

- Pearl oyster production with new entrants to the industry, subject to constraints on negotiation of suitable lease areas in coastal waters,
- Sea cage barramundi farming worth more than $60 million per annum and requiring about 15,000 tonnes of aquaculture feed, and
- Crocodile farming.

Cotton

Potential for cotton growing in the northern Victoria River District and in the Katherine area could give the Territory an industry employing more than 500 people and generating between $90 and $135 million per year.

Cropping

Prospective areas include:

- The development of a peanut industry to significantly replace Australia's 6000 tonne imports,
- The supply of high yield soybean seed to meet Indonesian aspirations to become self sufficient in soybean production. At present, Indonesia imports $250 million worth of soybeans, and
- Replacement of imported hay and hay products mainly for the live cattle export trade.

Fertiliser

Potential exists for local production as demand grows. Completion of the Darwin to Adelaide railway may lead to imports of fertilisers for the South Australian and Victorian agricultural industries. WMC Limited's Duchess mine in central Queensland and NT phosphate mining would provide a phosphate source within reasonable range. Some export potential exists in South East Asia for Northern Territory fertiliser mixed for tropical conditions.

Regional Potential

The following regions have potential for development, subject to the resolution of native title issues, feasibility studies and other infrastructure provision:

- **Ord Stage 2:** In production by 2004, with between $150 and $200 million dollars of raw sugar and molasses produced annually. About 25,000 hectares gross area, with 16,000 hectares under crop in the Northern Territory.
- **Katherine-Daly Basin:** Subject to the resolution of native title and environmental issues, an estimated 78,000 hectares of arable soils in the 500,000

hectare region are suitable for rain fed cropping and significant areas would be suitable for irrigated agriculture and horticulture.

- **Upper Adelaide River and Koolpinyah, Woolner, Marrakai and Wildman River Stations:** Water harvesting in these areas has potential to irrigate large areas of mixed crops, bananas, with potential for sugar, rice, cashews, Asian vegetables and citrus. Other prospects are aquaculture with flow-on benefits in employment in the local stock feed and grain industry.
- **Sturt Plateau:** Fully developed with wet season road accessibility, fences and watering points, the herd in this area could increase from about 40,000 to 120,000 head on native pastures.
- **Ti-Tree Basin:** Already a significant producer of table grapes and increasing amounts of vegetables and other fruits, this area has further growth potential with joint ventures being planned with local traditional owners.

ISSUES

Native title

The capacity to allow for more intensive and diversified primary industry development on some pastoral leases remain unresolved as a result of native title issues. This has particular reference to approvals to change land to other forms of Crown lease or freehold tenure for development.

These continuing unresolved issues are also critical-path barriers to agribusiness development on the 52% of the Territory owned or claimed by traditional owners under the *Aboriginal Land Rights Act (Northern Territory) 1976.* Traditional owners are unable to deal with the land without the consent of the land councils and on some occasions without the consent of the Commonwealth Minister for Aboriginal and Torres Strait Islander Affairs.

The Northern Territory's huge aquaculture potential is unrealised because 84% of the coastline is presently under claim by traditional owners. Delays over access caused by uncertainty as to the status of the area are affecting hundreds of millions of dollars of potential investment.

Research, extension and training infrastructure

It is estimated that the research backing to provide advice on the capability of land and water resources to landowners is up to 30 years behind that available in less remote areas of Australia. Agricultural advances require an investment in fundamental research and development at a level considerably higher than that in more developed areas of Australia. The research costs more and the support services, such as insect and plant disease reference collections, are yet to be adequately developed.

Adequate information about the land proposed for the NT section of Ord Stage 2 and for cotton production in the northern Victoria River District and south-west of Katherine is only recently becoming available – work for similar development in New South Wales was completed decades ago.

The Northern Territory Government recently commissioned new aquaculture facilities at Channel Island. The Darwin Aquaculture Centre was completed at a cost of almost $2 million and is mooted to become an important source of barramundi breeding stock. It will also become a base for Government and private aquaculture research. The centre is carrying out research into reef fish breeding, snapper, pearl oysters and mud crabs.

Technical resources are needed to research and develop new products and more effective production systems for existing products, as well as providing support for producers and protection of the Territory's relatively free disease and pest status.

Further rangeland research into both fauna and flora is necessary. Monitoring and interpretation of collated data will encourage better management and future development decisions. The Northern Territory pastoral industry is based predominantly on well-managed and excellent native, perennial pastures and it is vital for the beef industry that this continues.

Marketing and post harvest handling

The development of primary industries in regional areas requires consolidation of existing markets and identification and facilitation of access to new markets. Market diversification is necessary for the Northern Territory to participate fully in the global economy. There is growth potential for all of Northern Territory primary industries, especially mangoes and beef (with potential for job growth), but any increase must be accompanied by market research.

The recent downturn in the live cattle export market, especially to Indonesia, showed the vulnerability of this trade. However it led to consolidation of markets in the Philippines, supply of emerging niches, such as Libya and the investigation of new markets, such as China and Vietnam.

Land Subdivision and Roads

The degree of land subdivision and consequent access to roads in the Northern Territory is 50 years behind the rest of Australia, which is a barrier to:

- Maintenance and development of the $100 million live cattle trade, particularly during the Wet Season,
- Cropping industry development,
- Aquaculture development, and
- Further development of the $60 million horticulture industry.

Major supply routes both inside and outside the Northern Territory do not have a sufficient level of flood immunity to provide year-round access.

The Northern Territory is failing to capitalise on out-of-season advantages in export markets due to:

- A lack of roads and access to power, and
- The unavailability of a sufficient scale of airfreight, other transport and the cold storage and warehousing facilities that are taken for granted elsewhere in Australia.

Labour and built infrastructure

The anticipated demand for a trained labour force for the projected Northern Territory horticulture industry is enormous and requires considerable planning by the industry and other agencies involved.

Proposed large-scale horticultural ventures need to house the work force in areas where little housing and community infrastructure now exists. Fringe benefits tax could mean that the industry's viability may only be marginal.

The mango industry employs more than 1,000 people for most of the year. At increased production, in the next five years, there will be a need for four to 10 times the present labour force. The banana industry is the most intensive of all field based horticulture and provides year round employment at the rate of one person for every 4 hectares planted. It is estimated that the banana industry will need three times the current labour requirement within five years.

The region will need to provide sufficient cold storage, packing and transport capacity for road and other modes of transport.

Telecommunications

A recent survey by consultants for the Northern Territory Cattlemen's Association on telecommunications used by the pastoral industry in the Northern Territory highlighted many of the obstacles pastoralists face in doing business in a world that is increasingly distant, physically, from their enterprises. Pastoralists were concerned by the difficulty of getting a line out on the low speed Digital Radio Concentrator System (DRCS), the high cost of placing calls when lines were available, and poor on-site service for remote area users. Surveyed pastoralists emphasised the need for greater access to reliable communications to enhance not only business efficiency but also social interaction.

While access to greater data transmission speeds and the Internet were the focus of the survey, individual pastoralists asked for the DRCS to be upgraded or replaced as a matter of urgency. Access to a reliable telephone service remained the number one priority for all pastoralists surveyed.

A 1999 survey of the pastoral industry by the Northern Territory Cattlemen's Association found Territory pastoralists are computer literate and are well aware of telecommunications issues. "Most were very aware of the need to be on-line in the future and the usefulness of computers in day-to-day business matters. All agreed that the Internet and e-mail would play an increased role in business, education and general entertainment on pastoral properties in the future. Many saw the resistance to the Internet by some as just a symptom of not having been exposed to it; with more exposure to the resources of the Internet, its usage would increase." (extract)

Market sensitivity

Limitations on the development of the Northern Territory horticulture industry are primarily related to the availability of suitable land with adequate water close to market infrastructure and populated areas. Other limitations are markets to expand and sustain the industry, labour, higher productivity and reduction of production costs and general improvements in the capacity to compete in international markets.

Research will be needed to ensure that industries remain competitive. This will apply, especially in the mango industry where lower prices are expected to follow the increased volume of production. The focus will be on ways to minimise the cost of inputs such as fertilisers, farm chemicals, post harvest costs and other routine machinery requirements.

Individual industries have particular issues. For example, the table grape industry needs to remain disease and pest free. A general upgrading in infrastructure in the Ti Tree region is necessary.

Summary

The Northern Territory still has a very small population, little infrastructure and is still developing its natural resources. Yet its industries need to compete in the global environment. Consequently government is still the main supplier or facilitator of infrastructure, It assists in developing industries, ensures that they are developed sustainably and conserves examples of ecology for future generations.

RECOMMENDATIONS

It is recommended that the Committee recognise the Northern Territory's need for additional resources to:

- Undertake research and development to gather adequate information on Northern Territory soil, vegetation and water, including mapping and identification at a level appropriate for production and conservation use.

- Undertake market research and development for tropical production, especially those products of use to developing Asian markets.

- Ensure the preservation of representative ecosystems for future generations.

It is recommended the Committee recognise the need:

- For the resolution of matters relating to future development of land potentially subject to native title,

- For the resolution of Aboriginal land claims over the sea bed,

- To streamline the process that allows access for people to, and development on, Aboriginal land within the framework of the *Aboriginal Land Rights (Northern Territory) Act 1976*, that meets the needs of Aboriginal people and the wider community,

- To ensure that adequate transport infrastructure is in place to supply inputs and allow products to reach markets in time and with the quality required to enable competition in the global trade environment,

- To provide access to quality telecommunications for pastoralists and agricultural businesses in remote locations. This must be done on an equitable basis that minimises the expense incurred in the use of electronic commerce and maximises digital data transfer speeds.

MINING AND ENERGY

BACKGROUND

The Northern Territory's mining (minerals and petroleum) industry is the largest single contributor to Gross State Product (GSP) of any industry. In 1996-97, the mining industry accounted for 10.7% of the Territory's GSP, and although this was 1.0% lower than a year earlier it was more than two and a half times the national figure of 4.1%.

Table 1 shows the contribution of mining to each jurisdiction's GSP and to Australia's Gross Domestic Product (GDP). Mining's large contribution to the Northern Territory GSP reflects the resource endowment and highlights the economic significance of the mineral and energy sector. This contribution is second only to that in Western Australia.

Table 1

Mining

	% of GSP
Western Australia	16.9
Northern Territory	**10.7**
Queensland	4.8
Tasmania	2.6
Victoria	2.3
South Australia	2.1
New South Wales	1.8
Australian Capital Territ(	0.0
Australia	**4.1**

Source: ABS Cat. No. 5220.0, 1996-97

Benefits

Mining is highly capital intensive, and employment levels are low relative to other sectors of the economy. Nationally, mining contributed 4.1% to GDP in 1996-97 and 1.0% to employment. In the Northern Territory mining generated 10.7% of GSP and employed about 4,260 persons, 3.8% of the total work force, excluding the mining service sector or minerals processing following ore extraction. A large portion of salaries and wages are injected back into the Northern Territory through consumer spending. Mining industry employment declined by approximately 6.4% in 1997-98.

It is estimated that the Northern Territory benefited from about $210 million spent on offshore exploration and offshore production for the three years to 1998. The Northern Territory share of goods and services expenditure by the onshore mining industry in its operations in the Territory was approximately $250 million in 1998 (one-third of operational expenditure). The Jabiluka uranium mining project is expected to be an important contributor to the Territory economy. The potential for large volume delivery of Timor Sea natural gas to Darwin would also bring large-scale benefits to the Territory.

The Northern Territory Government secures direct revenue from onshore mining operations through royalties levied on a profit basis. Profit based royalties fluctuate from year to year, in line with company performance. The Northern Territory Government, however, does not benefit from offshore oil and gas royalties or resource rent tax, all of which accrue to the Commonwealth.

The total value of all production in 1997-98 was $1,606 million, a decrease of $56 million (3.4%) on 1996-97. Mineral production (excluding uranium) was valued at $1,294 million, a decrease of $10 million (0.7%) on 1996-97. Oil and gas production was valued at $183 million, a decrease of $46 million (20.2%) on 1996-97

Production forecasts and current exploration expenditures suggest activity in the Territory's mining sector will decline slightly in the short term followed by a substantial recovery in the medium term, as world economic growth strengthens, particularly in Asia.

An initiative to stimulate regional exploration and plans for the development of natural gas fields in the Timor Sea are the Northern Territory Government's two priority areas in the sector.

Minerals

The Northern Territory's most significant known metallic and non-metallic mineral resources are:

- Bauxite - the third largest bauxite mine in Australia near Gove;
- Gold - major operating mines are located in the Pine Creek and Tanami Desert areas;
- Manganese - Groote Eylandt is the world's third largest producer of high grade manganese ore;
- Zinc, lead and silver - including one of the world's largest known ore bodies at McArthur River;
- Deposits of garnet sands and vermiculite; and
- Diamonds - the Merlin diamond mine started production in February 1999.

The value of metallic and non-metallic mineral production in the Territory is underpinned by the world class deposits at Gove, Groote Eylandt and, to a lesser extent, McArthur River. These three mines accounted for almost 63% of the Territory's total value of metallic and non-metallic mineral production in 1997-98, and are expected to continue to be major contributors in the future.

The value of non-metallic minerals decreased from $43 million in 1996-97 to $25 million in 1997-98. The higher demand in 1996-97 was largely attributable to gravel requirements for road building and extensive repair work following the 1997 floods in the Alice Springs region.

Mineral Exploration

Total Northern Territory mineral exploration expenditure fell 15% to $75.9 million in 1997-98. Gold was the commodity most explored, accounting for almost 60% of expenditures in 1997-98. All jurisdictions, except South Australia, experienced drops in exploration expenditure. Approximately 7.1% of Australian exploration funds are spent in the Territory.

The Northern Territory's mineral exploration expenditure is expected to decline further in 1998-99, a trend expected across Australia. This decline is largely attributed to:

- Lower commodity prices,
- Native title uncertainties, and
- Greater worldwide competition for exploration funds.

Greenfields exploration (exploring in new regions) expenditure in the Territory has fallen from $42.7 million in 1996-97 to $32.9 million in 1997-98 and a further substantial fall is estimated for 1998-99. Brownfields exploration (exploring around existing minesites) is generally favoured over greenfields exploration due to cost and land access considerations.

Declining exploration expenditure is a serious concern because of the lengthy periods between the discovery and proving up of new deposits and their development.

In response to mineral exploration declining over 20% in the past two years, the Northern Territory Government is funding a major new exploration stimulation program to attract renewed exploration investment. This involves additional Government expenditure of $16 million over five years on programs such as accelerated airborne geophysical surveys and the production of high quality geo-scientific data sets over prospective terrains. An area of 180,000 km^2 in the southern half of the Territory is scheduled to be covered by airborne surveys during 1999-00.

