



Mr Stephen McGinley (Director)
Rural Technologies Pty Ltd
ACN 086 876 397

Rural Technologies Pty Ltd

36 Derry St
ROMA Q 4455

Phone : 0418 884066
Email : stumbles@tpgi.com.au

Information Technology and Telecommunications Systems Design and Support

Committee Secretary
Standing Committee on Primary Industries and Regional Services
House of Representatives
Parliament House
CANBERRA ACT 2600

18 April, 1999

Dear Sir / Madam,

Thankyou for the opportunity to provide feedback to your committee on the importance of infrastructure in the development of Australia's regional areas. My submission to your Committee is based primarily on the importance of telecommunications infrastructure as a vital component in the potential growth of these areas. I am currently contracted to the Roma Town Council as an Information Technology and Telecommunications Consultant working on Networking the Nation projects for the Maranoa region of the State. Through this work it has become evident to me of the