Minerals Outlook

The general outlook for minerals is for constrained world prices for most commodities during the period to 2004. Metal prices are forecast to fall further before beginning a marginal recovery in 2000.

Energy

The Territory's significant known energy resources are:

- Uranium - deposits at Ranger, Jabiluka and Koongarra;
- Natural gas - onshore at Palm Valley and Mereenie and large reserves offshore at Greater Sunrise, Evans Shoal, Bayu-Undan (in the Timor Gap Zone of Cooperation – Area A) and Petrel;

- Oil - onshore production at Mereenie and offshore production and reserves at Jabiru, Challis, Laminaria/Corallina and Elang/Kakatua in the Timor Sea.

The gross value of energy production in the Territory in 1997-98 declined by 8.1% to $311.6 million. Increases in the value of uranium by 17.6% and natural gas by 4.5% were offset by a 25% fall in the value of crude oil. In 1997-98, crude oil contributed 46.7% to the value of Territory energy produced, uranium oxide 41.4%, and natural gas, 11.9%.

Onshore, the Mereenie field produces 2,100 barrels of oil daily. Gas production continues from both the Palm Valley and Mereenie fields for power generation.

The Timor Sea to the north of the Territory contains world scale oil and gas reserves. Only those activities occurring within the Northern Territory and the offshore waters administered by the Northern Territory are included in the Australian Bureau of Statistics official Northern Territory figures. However, significant benefits accrue to the Territory from the operations in the Timor Sea. Western Australia administers part of the Bonaparte and Browse basins in the Timor Sea. Australia and Indonesia jointly administer the Timor Gap Zone of Cooperation Area A (ZOC-A). The latter includes the Elang/Kakatua oil fields plus potential developments of Bayu-Undan and North Australian Gas Venture (Greater Sunrise and Troubadour) fields.

Overall annual offshore oil production in Territory administered areas was an average of 13,700 barrels daily in 1998, approximately one-ninth of the production peak level in 1990.

Energy Exploration

Despite current low oil prices, a good level of offshore exploration is anticipated. Fourteen wells were drilled in Territory administered offshore areas in 1998, and there are ongoing commitments to drill approximately 12 exploration wells per year. Other wells to be drilled in WA and ZOC-A waters will be supported from Darwin. Seven discoveries were made in the Timor Sea in 1998 from 27 wells. Commitments have been made to drill a total of 157 exploration wells in the Timor Sea during 1999-2003.

Onshore exploration activity has been weak and native title uncertainty is having a marked effect on greenfield oil and gas exploration.

The Northern Territory Government's exploration initiative is of particular interest to petroleum explorers. Exploration data for onshore areas will be packaged and stratigraphic drilling undertaken in the Georgina Basin. A review of the petroleum systems operating in onshore basins is proposed and will include basin modelling, and source and reservoir studies.

Uranium exploration expenditure decreased by 19.2% to $3.8 million in 1997-98.

Energy Outlook

The value of total energy production is forecast to increase by 27.5% in 1998-99 to $397.3 million. A further three-fold increase to a peak of $1,633.6 million in 2000-2001 is forecast, principally as a result of the production from the Laminaria/Corallina oilfield in the Ashmore/Cartier area of the Timor Sea. The values of uranium and gas production are expected to increase at a moderate rate.

After a slowdown in uranium processing at Ranger during 1998, the value of Northern Territory uranium production is expected to strengthen during 1999 and 2000. The Jabiluka mine is expected to commence uranium oxide production in 2001with reserves sufficient to maintain production until 2027.

Crude Oil, Condensate and Gas

Australian crude oil and condensate production is expected to peak in the next two years before declining. The exported proportion of output is expected to rise as the production share from Australia's north west continues to increase. Competition in the Liquefied Natural Gas (LNG) market is tough and this difficult demand situation is likely to delay the commissioning of any new LNG project in Australia.

New offshore oil and gas projects under feasibility study include developments of Bayu-Undan, Petrel/Tern, the North Australian Gas Venture and a number of small marginal oil fields.

Extensive engineering and developmental planning has been undertaken although the major decisions are yet to be made for both development strategies and timing of development operations. Options for gas use include either LNG processing for export markets and/or domestic gas markets with some or all of the gas being piped ashore to Darwin.

The North Australian Gas Venture encompasses development from Greater Sunrise, Evans Shoal and other potential Timor Sea gas fields. The project operator has lodged a notice of intent to build offshore and onshore infrastructure, including an LNG plant near Darwin. Total investment for the project would be in the order of $10 billion. Major decisions on the timing of development operations are dependent on markets.

The development of onshore Timor gas facilities would open new opportunities for the Territory economy. Opportunities include further processing of gas to LNG, extensions of natural gas pipelines to other areas of the Territory (such as Gove) and to the rest of Australia, the generation of cheaper power in the Territory and the development of fertiliser manufacturing.

ISSUES

Exploration deficiencies

The lengthy periods (around 10-15 years) between the discovery, proving up and development of new deposits are of concern in a climate of declining exploration expenditure.

The Northern Territory Government's commitment of 16 million dollars over five years to its major new exploration stimulation program to attract renewed exploration investment attempts to address this.

The high levels of official sector sales and private sector disinvestment that led to the historically low levels of world gold prices in 1998 is an issue that has affected gold producers' exploration decisions and global decisions about exploration spending.

Wik and Native Title

Uncertainty surrounding the procedures for the Government to issue valid tenure for resource exploration and mining on pastoral land following the Wik decision has been a major source of uncertainty and concern in the mining industry.

The major problems being experienced by Western Australia in trying to use the right-to-negotiate procedures have exacerbated concerns.

Native title uncertainties are compounding with weak onshore exploration activity to have a marked effect on greenfield oil and gas exploration.

Development Issues

Mineral and energy resources are often located in very remote parts of the NT. The provision and cost of transport and energy infrastructure are critical issues in the decision to proceed to development of resources.

This has two aspects:

- The upfront cost of providing the infrastructure. The costs of building roads and energy pipelines are high over the Northern Territory's long distances, and
- The cost of the transport services using this infrastructure. This is a crucial issue for minerals where often large bulk tonnages of material have to be shifted long distances to the coast for export or further processing.

The Northern Territory has several potential mineral projects that would be further investigated for viability if the initial hurdle of transport costs could be reduced.

The sealing of the Tanami Road is an example of the potential impact of upgraded road infrastructure. The reduced transport costs would lower operating expenses at existing mines, provide a tourist link to the Kimberley and improve access for more than 6,000 Aboriginal people in a number of large Northern Territory communities as well as some in eastern Western Australia. The Tanami is a highly prospective mineral province and improved access would greatly enhance future development activities.

Transport costs are a commercial transaction, but assistance with the provision of the infrastructure in the first instance may improve the overall economics of any resource development project.

Current economic debate concerns the Australian economy maintaining a competitive and attractive investment environment. This is a major thrust to comments on the recent release of the second report on the Review of Business Taxation (the Ralph Committee). In terms of the minerals and energy sectors the issue of importance is the treatment of capital expenditure write offs. The provision of transport infrastructure is a major capital item, particularly in the Northern Territory, and appropriate assistance schemes should be viewed in the same light as tax write-off assistance under current tax law.

The logical approach to the provision of transport infrastructure is a co-funding arrangement between Governments, including the Commonwealth, particularly for Roads of National Importance, and those that will benefit from the infrastructure. This arrangement should facilitate the development of sustainable employment. This will require appropriate cost/benefit analysis. However, such analysis should take into account the wider implications and not just the regional effects.

The mining and energy (onshore) sectors provide an importance impetus to regional development in their own right. These need to be factored into any cost/benefit analysis on infrastructure expenditure.

The range of possible benefits from the establishment of a gas pipeline from Mataranka through Arnhem Land to Gove is multiple. It includes the development of aluminium production by Nabalco and cheaper electricity for businesses operating n the East Arnhem region. Aboriginal communities would benefit from the change from diesel to gas power in terms of cheaper electricity and a healthier environment.

RECOMMENDATIONS

It is recommended the Committee recognise that the problems caused by the native title future act requirements are a significant impediment to mineral and energy development, including the development of infrastructure in support of mineral and energy activity.

It is recommended that the Committee recognise the need for:

- Funding to be made available for transport infrastructure in support of mining after a rigorous assessment of the costs and benefits, and

- The costs to be shared between Governments and users of the infrastructure based on the benefits accruing to each. (Reference is made elsewhere in this submission to the importance of secondary link road infrastructure to regional development.)

TOURISM

BACKGROUND

The growth of the Northern Territory's tourism market since self-government is ample demonstration of the impact and benefits of infrastructure on the development of remote areas. Regional visitor statistics provide examples of how sealing a road or building a hotel has led to an increase in activity.

While the Northern Territory's major tourism and heritage icons are now far more accessible than before self government, enhancing access to other areas can be expected to contribute to continued tourism growth, and therefore to development and sustainable employment in regional areas.

Tourism is labour intensive. In the Northern Territory, it is estimated about 21% of the workforce, or about 17,000 people, are employed within or as a result of the tourism industry. It is also acknowledged as a major earner of export dollars.

Visitor statistics for the Northern Territory show strong growth. Visitor numbers were 330,000 in 1979/80 and the NT had 2,400 motel and hotel rooms. In historic terms tourists spent about $80 million on travel. By 1997/98, visitor numbers had grown to 1.16 million, the number of rooms available (including serviced apartments), to 6,973, and tourists' spending to $702 million.

Modes of travel

Because of the distances involved, the Northern Territory depends on air transport as the main mode of entry for visitors, with more than 500,000 arriving this way. Self drive tourism accounts for the next largest group – about 190,000. However, the condition of the road network is a key in ensuring that tourists are assured of being able to reach their desired destinations year round.

The impact of the airline pilots' dispute, which began in August 1989 and continued until March 1990, is reflected in that year's decline in visitor numbers by 14,000 and illustrates the Northern Territory's dependence on air arrivals. The fact that the dispute spanned the end of one peak tourist season and ended before the peak of the next lessened its effect. However, the dispute provided local businesses with an opportunity to reflect on the reliance on tourism of the overall Northern Territory economy. The impact would have been far greater had the Northern Territory Government not taken action to encourage intrastate travel.

Tourism relies on a good road network to allow access to areas such as Uluru Kata-Tjuta (Ayers Rock) and Kakadu National Parks, as well as other infrastructure such as accommodation, food and fuel services. Tourism operators rely on other basic infrastructure to operate their businesses effectively and economically. In many instances some of the infrastructure, such as water and power, is provided by the operator themselves. They are dependent on Government and other providers for other elements, such as roads, telecommunications, health and education.

The impact of infrastructure development is illustrated by the experience of the Kakadu region. In 1973 the region attracted 19,000 visitors, in 1983 58,000 and by 1993 219,000.

During the intervening period:

- The Arnhem Highway was sealed (giving access to the region's uranium mines and opening the tourist routes) in 1975, and
- Accommodation was provided there during the 1983/85 period
- The sealing of the southern link, the Kakadu Highway provided a further boost to numbers in the mid 1990s.

Since then, the number of visitors has settled at around 230,000 a year.

Other infrastructure developments significant to Northern Territory tourism have been the completion of:

- The Lasseter Highway, giving all weather access to the Uluru Kata-Tjuta (Ayers Rock) National Park,
- The Ayers Rock Resort and township,
- High class hotels in Darwin and Alice Springs,
- Two casinos,
- The development of the Kings Canyon Resort,
- The Luritja Road to Kings Canyon,
- The Territory Wildlife Park and the Alice Springs Desert Park,
- The Nitmiluk (Katherine Gorge) National Park visitor centre, and
- The all weather link to Litchfield National Park.

Additional opportunities

On the basis of past history, further improvements to access and communications can be expected to create additional opportunities in the remote areas of the Northern Territory for the:

- Expansion of the tourism market,
- Development of tourism infrastructure, and
- Creation of tourism jobs.

ISSUES

The Northern Territory has worked hard to overcome the perception that it is isolated from the rest of Australia.

All regional tourism organisations in the Northern Territory perceive the relatively high cost of domestic air travel as a major weakness deterring travellers.

Additionally, poor access, distance and other factors over which operators have little control mean that running costs in remote areas are high, resulting in high costs to consumers.

For operators of facilities such as wayside inns, major issues are a lack of permanent trained staff and the ability to attract, train and retain them, and the impact of taxes and freight charges.

Accessibility

In niche areas of the market, particularly for the four wheel drive and recreational fishing markets, access both through an appropriate level of road condition and through Aboriginal land, is a major issue restricting development.

The tourism industry sees its lack of involvement in the management of the two icon national parks, Kakadu and Uluru Kata-Tjuta, as a block to communication on tourism issues relating to park management. It considers that some traditional owners, particularly in the Kakadu area, lack an understanding of the potential of tourism opportunities in the area.

Tourists' needs

Tourists, particularly those in the drive market, need access that:

- Is safe and reliable, eg has a reasonable level of flood immunity and safe road surface conditions,
- Has ample services in terms of accommodation, fuel, food and communications, and
- Is easily obtainable, eg the need for easy access to permits for entry to Aboriginal lands.

Tourists also need assured access to other forms of infrastructure such as health and emergency services to cope with unforeseen illness and accidents.

There is a need for some significant developments along the highways including the enhancement of facilities associated with wayside inns.

Operators' needs

Tourism operators need access to:

- Good and affordable telecommunications to allow them to conduct their business effectively and efficiently both on and off site through the Internet and using access to services such as Electronic Funds Transfer at Point of Sale (EFTPOS),
- A road network with reasonable levels of flood immunity, that is, flood immunity that is measured in hours, rather than days,
- Water,
- Power at an affordable price,
- Health services,

- Education, for families and staff, and
- Accommodation for staff (in some areas, they may provide this, and be subject to additional costs associated with fringe benefits taxes, in others housing infrastructure may be in place. Remote areas of the Northern Territory generally do not have a private rental or buyers' market).

Remote area development

The Northern Territory practice has been for the Government to seed major tourism infrastructure for later sale to or operation by the private sector, with the Ayers Rock Resort a notable example.

The condition of remote and rural roads is inhibiting tourism and therefore development in those areas. In tourism planning, each Northern Territory regional tourism association cited the condition of its road network as a major obstacle to continued market growth.

To capitalise on the demand for remote area travel, the outback road network needs to be upgraded to a high standard to provide year round access and a good level of safety for 'remote area' vehicles. This development needs to be complemented with better signage based around specific themes (tourist drives), and providing directional and interpretive information.

Roads with potential for development include:

- The Outback Highway link between Laverton in Western Australia to Uluru, then to Alice Springs and along the Plenty Highway to Winton in western Queensland,
- The Northern Territory is moving to join Queensland in marketing the drive between Burketown, Wollogorang, Borroloola and Daly Waters to people wishing a remote area adventure experience, and
- Other routes are being considered based around historic links, such as the Old Ghan railway line through far north South Australia to Alice Springs and the Murranji droving track through the western Northern Territory.

Experience has been that as basic amenities, such as access, are provided, new population centres develop and existing population centres refocus activities to supplying the new markets with fuel, water, accommodation and other services.

Additional stimuli to development in remote areas are tax advantages, which are generally given to compensate for the extra costs of life in remote areas.

RECOMMENDATIONS

It is recommended that the Committee recognise the importance of adequate digital data transfer telecommunications technology to the development of tourism, with the provision of adequate telecommunications infrastructure to remote areas of the Northern Territory.

It is recommended the Committee recognise the need to:

- Accelerate the program of upgrading existing and providing additional road links between the Northern Territory and other States. Roads with potential to create regional development through tourism, mining and agricultural development should be recognised as Roads of National Importance,

- Increase efforts to market interstate and secondary interstate tourist routes by the Australian Tourist Commission in recognition of the importance of tourism to sustainable regional development, and

- Identify and develop new areas that can be opened to tourism through the provision of access, services, and infrastructure.

ROADS

BACKGROUND

The Northern Territory manages more than 21,000 kilometres of national highways, arterial and local roads. Local government bodies manage more than 12,500 kilometres of local roads in incorporated areas. Much of the Northern Territory is unincorporated but arrangements have been made to have adjoining local governing bodies manage roads in unincorporated areas.

The Northern Territory's road network comprises three national highways, a series of major intrastate links, including roads servicing pastoral areas, mining operations and Aboriginal communities. The network has a number of tourist routes. The entire road network is subject to closure during periods of extreme wet weather.

Unique challenges

Road building and maintenance in the Northern Territory faces a series of challenges not present elsewhere in Australia, both environmental and geographic. The Northern Territory receives special recognition that 90% of its national highways are north of the Tropic of Capricorn and are susceptible to monsoonal conditions. It is asserted that the Northern Territory's road network in remote areas is about 30 years behind the rest of the country, because of a lack of adequate funding for road development, particularly in monsoon prone areas and less so in Central Australia.

The three national highways are:

- The Stuart Highway, constructed to two lane sealed standard, with sections significantly below nationally accepted standards of flood immunity, particularly north of Katherine.
- The Barkly Highway, constructed to national highway standard to the Northern Territory-Queensland border. This link with eastern states is regularly cut by floodwaters across the Georgina River bridge just outside Camooweal, in Queensland.
- The Victoria Highway, constructed to two lane sealed standard. Two crossings, at the Victoria River and Lost Creek fall significantly below national standards of flood immunity, resulting in closure for significant periods during extreme wet season conditions.

These are the most important roads for freight and passenger movements. All three can become impassable due to flooding for significant periods of time during extreme events (three to four day closures can occur due to heavy rain from cyclones). Unlike most major routes in southern States, there are no alternatives, almost all the alternative routes are unsealed and all have lower flood immunity levels than the highways.

Intrastate links with high levels of flood immunity are the Arnhem (223 km sealed) and Kakadu (206 km sealed) Highways, the main access roads to the Kakadu National Park, western Arnhemland and the Alligator Rivers uranium province. The

Lasseter Highway (247 km sealed) linking the Stuart Highway with Ayers Rock, south of Alice Springs, also has a high level of flood immunity.

Secondary links

Secondary interstate and strategic regional roads:

- The Tanami Road (702 km, 123 km sealed). Serves the Tanami gold region and more than 6000 Aboriginal people in a number of large Northern Territory communities as well as some in Western Australia and provides a tourist link to the Kimberley.
- The Plenty Highway (498 km, 97 km sealed), to the Queensland border near Boulia from north of Alice Springs.
- The Tjukururu road (189 km unsealed) linking Ayers Rock to Docker River and the Western Australian border.
- The Carpentaria Highway (379 km sealed) and the Wollogorang Road (262 km unsealed) provide key links to the Carpentaria mineral province and north Queensland.
- The Roper (205 km, 133 km sealed), Tablelands (376 km sealed), Buntine (558 km, 336 km sealed) and Buchanan Highways (394 km unsealed) and the Central Arnhem Road (645 km, 51 km sealed).

All are subject to seasonal closure by flooding and weight restrictions during the monsoon season.

Road construction and maintenance is carried out exclusively by private contractors. The responsible department, the Department of Transport and Works, does not maintain a day labour force.

Outsourcing of road construction and maintenance services led to concern that local employment would be adversely affected. While day labour forces have been disbanded, local companies have been established and have been successful in winning contracts for road work, maintaining a local employment base.

The packaging of tenders to ensure that local contractors can compete for them has been critical to the success of local companies. This can be cost effective in the long term, maintaining local skills and expertise that are essential for remote and rural communities in the Northern Territory. This process has allowed for a number of efficiencies in allocating work as well as improving the sustainability of the civil contracting industry.

Benefits of road infrastructure

Investment in roads has important social and economic benefits, particularly at the local and regional levels. Economic returns come from:

- New economic activities,
- Reduced costs to businesses, freight savings, less damage to vehicles,
- Increased opportunities for existing economic activities,

- Enhanced safety, comfort and sense of security, and
- Opportunities for local communities to contract for the construction and maintenance of the roads.

For tourism, benefits from improved roads infrastructure come from:

- More comfort for the fly-drive market, and
- Longer stays by visitors.

For the primary and mining industries the benefits may be:

- Decreased damage to freight,
- Produce arrives at market in better condition leading to better returns for producers, and
- The difference between viability and non-viability for a marginal operation.

A sealed access road to Litchfield National Park with an all weather bridge across the Finniss River near Batchelor has had the following results:

- A longer visitor season to the park, with increases in numbers from probably several thousand a year in the mid-1980s to 256,000 in 1995,
- Benefits to Darwin by providing an additional attraction in the immediate Darwin area,
- Benefits to Batchelor, from increased traffic and the opening of a motel and three caravan parks, and
- A number of tour operators, hire car operators and accommodation houses have established businesses to cater for visitors.

Development of the Douglas Daly Region struggled initially but with growth in the live cattle export trade, the region has become important for cattle breeding. Sealing of the main road to the region has allowed exports to continue during the monsoonal wet season when export prices are generally highest.

The sealing of the Kakadu Highway has provided a good quality southern approach to Kakadu National Park. Prior to this the only sealed road to Kakadu was the Arnhem Highway from Darwin and this is regularly subject to flooding during the monsoon season. The Kakadu Highway has:

- Increased visitor options to Kakadu,
- Opened the southern section of the park to visitors,
- Increased business opportunities in Pine Creek which is at the junction of the Kakadu and Stuart Highways, and
- Provided a loop which means tourists do not have to backtrack.

In the Northern Territory, increased expenditure on community roads provides significant benefits to the communities being served, including:

- Certainty of food and fresh food supplies,
- Reduced freight costs,
- Improved access to community supplies, such as building materials and other services,
- Reduced vehicle costs to community members,
- Better delivery of education and policing services,
- Employment opportunities on road construction and maintenance programs, and
- Better health outcomes.

Spending on roads infrastructure generates returns to government in terms of:

- Lower costs in the provision of services,
- Higher incomes for the people who directly benefit and therefore higher returns from taxation, and
- Higher retention rates among remote area staff and lower recruitment costs.

A decision in 1991 by the Commonwealth Government to pay funds for road infrastructure directly to community governments meant the loss of significant economies of scale in the provision and maintenance of community roads. The previous arrangement had enabled a more strategic investment of community road funds than is now possible.

The 1996 decision of the Commonwealth to cancel funding of the Strategic Roads program after only $5.2 million was spent of $15.6 million promised caused considerable hardship for a number of communities that had invested in new plant and equipment in order to carry out road contracts. The program was scheduled to run for three years. Subsequently $5 million in funding was reinstated through Northern Territory programs to partially offset the impact of these cuts.

ISSUES

Compared with other states, the Northern Territory road network is underdeveloped and has no redundancy. The development of the Adelaide to Darwin railway will introduce an alternative to the surface transport sector on this link.

The Northern Territory's particular combination of physical environment, population dispersion and economic activity, coupled with the absence of a rail system, make a reliable road network essential.

The Northern Territory already receives some recognition in the Commonwealth Grants Commission assessment process for the environmental challenges it faces to road building. These come from:

- Extreme temperatures that lead to continual expansion and contraction of materials and, as a result, a higher rate of deterioration and maintenance,

- High ultra-violet radiation levels significant add to road and road furniture maintenance costs,
- High rainfall and resultant design and maintenance issues,
- Extremes of wet and dry result in rapid pavement degradation,
- Arid environment,

The land in arid regions is not adapted to the periodic heavy rain conditions that occur, causing significant flooding and road damage, which is exacerbated by the fact that many unsealed roads lie below the natural surface level.

- Wind, and
- Frequent prolonged and severe drought.

In the Tanami region, a seven year drought period is estimated to have increased annual road maintenance costs by 10-20%.

Geographic factors which compound on the environmental and climatic impacts on road construction and maintenance are:

- Remoteness, which adds at least 10% to the cost of remote area work,
- Rivers, which present major problems over the whole of the Northern Territory in terms of the level of flood immunity to be provided in road design,
- The amount of flat low-lying and swampy land, which increases the likelihood of road formations becoming saturated and therefore prone to damage,
- The quality of the subsoil under a road and the ability of the natural surrounds of a road to absorb water runoff, and
- Access to good quality gravel because of its impact on maintenance cycles.

Apart from other factors that contribute to cost differentials including freight costs, the Northern Territory market is small and lacks competition.

A request for a repair to a floodway on the Duncan Highway, (just inside the Northern Territory border from Western Australia) would have involved a crew then working on the Victoria Highway taking a 600 kilometre round trip, at a cost of about $12,000. The cost of the actual work on the crossing would have been almost negligible.

Darwin region was quoted $10,000 for the delivery of a small quantity of equipment from Gunbalanya to Murganella on the Cobourg Peninsula (a 240-kilometre round trip). This was more than the cost for the on-site roadwork.

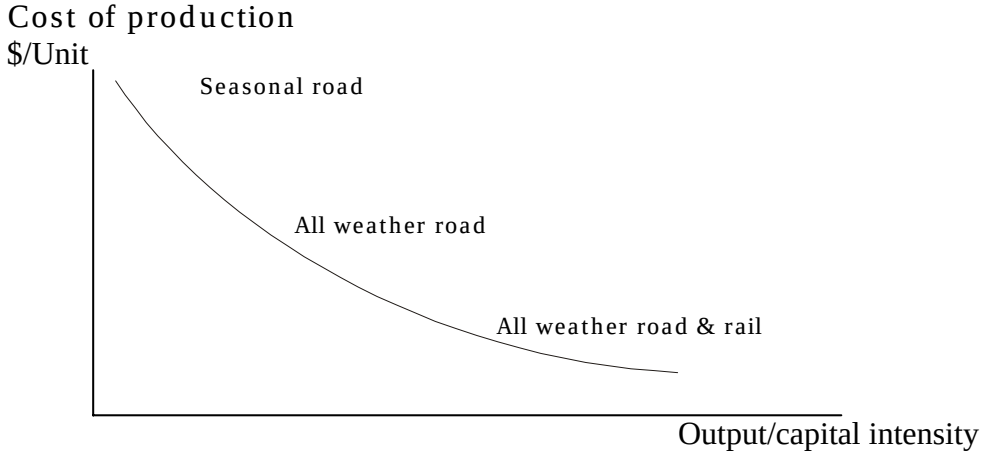
The need for all-weather access

A major issue to emerge as economic activity in the Northern Territory has developed has been the need for all-weather road access. The level of road infrastructure restricts the ability to develop significant areas for agriculture and horticulture because of the lack of access and the lack of access to markets.

Mining, the live cattle trade and tourism all require continuous access leading to the need for high quality sealed roads with high level bridges and appropriate road works.

Without good infrastructure, remote area businesses are limited in the level of capital (and therefore size and competitiveness) that can be sustainably serviced because of the inability to reach high levels of productivity.

The importance of this can be illustrated conceptually in the following graph.



Most businesses in southern Australia are able to operate in the lower section of the curve, while their remote area competitors are faced with operations in the upper section. This places remote area operators at an immediate cost disadvantage.

Apart from the issues of social equity, the absence of year round road accessibility acts as a disincentive to investment. Those investing in new equipment or facilities will want to work 12 months of the year to ensure they remain competitive. They will be disinclined to invest if they are deprived of income for a portion of the year and unable to service their loan by the inaccessibility of their asset.

The lack of access contributes to the seasonality of the tourism industry because of both perceptions, and the reality, of the road network's reliability.

The Northern Territory experience is:

- That good quality gravel roads do not provide a sufficiently high level of access, particularly for heavy vehicles during monsoon conditions, and
- No longer are Northern Territory industries seasonal, particularly the pastoral and mining sectors.

The Australian Defence Force has developed a training area, mainly for elements of the 1st Brigade at Mount Bundey station on the Arnhem Highway. The area has sealed access to the front gate, but internal roads cover a range of terrains and the experience has been that the roads are easily damaged and rendered impassable by tracked and multiple drive wheeled vehicles during the tropical monsoon season. The condition of access roads across Northern Australia will cause similar difficulties for the ADF. It is notable that the ADF programs major exercises involving heavy vehicle usage during the dry season.

The major issues are the need to:

- Extend the sealed road network to meet the needs of the mining, pastoral, agricultural and tourism industries,
- Upgrade roads connecting many remote communities with major Territory roads, and
- Maintain and improve existing road assets.

The Northern Territory has only limited financial capacity to support major road projects and address the system wide deficiencies without having to reduce funding in other areas.

Strategic plan

The Northern Territory Road Network Strategy includes the gradual extension of bitumen seal on a number of roads at the same time, based on the following priorities:

- Contribution to economic growth,
- Community access,
- Technical feasibility, and
- Road user safety.

Improved flood immunity on the Victoria Highway could secure for Katherine and Darwin significant additional employment from agriculture development in the Ord Stage II and Victoria River regions.

Improved flood immunity for the Buntine and Buchanan Highways would enlarge the year round catchment for live cattle exports, particularly during the high demand/peak price season and obviate the need for double handling of cattle from the Wave Hill/Sturt Plateau area through the Daly feed lotting areas.

The tourism industry's ability to promote tourism during the "green" or monsoon season, is limited by the ability to access key areas. This season, which coincides with the Northern Hemisphere winter, is potentially a prime time of year for tourists to visit the Top End.

Improved access on the Tanami Road could significantly reduce the operating costs to existing gold mining operators in the Tanami region, and would enhance the prospectivity of other identified deposits. It would also have spin-offs for the

significant Aboriginal population in the region and across the border in Western Australia.

The relatively small and dispersed nature of the Northern Territory population means the possibility for Build Own Operate Transfer (BOOT) construction of road infrastructure is unlikely to be financially viable. In almost all cases, the normal pattern of infrastructure development in the Northern Territory has been for the Government to provide seed funding, for the private sector to build and the Government to fund private sector maintenance of infrastructure to ensure that development aimed at economic growth is fostered.

A major issue for the Northern Territory arising from its unique environment is the fact that funding for road maintenance has not been adjusted for inflation during the past two years. In real terms, repair work for the national highway system has been reduced due to economic attrition by about 2% per year. The amount is not expected to be adjusted in the foreseeable future.

The issues of social equity and amenity from improved access for people living in remote areas of the Northern Territory are covered in other sections of this submission.

RECOMMENDATIONS

It is recommended that the committee recognise:

- The need for additional resources to develop higher levels of flood immunity and alternative links in the Northern Territory road network.

- That roads which provide additional links between the Northern Territory and other States with potential to create regional development through tourism, mining and pastoral development, be classified as Roads of National Importance and given high priority for upgrading.

- The social benefits that are provided by an efficient and safe road network.

AVIATION

BACKGROUND

Aviation and aviation infrastructure have been extremely important to the development of the Northern Territory in terms of providing residents with access, as a conduit for tourism and support for the mining and pastoral industries.

With most of the Northern Territory in the tropical zone and a road network with low flood immunity, air transport has often been the only means of accessing remote areas. The Government's policy has been to make airstrips available in areas where the road network has a low flood immunity.

Air charter is extensively used throughout the Territory, with particularly high growth in Arnhem Land. Aboriginal communities have become involved in developing regional services because they consider investment and involvement in aviation charter companies to be a means of providing significant sources of income and cost effective services.

Major infrastructure

Darwin and Alice Springs airports, both vital infrastructure to tourism development were confined to inadequate terminal facilities until 1991. In Darwin, the terminal was housed in a modified RAAF hangar.

The Northern Territory Government built a new airport at Uluru to service the new Ayers Rock Resort adjacent to one of Australia's tourist icons. The runway was extended in 1996 at a cost of $12 million to enable direct passenger flights from Sydney.

In the past five years, international flights to the Northern Territory have nearly doubled in number to provide more than 2,000 seats into the NT each week. The routes connect to Asia and then with the rest of the world.

Domestic airline flights have grown by 50% in the past five years and provide 18,500 seats a week on daily flights to all capital cities.

More than 50% of the 1.16 million visitors in 1997/98 arrived by air.

Remote air services

Five third level airlines provide scheduled services to 27 locations. Of these, AirNorth is the largest carrier, carrying 92,500 passengers a year and operating 40 turboprop commuter and single-engine aircraft.

The Darwin airport provides 600 civilian jobs and wages of $25 million a year with an estimated multiplier effect of a further 1,000 jobs and additional income of $35 million into the Northern Territory economy.

Air mail services supported by the Remote Air Service Subsidy scheme provide vital links for the remote areas of the Northern Territory. The mail services visit airstrips at pastoral properties, mines and communities from Darwin, Katherine, Tennant Creek and Alice Springs. The Northern Territory Government is aware of concerns by service operators that funding of the Remote Air Service Subsidy has been reduced each year for the past three years. The Northern Territory Government considers the Remote Air Service Subsidy scheme to be a vital communications link and is anxious to ensure that funding be maintained at equivalent levels.

National Competition Policy

The Northern Territory freed up regional airline and commuter markets in the early 1990s. This action was taken before the National Competition Policy was introduced, but the deregulation policy has been successful in a small market environment.

Air services have continued to be provided and, in fact, services to some communities have been improved, despite concerns prior to deregulation that services would end.

Local inspections and maintenance

In the late 1980s, Civil Aviation Safety Authority airports inspectors began providing technical assistance with airstrip maintenance to communities with airstrips north of the 19^{o}S parallel. The service was transferred to private consultants with departmental funding. As well as on site advice, the consultants train airport reporters and safety officers in local communities to supervise day to day maintenance of airstrips and report unsafe conditions.

This program has provided valuable additional skills to remote area populations and additional work for local work crews maintaining airstrips, complementing work already carried out on local roads. The Northern Territory Government recognises the benefits of this and urges its retention and extension of the consultancy to cover communities south of 19^{o}S.

Recently, when a trained aerodrome reporter left his community for an extended period of time the airstrip was closed to regular passenger transport flights because it was unable to be inspected for safety. At short notice, the consultants were able to fly to the community and train a number of other residents to carry out the functions and ensure the strip was reopened to scheduled flights.

Industry links

Aviation is an integral part of the mining industry with the use of helicopters to deliver supplies and enable crew changes. Aviation also provides important links between Darwin and the major mining provinces, including McArthur River and the Tanami.

Access by air is essential to tourism, the second largest industry group in the Northern Territory and the largest private industry employer. The majority of tourists

arrive in the Territory by air. Scenic flights in light aircraft and helicopters give many people access to major attractions that would otherwise not be possible.

The development of large scale sea cage barramundi farming in a joint venture at Port Hurd on Bathurst Island will provide significant local employment opportunities, with the potential to produce up to 10,000 tonnes of whole barramundi per annum, worth in excess of $60 million. It is estimated this will require about 15,000 tonnes of aquaculture feed. The project will require additional infrastructure in the form of a sealed airstrip and barge landing.

ISSUES

The social benefits of regular air services are possibly more important to many Territorians than simply the economic benefits. This is mainly because the Territory has a young population many of who lack the benefits of an extended family in close proximity. Good air links are vital in engendering a sense of security and a sense that should things go awry they can be with their extended family in a matter of hours.

Many regional and remote aerodromes are a legacy of World War II operations and are of questionable standard. The provision of air access and infrastructure to remote Aboriginal communities presents particular challenges and issues.

Many people in urban areas take for granted access to goods and services that can only be made available to Australians in remote areas through air transport links.

Wet season access

In many communities the local airstrip is the only access, particularly during the Wet Season in the Top End. The community airstrip is a key piece of infrastructure, playing a critical role in the delivery of health programs, with even minor casualties such as an arm fracture requiring medical evacuation by air. The community airstrip also is a vital link in the delivery of other Government services, including law enforcement, education and mail, as well as facilitating employment, tourism and social interaction.

Often community people consider air travel as many other Australians would their public bus service and usually one or more charter aircraft can be permanently based at community airstrips to cope with high demand and use frequencies. The use of aviation as a means of service delivery is expensive relative to surface transport so Governments delivering services to remote communities by air and members of the communities themselves pay a premium for access to such services.

Issues have arisen where outstations have been built by the Aboriginal and Torres Strait Islander Commission (ATSIC). Often, an outstation will be accompanied by the provision of a graded area for an airstrip. However, funds are rarely provided for on going maintenance and given the climatic conditions of the Northern Territory, particularly in the Top End, the strips become hazardous in a relatively short time.

By agreement, with ATSIC, consultations were to take place before more community airstrips were built, however the Northern Territory Government is aware of several instances where consultations have not taken place.

Local employment

The Northern Territory Government recognises the importance of access and provides funding for the maintenance of 46 Aboriginal community airstrips across the Territory as well as a further 19 that are Government owned or that support medical evacuations. Community crews usually undertake the maintenance work, gaining additional training and employment opportunities. The Government has a commitment to upgrading those airstrips that are considered strategic, and has just spent $1 million to provide a new sealed airstrip at Port Keats, south west of Darwin. This arrangement parallels those elsewhere in Australia where many local aerodromes were transferred from Commonwealth control to a local authority, usually a municipal council.

Airport privatisation

The sale of the Darwin, Alice Springs and Tennant Creek airports to private sector operators is expected to provide opportunities for private development of infrastructure needed to complement growth in a number of industry sectors. The provision of warehousing and cool storage facilities for some horticulture produce is one possibility.

RECOMMENDATIONS

It is recommended that the Committee recognise:

- The importance of the Remote Air Service Subsidy (RASS) scheme to air mail delivery and communications for outback residents and businesses and support the continuance of the subsidy as an essential element of service delivery in remote areas.

- That the Aboriginal and Torres Strait Islander Commission (ATSIC) should consult the Northern Territory Government over the siting, construction and on-going maintenance of outstation landing areas.

- The value of the Aerodrome Technical Advice to Aboriginal and Torres Strait Islander Communities in Northern Australia consultancy. The inspections and maintenance provided by this consultancy should be continued and extended to communities south of the 19^{o}S parallel.

- That when essential monopoly community infrastructure is privatised, appropriate regulatory arrangements should be established to ensure the use of the infrastructure remains affordable.

RAILWAY

BACKGROUND

A railway to Darwin has been a long sought after goal of the Northern Territory and South Australian Governments. The Federal Government has a legal obligation to "construct or cause to be constructed" the railway (as provided for in the *Northern Territory Acceptance Act 1910*) but the Act does not include any requirement as to when this obligation must be met.

In 1997, the Northern Territory and South Australian Governments formed the AustralAsia Railway Corporation to advance the railway project and to attract a private sector owner/operator. Both the Northern Territory and South Australia have committed $100 million to the project, as has the Federal Government. These funds are in recognition of the public benefits expected to be generated by the project that a private sector consortium will be unable to appropriate (these benefits include reduced and deferred road maintenance outlays and lower road accidents).

The Adelaide to Darwin railway is the subject of a detailed bidding process that is aimed at selecting a successful consortium to build, own and operate the railway for an agreed period of time (expected to be around 50 years).

Three consortia have submitted bids for the railway, these and the major members of each are as follows:

- Asia Pacific Consortium: Brown and Root Engineering and Construction (incorporating Kinhill Pty Ltd) and Genesee and Wyoming.
- Northlink Consortium: Thiess Contractors, National Rail and the Commonwealth Bank.
- Southern Cross Consortium: Henry Walker Group Limited Bouygues and Australian Transport Network.

A preferred consortium is expected to be selected in June 1999 with the aim of contractual negotiations with that consortium being completed by late the same year.

Economic Impacts of the Railway

The Northern Territory and South Australian Governments have sought construction of the railway because of the economic benefits expected to accrue, particularly from:

- Lower transport costs for the existing freight that should reduce business and social cost structures across the Northern Territory,
- An increase in the share of Northern Territory freight demand supplied from South Australia. South Australia's share of this freight has been reduced in recent years by competition from suppliers based in the eastern States such as Queensland and New South Wales,
- The potential for major mineral cargoes and other freight to be carried at low cost. At present this is not possible in the Territory and any venture must be able to withstand road transport costs. Even though road trains operate throughout the

Territory, average road train costs for hauling freight are around 5-6 cents per net tonne kilometre whereas average rail rates are in the order of 3-4 cents per net tonne kilometre. Even lower rates are achievable for high volume bulk commodities, and

- The potential to develop landbridging opportunities for both imports and exports, particularly from South Australia and Victoria.

The railway should also be of national benefit through the economic growth expected to be generated in the Territory and elsewhere (the railway is expected to be of particular benefit to South Australia) and because of the reduced costs of providing transport services. This will allow Darwin to achieve its potential as a significant transport and logistics hub servicing our northern neighbours.

ISSUES

The Commonwealth has to a large extent withdrawn from active involvement in funding infrastructure in recent years but projects such as the Adelaide to Darwin railway provide evidence that there are grounds for the Commonwealth to review this position.

RECOMMENDATIONS

That the Committee recommend that the Commonwealth Government reconsider its approach to, and policy position on, the funding and support for infrastructure projects of national importance.

SHIPPING

BACKGROUND

With a large number of coastal and island communities only accessible by sea for all, or part of the year, the Northern Territory has always relied on sea transport.

Darwin is the home port for a fleet of international, interstate and intrastate shipping as well as a regular port of call for a number of other shipping companies. It plays an important role as a supply base for the Northern prawn fishery fleet and for off shore oil exploration in the Timor Gap and is also being included on the itineraries of an increasing number of cruise liners for travellers seeking a maritime tropical holiday.

Trade volumes through the port have increased by 58.5% over the last four years, however total trade handled through the port for 1997/98 was down by 3%, primarily due to a reduction in live cattle export numbers. It only slightly exceeded 1.1 million tonnes. The number of trading vessels calling at the port in 1997/98 increased by 10.9% compared with the previous year, with 996 vessels passing through. This was mainly due to an increase in rig tender activity. The number of trading vessels using the port has increased by 126.4% during the past five years.

Livestock and dry bulk account for 77% of the port's total exports with petroleum products and other liquid bulk providing 73% of imports.

The port serves seven shipping industry market segments:

- Livestock exports,
- Offshore oil and gas rig services,
- Container and general cargo,
- Dry bulk,
- Petroleum and other liquid bulk,
- Cruise vessels, and
- Non trading vessels (fishing, Naval, research, pearling).

Key segments

Livestock Exports. With the continued recovery of Asian currency and the development of new markets, this can be expected to grow. In 1997/98, this segment represented 29% of the vessels that called into Darwin, and 41.2% of the port's export tonnage. Cattle export numbers dropped from 470,000 head in 1996/97 to 304,000 head in 1997/98, a 35.2% decrease attributed to the Asian currency crisis.

Container and general cargo. This segment accounted for 12% of vessels' visits to the port in 1997/98 with 92 visits. The port handled 6200 TEU (66,000 mass tonnes) representing a 12% increase compared with the previous financial year. Import container volumes have doubled over the past four years, with a large portion from increased northbound coastal cargo from the east coast and the Perth/Fremantle area. Export container volumes have shown a steady growth during the same period even though Darwin has only a small manufacturing base.

Offshore Oil and Gas Rig Services. Rig service vessels represent 38% of the ports' business on a vessel call basis. An upsurge in offshore oil and gas exploration in the Timor Gap meant the number of calls by rig service vessels increased by 76.4% from 212 calls in 1996/97 to 374 calls in 1997/98. Rig tenders handled 65,000 tonnes of cargo across the wharf in the 1997/98 financial year, up 58% on the previous year. The first quarter of 1998 had the most intense rig service activity with 16 tenders serving five drilling rigs. This has since fallen to two tenders following a downturn in activity.

Expansion of the offshore oil industry may influence the development and establishment of a dedicated offshore logistics and supply base in Darwin. A logistics supply base arrangement that would meet the industry's short to medium term needs would include:

- Diesel fuel storage or piped bunkering services,
- Warehousing,
- Office space,
- Drilling/production workshop,
- Wharf frontage,
- Tubular storage and preparation facilities,
- Service company facilities and storage, and
- Level compacted land.

Cruise Ships. The port is being positioned to become a destination for this high yield visitor and passenger market. In 1998, Darwin received 16 cruise ship visits, after Sydney with 57 and Cairns with 24. A similar number is booked for 1999. Anecdotal evidence is that cruise ship interest in the region is increasing and that activity will grow. Options being explored include opportunities for home porting passenger ships in Darwin for the fly/cruise market and coastal cruising.

The Northern Territory Government has undertaken a study of the feasibility of providing bunkering capacity for of cruise ships visiting Darwin, many of which have relatively short range fuel capacities.

A $1.4 million passenger terminal development at Stokes Hill Wharf to cope with the demands for dockside services is due for completion in August.

Non Trading Vessels. More than 3900 of these vessels visited the port during 1997/98, with commercial fishing vessels comprising the bulk with 3330 visits. About 70 commercial fishing vessels are based in Darwin. The building of the Frances Bay Mooring Basin has attracted the bulk of the fleet. A total of 91 Royal Australian Navy and foreign naval vessels is scheduled to visit Darwin during 1999. The total number of crew visiting is about 11,600. Spending by crew members during visits is significant to local business.

Shipping services

Darwin is the only north Australian port well serviced by coastal shipping services from both the East and West coasts. Norwest Shipping operates a regular service to Darwin ex Fremantle and New Guinea Pacific Line (NGPL) provides a fortnightly service from Australia's east coast. Other lines operating include Perkins Shipping, offering a direct link to Singapore, the NGPL, with links to Europe, North Asia, the US and Europe and Australian Shipping Consultants.

The Future

The container and general cargo market segment is at the core of the Darwin hub concept and, with bulk cargoes offers the greatest potential for long term growth.

Studies of potential landbridge cargoes conducted by consultants for the Northern Territory Government identified commodities and trade from southern Australia most amenable to landbridging through Darwin. Southern Australian based importers and exporters can achieve substantial transit time for North Asia landbridging via Darwin with savings of nine to 10 days. Almost 100 commodities from southern Australia's north Asia trade would benefit most from the Darwin landbridging service, with a potential volume of at least 50,000 TEU. Trade with ports closer to Darwin in the BIMP-EAGA region could also benefit from transit time savings and result in increased trade volumes.

Mineral deposits in the Tarcoola – Darwin corridor may be developed with the availability of rail transport to bulk loading facilities at East Arm port. These include the proposed steel and energy project at Coober Pedy, phosphate deposits near Tennant Creek, garnet sands from Alice Springs and magnesite from Batchelor.

East Arm Port

The catalysts for the port's future development will be completion of Stage I of East Arm, the completion of the Adelaide to Darwin rail link and Stage II of East Arm to coincide with the railway's completion.

The first stage of the Northern Territory's East Arm development is in the final phase of construction. This new facility will not only provide both general cargo berths and a bulk liquids berth, but will complement the existing facilities near Darwin's central business district. Stage two, estimated to cost a further $100 million is scheduled to commence construction in the 1998/99 financial year.

The second stage will include an automated, high-capacity container facility. It is envisaged that this facility will eventually be capable of handling up to 500,000 TEUs per annum. A third stage is scheduled to commence construction in 2002/03 and will include an additional container terminal and a major bulk cargo handling complex.

The port facilities have been designed to accommodate a rail terminal with high speed links to Australia's southern States.

An improved hopper system for the discharge of bulk clinker/sulphur is being considered at East Arm Port. This will overcome operational and occupational health and safety problems from clinker and sulphur dust which have potential to increase port operating overheads through delays in shipping and clean up costs.

Port infrastructure that provides a separate bulk liquids/bulk solids berth is required to meet international best practice in safety and operational issues. A bulk liquid/bulk solid wharf contained in a multi-purpose wharf would also reduce operational flexibility and could cause queuing of shipping.

Rail interface

The process of selecting a consortium to build the Adelaide to Darwin railway from has started. Bids to build were lodged by the Asia Pacific Consortium, the Southern Cross Consortium and the Northlink Consortium at the end of March 1999. The assessment phase will take two to three months before a preferred consortium is recommended to the Northern Territory and South Australian governments in June.

The basis for construction is the existing domestic freight task although, once built, the railway would become available for other purposes, including landbridging.

Intrastate Shipping

Darwin is the main source of commodities and equipment used in remote coastal, near-coastal and island communities.

Perkins Shipping operates three landing craft full-time servicing about 17 large communities and towns and a number of homeland centres and outstations around the Northern Territory and Kimberley coast.

Details of tonnages carried are commercial in confidence, however the manifests range from refrigerated cargo supplying community stores to vehicles. Landings used range from concrete ramps in the larger communities to mud banks near communities in tidal rivers. The service operates around regular schedules as well as an on call basis to individual communities and is organised around tidal and other conditions. Rare delays may result from unexpected tidal or seasonal conditions.

The company operates its own landing equipment. In some areas, it pays royalties for the use of landing areas.

In major communities, the Northern Territory Government maintains landing ramps. The company reports it is able to operate efficiently with the present level of infrastructure provided.

EDUCATION

BACKGROUND

The gap between what is reasonably expected by the community in terms of choice and availability of educational services in the more mature, established metropolitan and regional areas of Australia and the Northern Territory is significant. The Northern Territory's population profile differs from the states in that it has:

- A relatively young group of people where 30.6% of the total population is less than 20 years of age,
- A relatively high proportion of the population (24.9%) that lives outside the major (in Northern Territory terms) urban centres, and
- A relatively high proportion of indigenous persons that comprises 29% of the total.

At self government in 1978, the Northern Territory lagged behind the states in practically every educational performance benchmark. Participation and retention rates, sectoral choice, academic achievement, the quality, quantity and dispersal of resources were among the areas challenging the new government. Since that time significant improvement has been achieved across all areas of educational service delivery.

Many of the educational services provided in the Northern Territory have had to be developed specifically to meet these unique characteristics. Systems and facilities inherited from previous remote administrations (South Australia in the urban centres prior to 1972, the Commonwealth in the non-urban area prior to 1972 and for the entire system until 1978) have required significant adaptation or replacement over the past 20 years or so. Much of the infrastructure is ageing and in need of urgent capital investment to maintain the integrity of these services.

In urban centres in the Territory, the level of community infrastructure has kept pace with the growth in population and the increasing expectations on the community with respect to the services provided. The major urban centres of Alice Springs and Darwin have access to both government and private primary and secondary schools.

Most communities are equipped with or have access to vocational and further education opportunities. The Northern Territory University located in Darwin provides tertiary education services to all major centres whilst other providers such as Batchelor College and other accredited tertiary educational institutions provide services to small and remote communities. Some Vocational Education and Training (VET) courses are also offered through Secondary Schools.

Major review

The Northern Territory Government undertook a major review of education in late 1998. The review re-affirmed the core business of the department as the development of healthy, well balanced and self-sufficient young adults who are able to take responsibility for their own lives.

The future focus for education is to:

- Deliver high quality and relevant student learning,
- Provide a safe, non-threatening learning environment that is conducive to teaching and learning,
- Direct all possible educational resources to schools,
- Ensure all infrastructure and allied services are in place to support schools,
- Create a system and culture that facilitates and values the education of children and the work of teachers, and
- Recognise the essential role of parents as partners in education.

ISSUES

Key resource related issues emerged during the development of the objectives for Northern Territory education including:

- Staff welfare and well being, particularly in small and remote areas. This relies on the availability of appropriate facilities and educational support, access to adequate housing and reliable services in communities,
- Streamlining systems to improve efficiency and effectiveness in the Territories self-managing schools. This will require significant improvement and upgrading of communication and data management systems between all areas of the department, most importantly in small and remote schools, and
- Access to a cost effective and reliable data and voice communications system. This is necessary to facilitate the provision of open learning/distance education programs to small and remote schools particularly in providing access to secondary and vocational training programs.

Provision of educational services to non-urban areas is constrained by the dispersed nature and size of the population. It can be argued that deficiencies in the communications infrastructure is among the most significant impediments to the further and continuing development of remote area services.

The Territory Government has placed a great deal of emphasis on improving the educational outcomes of indigenous people, a high proportion of them in non-urban centres. The Indigenous Education Strategic Initiatives Program (1997 to 1999) is an example of policies where key targets included:

- Increasing the number of Aboriginal and Torres Straight Islander people employed in education and training (In 1996, 11.3% of all indigenous persons employed by the department were in professional positions whilst indigenous employees comprised 23.8% of the department's total workforce),
- Ensuring access of Aboriginal and Torres Strait Islander students to educational services (no accurate data is available on the shortfall in demand between pupil places provided and the level of demand, particularly in the areas of early childhood and post compulsory education),

- Increasing participation of Aboriginal and Torres Strait Islander students in education and training (1994 data suggests participation rates in the 3 to 4 years cohort is 34.5% for indigenous and 56.8% non-indigenous; 5 to 12 years cohort 95.7% indigenous and 97% non-indigenous; 13 to 17 years cohort, 57.8% indigenous and 90.5% non-indigenous), and
- Provision of community development and training services for Aboriginal and Torres Strait Islander students (progression from primary to secondary – indigenous 89%/non-indigenous 101.1%; secondary to tertiary – indigenous 10.6%/non-indigenous 89.4%).

These programs are the subject of a further review. It is clear the focus will be on providing educational services to those Territory children previously disadvantaged by the poor economies of scale of service provision due to the small and remote nature of their communities.

As outlined elsewhere, the limited capacity of much of the telecommunications network means it is not feasible to access the Internet in remote schools, most of which have telephone access via the Digital Radio Concentrator System. This provides sufficient capacity for voice communications only. Either, Internet access on any level is not possible, or it takes an unreasonable length of time for any information to be downloaded – generally at STD timed call rates. Similarly, fax services often 'drop out' before a fax can be received.

The Government (through the Department of Education's Education 2000 plans – see below) is positioning itself to make greater use of available information technologies, for dissemination and for interactive use by students and teachers.

Improved service delivery

Adequate communications services will enable schools to provide appropriate levels of education and assist to remove the sense of isolation for staff. Internet access for teachers in remote areas would enable the electronic delivery of course material, professional development and on-line assistance.

At present the delivery of professional development to teachers in remote communities is not achievable due to the lack of locally available relief teachers and the time and resources involved in travel. Enhanced communications also would allow teachers to receive real time demonstrations as well as accessing professional advice and counselling.

The provision of adequate communications as well as other infrastructure can have a positive impact on staff morale and a consequent reduction in the high staff turnover rates in remote community schools. This would have an overall effect of reducing the cost to Government of providing educational services to remote areas.

Improved skill levels

Improved educational services to all sectors of the community will result in improved skill levels in the workforce. A highly skilled, competitive workforce is a pre-

requisite for economic diversification and development, particularly in remote areas of the Northern Territory where skill levels are low and a contributing factor to the low employment rate.

Improvements in the workforce skill levels provide a more cost effective training network and enhance the marketability of the workforce.

Government and private sector roles

The Northern Territory Government has jurisdictional responsibility for educational services for schooling and vocational training.

The tertiary sector is a joint Northern Territory University/Commonwealth responsibility.

There is continuing liaison between the Northern Territory Government and appropriate local government authorities in developing community infrastructure. The Northern Territory Government has announced its advanced communications strategy where tenderers are expected to provide solutions for access to remote communities.

The Northern Territory Government has provided significant financial assistance to the non-government education sector to grow and develop schooling options in the community. Historically, participation rates in the Northern Territory private sector have been well below the comparative private sector participation levels in other jurisdictions.

An initiative to encourage and facilitate private sector involvement in the vocational training sector is likely to continue.

Planning for infrastructure provision

The current system of land use planning and development in most areas works extremely well in coordinating development, particularly from the point of view of the provision of educational infrastructure. The system enables stakeholder representation and provides a sound framework within which strategic planning and capital investment decision making can take place, particularly in the more densely populated areas.

The Northern Territory Government has developed a strategic planning model that has to date focussed on areas of population growth, but will be adapted to include issues such as fitness for purpose of existing facilities and resources. The primary focus for the strategic planning model will be small and remote schools so that infrastructure deficiencies can be more accurately determined in the future. A program ensuring that improved permanent school infrastructure and adequate teacher housing is available has been in place for several years.

Strategic planning for educational services will embrace development of other community services including housing and health services, to ensure appropriate levels of coordination and where appropriate integration takes place.

Improved employment opportunities would have an immediate impact on the level of demand for social security.

There are also significant advantages in providing career goals that are available in young people's home communities, reducing the demand for non-local professional staff to be placed in communities.

Improving skill levels and educational attainment can also have economic spin-offs in facilitating the development of locally owned and managed enterprises.

The Government is also reviewing its Education 2000 plans for the provision of data and other information services to all schools. This will be finalised by July 1999.

RECOMMENDATIONS

It is recommended that the Committee recognise the importance of appropriate infrastructure in the effective provision of educational services.

It is recommended that the Committee recognise the need for:

- The Northern Territory to receive additional support to ensure that deficiencies in infrastructure leading to disadvantage in remote area communities are corrected.

- Significant improvement and upgrading of communications and data management systems between all areas of the department to improve efficiency and effectiveness in the Territory's self managing schools.

It is recommended that the Committee recognise that access to a cost effective and reliable data and voice communications system:

- Is necessary to facilitate the provision of open learning/distance education programs to small and remote schools, particularly in providing access to secondary and vocational education and training programs.

- Will have benefits in the areas of staff professional development and retention rates in remote areas.

HEALTH

BACKGROUND

Health is a fundamental determinant of an individual's ability to contribute positively to sustainable regional economic development and individual self-reliance. Conversely, economic development fosters good health. For example, employment, housing, education, transport, communications and social infrastructure all contribute to enhanced health outcomes. People in the least economically developed areas are also the least healthy.

Sustainable development in remote and regional areas will contribute to improving health outcomes through:

- Increasing employment, environmental health and educational opportunities,
- Enhancing the ability of services to be more sustainable, and
- Increasing the capacity of communities and individuals to become more self reliant.

Although regional economic development offers opportunities to improve health outcomes, pre-existing high morbidity levels will limit that development.

Remote areas of the Northern Territory have among Australia's highest morbidity rates.

The Northern Territory Government has adopted strategies to address health issues by increasing community capacity through the development of partnerships. Increasing capacity increases a community's ability to deal effectively with its own development issues, including health problems.

The Northern Territory's two Coordinated Care Trials and proposed health services management models in two Central Australian health services zones are prime examples. They may provide a useful model for achieving regional economic development.

Health and Health Service Infrastructure in Remote Regions

Outside the five regional centres of Darwin, Katherine, Nhulunbuy, Tennant Creek and Alice Springs, the population is overwhelmingly Aboriginal. These sparsely populated areas return the Northern Territory's worst health statistics and have the least well developed infrastructure relating to sustainable economic development and employment.

Unlike many regional areas in other States where private practitioners provide primary health services, in the Territory's remote areas these are provided through the Government's Territory Health Services. As a substitute to mainstream services such as Medicare funded General Practitioner and Pharmacy services, primary health services are provided through a network of community health centres and clinics that have permanent health staff. About 200 localities, including Aboriginal communities

with clinics, as well as, smaller communities, outstations, pastoral properties and mining and tourism operations may receive visiting services.

A lack of community infrastructure in these regions is a major factor contributing to the difficulties of attracting general practitioners and pharmacists, and in ensuring their services continue without significant ongoing government subsidies.

Services are provided to remote communities in accordance with:

- Population size (in general larger populations need more frequent and wider range of services than smaller populations),
- Remoteness (the further the distance from a regional centre, the greater the need to make services available),
- Demographic mix (children and the elderly generally require more services), and
- Health needs (chronic diseases require special management).

This may result in a smaller population with a high proportion of younger, older and chronically ill residents requiring more frequent and a wider range of services than a larger population of healthy adults and youth.

If a particular service is not available in a community, (eg acute care) residents in need are brought, often at considerable cost, to a centre providing the next appropriate level of service. In the case of a patient requiring acute care, the patient will be transported by road or air to the nearest regional hospital.

General Community Infrastructure and Health

Community infrastructure considered necessary to maintain basic health levels includes:

- Access to, or proximity to, a clinic with appropriate staff, such as nurses or Aboriginal health workers and appropriate equipment,
- Housing, and
- Water, waste disposal and power supplies.

Infrastructure needed to access community based clinic or higher level services if no clinic is on site includes:

- Communications between the community and main health centre or regional hospital,
- Adequate transport, and
- Roads and/or airstrip to ensure safe access to evacuate patients. If neither a road nor an airstrip is present, evacuation may occur by helicopter.

Health services may not be able to overcome the effects of sub-standard living conditions that demand a certain minimum of non-health community infrastructure.

ISSUES

Health and Regional Development

The impact of health funding on regional development

Fragmentation in funding has led to a fragmentation in health service infrastructure development, impacting negatively on the effectiveness of health service delivery.

Given the magnitude of the Aboriginal health problem and the ineffectiveness of mainstream Medicare programs in reaching the remote Aboriginal population, the overall health system needs structural changes to bring about better Aboriginal health outcomes and improve prospects for the effectiveness of infrastructure development in regional areas. The necessary structural changes will be based on the modelling of appropriate methods of primary health care service delivery.

Debate about regional development should consider resourcing methods of addressing Aboriginal health problems, especially in remote areas, by strengthening the Northern Territory's capacity to provide services and meet the predicted increased demand on its health resources. Because of a worsening Aboriginal health problem, the consumption of more of the Territory's resources for health services means fewer resources are available for other regional community development programs.

The impact of education on health

Aboriginal health will not be improved in a sustained way without an educated population and meaningful employment opportunities. Studies in Australia and overseas have confirmed the impact of educational attainment on health. An uneducated population severely limits the opportunity for sustainable regional development.

The unique living conditions experienced by Aboriginal children significantly impact on their:

- Educational and employment prospects,
- Ability to develop modern life skills, and
- Ability to participate effectively in any sustainable economic activity.

The impact of health on educational attainment and employment

Health is a determinant of educational attainment and learning ability wherever this takes place. A high percentage of Aboriginal school aged children are born underdeveloped due to poor maternal health and are more likely to suffer ill health and shorter life spans than those of normal birthweight. These children may suffer from preventable hearing loss and malnutrition throughout their school years, inhibiting their educational participation and achievement. The capacity of health and educational authorities to alter this outcome is limited without significant infrastructure development in remote communities.

Employment is crucial to sustaining health improvements and sustainable development is crucial for employment. Rural and remote communities in the Northern Territory have very few employment opportunities. Those that exist tend to require a higher level of educational attainment than that commonly obtained by Aboriginal people who live in those communities.

One of the most serious and immediate health implications of high unemployment levels often seen in remote communities is the growing incidence of substance abuse, particularly petrol sniffing.

Health and transport

Transport infrastructure is fundamental to the provision of health and other services to regional communities. Key factors exacerbating poor health status among people in isolated communities are:

- Distance from health and community services,
- The quality of the transport network, and
- Limited transport options to access services.

Providing adequate transport and access to health services is being made increasingly difficult as a direct consequence of the homelands movement in conjunction with land grants under the *Aboriginal Land Rights (Northern Territory) Act 1976* or living areas on pastoral leases,

Local Government and health services

Local government councils are often the only community management infrastructure on remote communities, delivering a range of services (including health services) that is far more extensive than that required of major municipal councils with large populations and significant revenue raising capacity.

While it is appropriate that councils should be the major service provider on remote communities they must be adequately funded and resourced by governments and agencies seeking to have services delivered.

Housing and health

Adequate housing is an essential for achieving and maintaining good health in any population group. In remote Aboriginal communities, living in inappropriately designed, poorly constructed and overcrowded housing makes it difficult for families to lead healthy and socially well adjusted lives. Recent statistics show that some remote regions of the Northern Territory, have an average population of 8.5 people per household – this hides the fact that in some cases the number is as high as 20.

Poor housing contributes significantly to the high prevalence of many environmentally transmissible diseases. In most cases providing suitable and adequate housing could prevent these diseases. All Australians, including Aborigines

in remote communities are entitled to good housing and other environmental conditions that promote good health.

Communications infrastructure

The fragmented nature of service delivery to regional areas that has developed over the past 25 years has given rise to:

- Potentially serious problems of coordination,
- Lack of a standard approach to patient management, and
- Inefficient use of resources.

All of which have presented significant impediments to improving access to services and health outcomes.

These problems have highlighted the need for a Community Care Information System which integrates all primary care service providers throughout regional areas of the Northern Territory with hospital based information systems

Telecommunications and health

Telecommunications is a basic and therefore indispensable service both for health creation and for the development of a community's economic and employment prospects

Telecommunications infrastructure needs in regional and remote areas are not being met. The Universal Service Obligation for telecommunications that requires Telstra to provide reasonable access to telephone services has not resulted in equality of access to services in remote areas compared with other areas of regional Australia.

Community Capacity Building

The Northern Territory Government believes the establishment and promotion of a community environment that minimises risks is fundamental to creating and sustaining health. A capable community with a range of services appropriate for its size and geographic location will be more attractive to outside development projects.

The process of creating and sustaining health promoting community settings may involve changing the physical environment, people's behaviour, social relationships, and systems of decision making and organisation. Communities must be sufficiently organised to participate with service providers in planning for any new development process.

RECOMMENDATIONS

It is recommended that the Committee recognise:

- That the success of any economic infrastructure development and employment in regional areas is dependent on a healthy population.

- The significance of infrastructure development for achieving health improvements in regional areas.

- The need for an inter Government and inter sectoral approach to community advancement through regional infrastructure development.

- The need for the Northern Territory to be given additional support to overcome infrastructure deficiencies that lead to health and other social disadvantage in remote communities.

LOCAL GOVERNMENT

BACKGROUND

The provision of infrastructure in remote communities in the Northern Territory remains one of the biggest challenges facing Government. Remote communities add to the unique composition of the Northern Territory economy.

The Northern Territory has about 800 named rural communities and outstations.

The population in remote areas is growing, not simply because of the move by indigenous people back to traditional country, but also because of better health outcomes and because people are both starting families at an earlier age and having more children than the Australian norm.

The growth in communities such as Ramingining, Galwin'ku, Wadeye and Maningrida creates special challenges in terms of housing and the provision of other services. Generally housing stocks in remote communities are run down and inadequate for the purpose. It is not unusual to have up to 20 people living in one dwelling. The 1996 Census of Housing and Population found that of the 2,031 houses in Australia that have more than 10 residents, 1,043 are in the Northern Territory and all are in remote Aboriginal communities. The current unmet housing need in Maningrida alone is estimated to be more than $29 million.

A number of structures associated with land tenure on Aboriginal freehold land discourage regional development in many remote communities. These include:

- Communal ownership of houses and property,
- The difficulty for individuals, family and clan groups to use land for commercial development,
- The protracted process for individuals or clan groups to enter lease arrangements; 15 years is a key period for lending institutions, yet any lease of Aboriginal freehold land in excess of 10 years for Government purposes and 21 years for other purposes has to be approved by the Federal Minister for Aboriginal and Torres Strait Islander Affairs, and
- A lack of education and of the business skills necessary to operate in the mainstream economy. Many remote area people have good business ideas, but lack the basic know-how of where to take them and how to develop them.

Economically sustainable enterprises on Aboriginal land are invariably run by small family or clan groupings.

Local government in remote areas is a prime source of employment but lacks efficiencies in the present form. The Northern Territory Government is assisting community councils to examine ways of gaining the benefits of amalgamations and alliances, for example from improved frameworks for service delivery and infrastructure provision.

The main areas with potential for employment administered through local government councils are:

- Community Development Employment Projects (CDEP). Probably the most common form of employment creation under which community members work about 20 hours a week normally for unemployment equivalents,
- Provision of community services, waste management, essential services, roads and airstrip maintenance,
- Housing management and maintenance with small building projects,
- Community store operations,
- Art and craft production and selling, and
- Community management roles.

The Northern Territory Government is assisting community government councils to find strategies to ensure that they accommodate more closely the demands of traditional decision making processes and conventional decision making. Structures being developed use a senior council or body of traditional elders sitting with the power of veto over a younger aged group of decision makers. The older group may have no power to initiate or authorise spending, but carry the power of review of the decisions of the younger group. These are decisions about money, operating the community store, council operations, the community airline or outstations. The system is working on one community effectively after the Northern Territory's Department of Local Government was approached for assistance in restoring stability there over 18 months ago.

Among the challenges faced by community government councils are issues associated with recruiting people with the right skills to manage the council's affairs and issues of economies of scale. Community councils are reliant on local government grants money and are unable to raise funds by other means.

Community government councils play a key role in initiating the development and building of infrastructure in remote areas, including local enterprises.

Mention has been made elsewhere that the Northern Territory's road network in remote areas is about 30 years behind the rest of the country, chiefly because recurrent funding has fallen short of the amount needed to make significant improvement. This is particularly the case in monsoon prone areas and less so in Central Australia. However, the upgrading of the remote area road network has the potential to create significant sustainable employment among remote area communities.

Key infrastructure may well bring further development. For example, improved road access in the Gulf between Borroloola and Limmen Bight will stimulate additional tourist traffic from recreational fishing and the four wheel drive soft adventure seekers. The flow on is likely to mean enhanced employment in the tourist service industries – fuel, fishing tours, charters, board repairs, accommodation, food services and art and craft. This area is a target for cooperative marketing between the Northern Territory Government and the Queensland Government.

HOUSING

BACKGROUND

Housing infrastructure funding in remote communities is allocated on a needs basis by the Indigenous Housing Authority of the Northern Territory (IHANT), a body comprising representatives of Aboriginal and Torres Strait Islander Commission (ATSIC) regional councils and Commonwealth and Northern Territory government departments. IHANT receives funding under ATSIC's Community Housing and Infrastructure Program (CHIP), the Aboriginal Rental Housing Program under the Commonwealth/State Housing Agreement and directly from the Northern Territory Government.

Housing developments are funded on a needs basis but are subject to the local government council, homeland resource centre or housing association having an adequate rental and house maintenance plan. In addition to money raised through rental agreements with tenants, each house attracts a $1,700 annual maintenance allocation.

The Northern Territory Government provides infrastructure headworks (water and sometimes off site wastewater disposal and electricity) on 82 rural communities – outside urban centres – of these, 13 have township status (eg. Elliott, Daly Waters, Finke &c.) leaving 69 on Aboriginal land. Reticulation on these 69 is installed by IHANT. Developers of housing install reticulation systems that are then managed by the Northern Territory's Power and Water Authority (PAWA). The roads network for new developments is built by IHANT, then maintained by the local community government council using local government grants.

The Northern Territory Government provides planning support in the 69 major communities and many outstations through the Serviced Land Availability Program (SLAP). The program uses aerial photography and mapping with extensive on-ground consultation to ensure new developments are laid out efficiently. This maximises the use of services and ensures community criteria that have to do with familial relationships and sacred sites are met.

For outstations, the Commonwealth (through ATSIC) provides the headworks - and IHANT the reticulation, to new housing.

New housing is only provided to outstations which meet the IHANT criteria of:

- being the permanent place of residence,
- having an adequate water supply,
- secure land tenure,
- adequate access, and
- an housing management plan.

The National Aboriginal Health Strategy funded by the Commonwealth through ATSIC has resulted in the allocation of approximately $133 million to the Northern Territory since 1996. A commitment has recently been given that the program will continue at the end of the current round from 2001 to 2003 with an allocation of

$80 million. The strategy is applied to environmental health projects around homelands and communities. The strategy spending has resulted in improvements to infrastructure such as the provision of common effluent schemes. However, in some areas it is, in effect, a defacto housing program.

Rural areas of the Northern Territory still face a substantial backlog in terms of unmet housing demand, despite moves to address it.

In 1992, the Aboriginal and Torres Strait Islander Commission (ATSIC) commissioned research into indigenous housing need Australia wide. Research was based on analysis of the 1991 Australian Bureau of Statistics Census data and a report, *The Housing Need of Indigenous Australians 1991*, was published in 1995. The report identified homelessness and overcrowding as the most equitable and consistent measure of housing need. The report identified indigenous Northern Territorians as accounting for 32% of the total national indigenous housing need, with 12% of the national indigenous population. More than a quarter of Northern Territory indigenous families were homeless, either living in improvised dwellings or sharing overcrowded multi-family housing, and a further 22% were in housing stress, their dwelling having fewer bedrooms than they need.

In addition to the enormous shortfall in indigenous housing, recognition should be given to the fact that much of the existing housing stock is aging or in poor condition.

Another factor affecting the Northern Territory is the remoteness and small size of many indigenous communities. There are more than 800 identified outstations or homelands in the Northern Territory and though many are only intermittently occupied, a large proportion provides the principle place of residences for people. It has been estimated that more than 80% of indigenous people living in outstations Australia-wide, do so in the Northern Territory.

Government employee housing on remote communities is based on departmental bids to the Northern Territory capital works infrastructure program and allocated on the basis of Government priority.

Effective maintenance programs:

- Create meaningful employment,
- Provide a reliable income stream that can support training and employment initiatives,
- Develop and maintain individual and collective skill levels, and
- Reduce the need for costly infrastructure replacement.

ISSUES

Economies of scale mean that it is very difficult to train and maintain sufficient skill levels among remote communities to allow the creation of a local building work force. Generally, housing programs may allow one or two houses to be built in a year. However, more opportunities exist for local work crews to be involved in maintenance programs. Repairs and maintenance programs provide a more reliable

funding stream that could support the employment of local people seeking trade qualifications than that provided by housing construction programs.

A lack of an appropriate and supportive environment to house trainees in major urban centres during trade school study periods is an identified barrier to enabling trainees to gain the necessary trades skills.

Notwithstanding the success with Community Development Employment Projects (CDEP) in some areas, more meaningful skills can be attained in maintaining community infrastructure, such as housing. CDEP can be useful in developing and enhancing skill bases, but needs to be well managed and more than just a work creation scheme.

CDEP has been acknowledged as having provided significant skills enhancement and an improved quality of life for participants in many cases. Others have achieved equally valuable social and cultural outcomes. It has been attributed with providing two-thirds of the jobs created for indigenous Australians. However, it is only one part of a range of measures needed to address disadvantage among indigenous Australians.

Reviews of the CDEP scheme have recommended adjustments to the scheme in an attempt to enhance it in the areas of:

- Skills development and training,
- Facilitating enterprise development,
- Addressing issues of inequities in benefits received by CDEP participants compared with Social Security recipients, and
- Industrial relations reform and funding issues.

Remote communities have the same needs and rights to equivalent levels of infrastructure as those in less remote areas. These rights include access to effective and efficient telecommunications, roads, health services and education.

People being granted funding to establish outstations no longer have access to funding for transport. The Aboriginals Benefit Reserve (ABR) no longer provides funding for community vehicles. Outstation people require reliable access to the health clinic, store and school at their main regional community.

Assessment of the value of economic activity in remote areas against standard criteria can fail to take into proper account the value of that activity in social terms and the connection between social development and economic development. In the case, for instance of Atitjere in Central Australia a small, well led and managed community has developed a strong community and work ethic that is now generating strong economic activity. Some of the enterprises may not be economically sustainable but in terms of the social and other cost avoided there is significant gain to both the community and the taxpayer.

RECOMMENDATIONS

It is recommended that:

- Resources provided to allow the Community Development Employment Project (CDEP) are expanded to all communities that want it, thereby giving people in remote areas a means to achieve greater dignity, self-respect and gain additional skills.

- The Aboriginal and Torres Strait Islander Commission, training authorities and industry organisations such as the Indigenous Housing Authority of the Northern Territory (IHANT) be encouraged to develop strategies that foster the movement of CDEP workers into full time employment.

- Support be targeted for enterprises based on Aboriginal families or clan groups to ensure that they develop into viable enterprises and that a range of opportunities including family enterprise and joint ventures be explored.

- Greater and more effective coordination occur between the National Aboriginal Health Strategy and the Indigenous Housing Authority of the Northern Territory over the transfer, as soon as possible, of NAHS funding for housing to IHANT.

- The Commonwealth reviews the level of funds being provided for local road development in remote areas with a view to addressing deficiencies in the road network and creating additional employment opportunities for people in these areas.

TELECOMMUNICATIONS

BACKGROUND

Much of the Northern Territory is without access to reasonably priced digital data telecommunications technology. The inability of the present infrastructure to deliver wide band communications to people who live in the most remote areas of Australia means that they are the most disadvantaged in terms of access to communications and services and are being left behind socially and economically.

History

The development of the present Northern Territory telecommunications system has meant that people living in remote communities or towns away from the major telecommunications trunk routes are excluded from receiving digital data transfer access under the Federal Government's telecommunications performance policy.

The current requirement under either proposed Universal Service Obligations or the current carrier licence obligations is for 93.4% of the population to have access to digital data transfer technology by 1 July 1997.

Of the 6.6% of people excluded by the 93.4% obligation, the majority live in the Northern Territory, with some in western Queensland and the north west of Western Australia. These 6.6% are people who are likely to be most isolated from any type of service and for example, are likely to suffer from a poor postal service and have little or no access to daily newspapers. They are also the people that do not have access to banking services and doctors' surgeries and who have to purchase additional retransmitter, translator or reception equipment to receive radio and television broadcast services.

Compliance of telecommunications providers with this obligation is based around proximity of the recipients to a "local exchange". Development of the telecommunications network elsewhere in Australia meant the delivery of services through a Telstra exchange. However telecommunications to Aboriginal communities in the Northern Territory developed during the 1980s, when Telstra had access to technology that did not require local exchanges to be installed.

Aboriginal communities, which joined the voice telephony grid in the 1980s, are mostly served by Digital Radio Concentrator System (DRCS) technology. Of the 66 major Aboriginal service towns (towns of more than 100 people), none has equipment meeting the Telstra definition of an "exchange" and about 43, are only served by the DRCS. This results in some features not being made available, or in higher costs for other services.

They are excluded from the Federal Government performance policy that Integrated Services Digital Network (ISDN) – 64 Kilobits per second (Kbps)[8] technology should be available to 96% of the population by the year 2000. The 4% excluded from this policy are people living in the remotest parts of the country and who only have access to the Digital Radio Concentrator System. This is because this performance policy is based around proximity to a telephone exchange.

This indicates a lack of awareness on the part of telecommunications policy makers, advisers and administrators of the issues associated with the remoteness and inaccessibility of many Northern Territory communities as well as the historical context of the network development.

The tendency to adopt a "one size fits all" approach to service delivery results in the emergence of inequities because of the Northern Territory's unique nature and of its telecommunications network.

A study prepared for the Northern Territory Government in 1997 suggests telecommunications policy makers, advisers and administrators are mistaken about the sorts of services provided to and in small towns. It also suggests that the remoteness and consequent inaccessibility of many Territory communities explains much of this lack of awareness by non-Territorians.

The Northern Territory Government's Submission to the Digital Data Review Public Inquiry (1998), identified 66 regional area communities of populations greater than 100 as having less than 64 kilobits per second (Kbps) telecommunications transmission capacity.

Most communities were actually found to have a 9.6 Kbps capacity. In practical terms, this capacity is enough for voice communications only - Internet based electronic commerce on any level is either not possible or takes an unreasonable length of time for any information to be downloaded. Similarly, fax services often 'drop out' before the fax is received.

A Northern Territory regional airline bought computers, printers and network connections to install an on-line flight reservation system into five remote towns. When the company attempted to install the system, it was told the system would not be supported on the communications lines and no plans existed to upgrade the facilities. The system required a minimum of 9.6 Kbps, while the communications lines guaranteed 2.4 Kbps – the minimum for voice telecommunications.

[8] A bit is the smallest unit of computerised data. Bandwidth is usually measured in capacity to handle bits-per-second. A full page of English text is about 16,000 bits (16 Kb). A fast modem can move about 15,000 bits in one second. The speed in bits per second is equal to the number of bits transmitted or received each second. Full-motion full-screen video would require roughly 10,000,000 bits-per-second (10 Mbps), depending on compression.

A Barkly Tablelands cattle property sought an Internet connection. The company planned to sell cattle over the Internet, check market prices, and receive detailed, current information that would benefit its business. A technician travelled to the property to carry out the installation but found the quality of the Internet connection was inadequate. The property only receives mail once a week, Without wide band telecommunications, the company is unable to participate fully in e-commerce and receive benefits and enhanced opportunities available to other Australians.

Community Needs

The Northern Territory Government argues that to maximise opportunities and benefits to people living in the most remote areas of the country access to telecommunications must be provided on the same basis as in urban and less remote areas. In order for this to eventuate, the Universal Service Obligation must be reshaped to provide for the capacity to deliver full digital data services to all.

The Northern Territory Government argues that the current specification for an Integrated Services Digital Network is incapable of reliably delivering the full variety of Government services to areas where service delivery problems are acute. It has sought at least 128 Kbps to support services such as fast access to data and reliable video conferencing. This will enable the delivery of effective services in the areas of education, social welfare and health.

The Northern Territory Government acknowledges recently announced proposals to amend the Universal Service Obligation to provide a digital data service of at least 64 Kbps capacity to Australians on demand, using satellite downlink technology. However, it notes that the ISDN operates on the basis of timed calls and that access will be subject to reimbursement of up to 50% only of the purchase price of the necessary satellite earthstation equipment.

It is likely that the initial capital cost may be beyond the financial resources of those who the Commonwealth Government intends the proposed new USO to serve. The Northern Territory Government argues that this does not sufficiently address issues of equity on the basis of affordability in terms of:

- The initial capital outlay, and
- On-going access costs.

The Northern Territory Government also notes that the proposal is only for a one-way link, using a satellite receiver, and existing telecommunications infrastructure for traffic from the user. This will not be sufficient to meet the needs of applications requiring significant bandwidth capacity, for example, telemedicine.

The Northern Territory Government notes that the Federal Minister for Communications, Senator Richard Alston, has made access to untimed local calls and Internet access for the cost of a local call to all Australians contingent on the sale of Telstra.

Opportunities

The quality of life for people in remote areas can easily be enhanced with the provision of access to adequate communications services. For example:

- People living in the most remote parts of the Northern Territory do not have physical access to doctors on 24 hour call either at a hospital or through a locum service in the same manner as their city counterparts. It is possible for a doctor in Alice Springs to treat patients via teleconference facilities. The patient can be visually appraised by video link and treatment can be administered by the nursing sister at the clinic under the direction of the doctor.

- Teachers in remote areas are often the last to receive professional development support because the costs of travel and distance (time to travel) is too high. Internet allows them to receive training and educational packages such as graphics and real time demonstrations as well as accessing professional advice and counselling.

- Many Northern Territory police stations only have 9.6 Kbps connections, meaning they are unable to access many of the information services required for modern policing. These include the ability to record, access and use data such as photographs of suspects, details of cases and drawings of crime scenes.

The net result of having access to adequate communications is that Aboriginal community members can maintain regular contact with community members in other communities, hospitals, prisons &c. Access also lessens the impact of distance for Government service providers working in remote communities, as they are more able to keep in contact with their professional peers and friends and relations living elsewhere. With access to high quality telecommunications, remote area business ventures are able to compete nationally and internationally.

A whip maker at Howard Springs in the Darwin hinterland conducts the majority of his business through his Internet homepage. Mick Denigan of Mick's Whips, is at http://www.mickswhips.com.au . With high speed data access to remote areas other practitioners of similar arts and crafts may also realise the benefits of using technology to sell their wares – spawning new cottage industries.

A new service provider offering Internet based international share transactions and advice has emerged in Katherine, rendering time and distance irrelevant and reducing performance indicators to the capacity and ability to perform. The web address is http://www.nt-tech.com.au/guppy/gup31.htm. Katherine is a major service centre with access to wide band high speed digital data capacity.

Alice Springs telephone book making service Centrebet had a client base of 6000 Australia-wide when it was decided to go online. Now, it has more than 30,000 punters from 100 countries and a $150 million annual turnover. Online betting accounts for about a quarter of Centrebet's business. Operator Terry Lillis attributes 50% of the growth to the Internet. It was the second company of its type in the world. The company's web address is www.centrebet.com.au/regframes.html

Ease of Delivery

Equity of access is deliverable using modern technology and should be delivered in the interests of regional development. Accessibility equates to affordability. Rural and remote locations are disadvantaged, and will continue to be disadvantaged, so long as disparities exist in the cost of providing and using telecommunications services between remote and urban localities.

Affordability has two components:

- Affordable connections from place of need to the global information network, and
- Affordable calls/services ensuring the viability of increased access for people in remote areas.

Northern Territory telecommunications consumers face additional disadvantage because they have relatively limited local call access. Extreme distances mean a higher proportion of STD calls, which add to the cost of business and the social cost of living in the Northern Territory.

The Northern Territory Government's experience has been that changes to cost and service provision have been demand driven rather than supply led. It has been estimated Territory businesses pay up to a 30% premium for telecommunications services compared with prices paid by south east Australian businesses, based on the existing price structure and the frequency of calls made outside the immediate location of the business.

A business located in southeast Australia may make 80% of its calls within a 50 kilometre radius, while a Katherine business may make only 40%. If the majority of the remaining calls are made at STD rates, the Katherine business clearly incurs proportionately more calls at STD rates, incurring long distance charges, calculated on a timed call basis.

As an example of how lower costs of services have been demand driven, is that since this was highlighted in Katherine, Telstra has redefined the STD zones to those in line with the eastern States, reducing some charges. It appears that it is necessary for a consumer to ask for changes, but that the initiative to offer more equitable prices structures is not taken by the provider.

Access to wide band technology can overcome the challenges of distance, allowing small communities to develop business opportunities, increase economic viability and alter the social implications of isolation. The sale of Aboriginal art on the Internet has removed the middle person and commissions, increased local incomes, developed self

sufficiency, increased employment and thereby improved self esteem among communities. It is demonstrable that wide band infrastructure can minimise threats to people in remote areas and enable them to maximise opportunities.

Benefits to business

Among the benefits to businesses and service providers in remote areas from enhanced data access are:

- Lower purchasing costs, through application of online systems to support the remote ordering and supply of goods and services,
- Reduced inventory holdings, through 'just-in-time' procurement,
- Lower cycle times for product development and service provision (of particular benefit to remote persons where delays in time and cost in travelling to clients can be avoided,
- Better customer service and increased productivity levels in relation to customer management (for example in terms of access to X-rays, diagnostic and other patient related information for patient management in health),
- Lower sales, marketing and processing costs – using low cost technologies like the Internet,
- New sales opportunities from expanded markets – facilitating the ability for remote artists and craftspeople to advertise their work to a global market on the Internet,
- Lower capital and distribution costs through online delivery,
- One-to-one marketing and matching an individual consumer's needs, and
- Better informed customer markets.

Increased access to technology through enhanced telecommunications has resulted in the seeding of new industries and made time and distance independent. The provision of access and opportunities will stop the drift from rural to urban areas.

Aboriginal art and craft organisations believe access to technology and the use of e-commerce can snare a greater share of the indigenous art market. The indigenous art industry is estimated to be worth around $200 million dollars a year. Artists' representatives believe only 1% of that is retained in the Northern Territory to directly benefit the artists and their communities. To counter this, Desart Inc in Alice Springs is planning a virtual gallery attached to its existing website at www.desart.com.au to further develop the opportunity for web sales. This site has links to other indigenous arts and crafts organisations.

Enhanced telecommunications can increase the amenity of a place, making it attractive to move to, and remain in. The turnover rate among staff of Government agencies in remote communities is approximately 50% per annum. This not only disrupts services to the communities affected but also incurs significant additional costs for the relevant agencies in recruitment and relocation.

Modern telecommunications infrastructure can be used to provide staff with a range of facilities that would ameliorate the effects of isolation; these facilities could include the use of:

- Electronic mail;
- Department wide communication systems;
- Ongoing professional development programs; and,
- Information and entertainment services.

ISSUES

Small towns and communities in the Northern Territory provide the same services to their population as other Australian towns eg. health services, education, power, water, sporting amenities, law and order. Service delivery in these towns by all levels of government and the private sector is seriously impeded by the way the Universal Service Obligation and "capital contribution" policy is implemented by Telstra.

Studies for the Northern Territory Government indicate there is a very good case for the capital component of telecommunications infrastructure capable of delivering higher speed digital data services to be provided at no cost to the consumer, on the grounds of equity.

Advancing the growth of infrastructure (and telecommunications services) to increase access to on-line services

The Federal Government's intention to include the provision of 64 Kbps ISDN services to at least 96% of Australia in its Universal Services Obligations for telecommunications carriers is admirable. However it requires closer scrutiny before it is accepted as the most cost-effective way to address the telecommunications needs of rural and remote areas. In the Northern Territory, the distances over which ISDN lines need to be laid are so vast, and the populations so small in number and widely dispersed that the capital outlays required to achieve the stated 96% coverage are potentially excessive.

The Northern Territory Government notes the recent announcement of a proposal to provide access on demand to 64 Kbps capacity through satellite communications to the 4% of people not serviced under the proposal mentioned in the preceding paragraph. It notes that the proposal is based on a subsidy of 'up to 50%' of the purchase price of receiving equipment by the subscriber. It makes no mention of the level of recurrent costs of access. The Northern Territory Government maintains that access should be at 128 Kbps to ensure adequate and equitable capacity for all users.

The Northern Territory argues that the proposal only considers the need to provide satellite receiving capacity with the use of existing infrastructure for communication from the remote station. This will be insufficient to meet the needs of users requiring high data capacity, such as telemedicine.

The cost-effectiveness of satellite communications needs to be more closely considered as an alternative to laying out ISDN cable lines. In the Northern

Territory's case, satellite communications appear to have the potential to be more readily accessible and should be a more cost-effective solution, **provided ways can be found to bring the recurrent cost of accessing satellite communications more into line with the cost of communications through ISDN lines.**

Currently there is too wide a divergence between the recurrent costs associated with the two communications systems. For example the best quotations that an agency has secured in relation to a proposed service is $1,500 per month for ISDN communications and $7,500 per month for satellite communications. If a way cannot be found to make the cost of satellite communications comparable with that of ISDN, communities that have to depend on satellite communications will suffer significant disadvantage.

Capacity

The ability to access wide band communications services capable of transmitting data at 128 Kbps is fundamental to the economic, social and cultural development of all Australians.

For telemedicine to function, a minimum of 128 Kbps is needed. 64 Kbps is sufficient for voice and data, but not for the transfer of real time video images required for remote diagnosis of patients.

A suite of technologies, including satellite, optical fibre, High Capacity Radio Concentrator Systems, microwave and existing infrastructure, should be considered. The use of services other than satellite can have spin offs in terms of providing enhanced accessibility to locations en route that might otherwise not have this access.

Cost/benefit analyses

Calculation of the costs and benefits of providing narrow and wide band data services in remote areas is impeded by the difficulty of predicting the economic use to which future data services might be put.

While it is clear that benefits will flow from the introduction of data services, which can in turn increase the efficiency of service delivery, the totality of benefits is more complex. The rate of change, and take up of services is dependent on accessibility and affordability of broad band communications services.

Planning, coordination and cooperation

Issues of equity are matters of concern for all Governments. The equitable provision of telecommunications services aimed at maximising outcomes for remote area residents is a matter for the Commonwealth in terms of the Universal Service Obligation. It is a matter for the Northern Territory Government to act as an advocate on its own behalf as well as on behalf of its people to ensure issues of equity are addressed.

Hitches

Telecommunication technology should not be seen as an end in itself. Often it is seen as the single "tool" of the future, but telecommunications without the right supporting social, physical and administrative framework is pointless. It is difficult to state categorically the benefits of introducing increased telecommunication facilities, although it is a significant factor in encouraging economic growth, new industries and consequently, sustainable development in communities throughout the Territory. While it could be argued that any proposed increase must be tempered by a pragmatic approach and consideration of cost factors, wide bandwidth telecommunications are becoming as essential to lifestyle and existence as is access to a good water supply and road communications infrastructure.

An issue frequently overlooked is that many communities along the Stuart Highway and other routes where there is immediate proximity to the optical fibre cable do not have access. The cost to the first member of the community in paying Telstra to provide a link into the cable is too great for the small business to bear.

Connections between remote schools and Internet service providers in urban centres are made along Digital Radio Concentrator System telephony channels. They are too slow to provide meaningful assistance and because of timed calls they are uneconomical to operate.

RECOMMENDATIONS

It is recommended that the Committee recognise that:

- The provision of acceptable telecommunications services is necessary and a matter of equity to achieve a reasonable quality of life in regional and remote areas.

- 100% coverage of telecommunications services is required to provide equal provision of services to all Australians,

- Services should be provided on an equally affordable basis and that access should be provided at a local call cost where possible.

- State and Territory Governments should be closely involved in the specification of new services under telecommunications Universal Service Obligations to ensure that the required levels of service delivery meet actual service delivery needs.

- Universal Service Obligations should be upgraded to focus on service provision to high priority areas where there is a user demand. The required level of service should be at least 128 Kbps.

- Carrier licence obligations be reviewed to ensure they are focussed on service provision to remote and regional areas and the required level of service should be at least 128 Kbps.

POWER, WATER AND SEWERAGE

BACKGROUND

The Northern Territory's Power and Water Authority currently has a dual role. It has regulatory and service provision functions for electricity, water and sewerage services, across a significant proportion of the Northern Territory. In the future, in line with national competition policy, service and regulatory functions will be separated.

The Authority's major functions and responsibilities are to:

- Provide and supply energy, water and sewerage services, and
- Promote and manage the use of resources in an economic and environmentally responsive manner.

The Power and Water Authority Act requires the Authority to "act in a commercial manner".

In situations where the Authority considers infrastructure or a service can not be provided except with a financial contribution from Government, the Northern Territory Government may make an appropriate contribution to the provision of the infrastructure or service. In these cases, the infrastructure or service is provided as an identified Community Service Obligation.

Customer demand is the driving force behind the Authority's commercial operations.

As a Government Business Division, the Authority is required to:

- Operate along commercial lines for the provision of commercial services;
- Move to recovering full costs from all users of commercial services;
- Pursue cost efficiency in the provision of services.

As the Authority is in competition (directly and indirectly) with the private sector, Government guidelines require prices to include a provision for an appropriate commercial rate of return on equity. Likewise, any annual dividend is to reflect the rate of profit.

Key Performance Indicators

The Authority's key financial performance indicators are:

- The rate of return on assets;
- Debt-to-capital ratio; and
- Annual dividend payout ratio.

Strategies

The Authority pursues the following business strategies:

- Focussing on the construction or acquisition of new assets that maximise the rate of return on investment,
- Minimising the Authority's fixed asset base by identifying surplus and negative-value assets,
- Reducing operating and maintenance costs in network components of the Authority's business,
- Reducing working capital and inventories, and
- Ensuring that prices not subject to regulation by the Government are cost-reflective.

These financial strategies are pursued without compromising the Authority's broader business objectives of:

- Providing a continuous, reliable, safe and value-for-money service;
- Maintaining the operating capability to provide for expected future customer demand for electricity, water and sewerage services;
- Bearing the lowest possible risk in achieving its business targets; and
- Meeting Government policy objectives and directions.

Community Service Obligations

The Authority provides three major Community Service Obligations and a large number of Community Service Obligations of lesser value, not all of which are separately costed.

These are:

- **Aboriginal Essential Services**

  Aboriginal Essential Services focus on four main areas:

  - The delivery of electricity to 82 rural and remote communities,
  - The supply of potable water to 82 rural and remote communities,
  - The collection and disposal of sewerage in 35 rural and remote communities, and
  - Limited support for potable water supplies to 400 outstations on a "self-help" basis.

  In the foreseeable future, these services can not be delivered at full-cost to the majority of consumers in Aboriginal communities. Domestic households in Aboriginal communities are charged the Territory wide, or uniform, tariff for electricity services, but water and sewerage services are provided at no charge.

The uniform Territory tariff is applied for electricity, water and sewerage services delivered to commercial services operating in these communities.

- **Uniform Tariffs**

  The Northern Territory Government maintains a policy of uniform tariffs for PAWA's services throughout the Territory. In the past, the policy has required service delivery costs in high-cost centres to be offset to some extent by cross-subsidisation from earnings in lower cost centres, with the Northern Territory Government funding the balance.

  However, the future introduction of market contestability for certain customer classes will reduce the capacity for cross-subsidisation between customer classes and service centres. In recognition of this, from 1999-00 the Authority's uniform tariff Community Service Obligation will be fully funded from the Northern Territory Budget.

- **Pensioner Concessions**

  The Northern Territory Government fully funds a rebate on pensioners' electricity, water and sewerage accounts.

Statutory Obligations

The Authority has statutory obligations in relation to three acts and regulations relating to its functions as a provider of electricity, water and sewerage services.

Its obligations comprise the provision of electricity, including the planning and coordination of the generation and supply of electricity, safety issues, evaluation of Northern Territory needs and advising the Minister on all issues relating to electricity.

The Authority is also responsible for the processing, distribution and trading of gas required for its electricity production function.

ISSUES

The challenges facing the Northern Territory electricity industry mainly relate to the small size of the market which has led to conflict between realising economies of scale and introducing competition. The cost of delivered fuel, primarily gas from central Australian fields, and diesel in remote stations, is a second major challenge. It is generally accepted that 600 megawatts capacity is the point at which power generation achieves some measures of economies of scale at plant level. Peak loads in the Northern Territory's largest market, the Darwin-Katherine grid are less than 220 megawatts.

In a small system such as the Territory, reliability of supply and the volatility of load necessitate a combination of plants to guarantee service levels. There is no "spinning reserve" to bring on line in the event of individual plant failure. Other evidence suggests that the efficient scale for electricity distribution systems occurs at between

1.5 to 2 million customers. The Northern Territory system has about 66,000 customers spread over a number of individual distribution networks, with the largest system (Darwin-Katherine) having 46,000 customers.

The vast distances between the Northern Territory's regional centres and other Australian markets means it is uneconomical for the Territory to connect to the national electricity grid. The Industry Commission estimated that about a quarter of the total benefits of the National Competition Policy would be accounted for in electricity reform.

The development of power generation facilities at mine sites is a matter for individual mining companies and is a part of its overall assessment of a project's viability.

The Northern Territory's general experience has been that the lead times involved in developments have meant that, in general, infrastructure provision has adequately kept pace with development.

Darwin water supplies

The development of Darwin has reached the stage where options to augment the existing water storages are being examined. Development of water storage is a major capital infrastructure investment and decisions are made in response to a number of considerations. It is likely that any future water storages in the Darwin region will not only supply the urban area but be used to source water for intensive agriculture and aquaculture. Assured water supplies are fundamental for future development.

Significant additional storage can be provided without impacting on dry season flows in Top End watercourses. They would provide increased opportunities for hydropower generation and primary and secondary industry development, as well as recreation.

It is estimated that the area of land irrigated for agriculture and horticulture in the greater Darwin region could increase 10 fold, if only 800,000 megalitres were harvested and stored. Among the crops that could be grown are cotton, sugar cane, mangoes, bananas, and nursery plants.

Additional uses for stable water supplies in the Darwin region include its use as a coolant in Liquefied Natural Gas plants and potential manufacturing such as plastics and fertiliser plants.

Legal Obligations

The Authority's major stakeholder, the Northern Territory Government, is a party to the 1995 Agreement on National Competition Policy for Australia. In 1996, as part of its response to the principles of the National Competition Policy, the Northern Territory Government published a statement on Competitive Neutrality. The Authority operates within these guidelines.

A comprehensive review of the Power and Water Authority that commenced in 1998, considered a range of major issues. These include the Authority's future direction, the separation of regulatory and commercial functions, and the development of regimes to govern access to the Authority's infrastructure.

The Authority currently performs regulatory and service provision functions, including planning for electricity, water and sewerage network augmentations but in the future, in line with National Competition Policy, regulatory and service delivery functions will be separated.

Environmental Obligations

The ecological environment is a major consideration for the Authority in its service provision. The Authority aims to conduct activities with a minimum impact on the environment, consistent with community expectations.

It is actively seeking to enhance the degree to which it can reduce the environmental costs of its operations and is increasingly required to document and report to government regulators and the public on its environmental performance.

GLOSSARY

ABR	Aboriginals Benefit Reserve (formerly the Aboriginal Benefits Trust Account)
ACCC	Australian Consumer and Competition Commission
ATSIC	Aboriginal and Torres Strait Islander Commission
BIMP-EAGA	Brunei, Indonesia, Malaysia, Philippines – East ASEAN Growth Area
BOOT	Build Own Operate Transfer
CDEP	Community Development Employment Project
CHIP	Community Housing and Infrastructure Program
DRCS	Digital Radio Concentrator System
EFTPOS	Electronic Funds Transfer at Point of Sale
GDP	Gross Domestic Product
GSP	Gross State Product
IHANT	Indigenous Housing Authority of the Northern Territory
ISDN	Integrated Services Digital Network
Kbps	Kilobits per second. A bit is the smallest unit of computerised data. Bandwidth is usually measured in capacity to handle bits-per-second. A full page of English text is about 16,000 bits (16 Kb). A fast modem can move about 15,000 bits in one second. The speed in bits per second is equal to the number of bits transmitted or received each second. Full-motion full-screen video would require roughly 10,000,000 bits-per-second (10 Mbps), depending on compression.
LNG	Liquefied Natural Gas
NAHS	National Aboriginal Health Strategy
NCC	National Competition Council
NCP	National Competition Policy
NGPL	New Guinea Pacific Line
PAWA	Power and Water Authority
RASS	Remote Air Service Subsidy
SLAP	Serviced Land Availability Program
TEU	Twenty foot equivalent units (shipping containers)
USO	Universal Service Obligations
VET	Vocational Education and Training
ZOC-A	Timor Gap Zone of Cooperation Area A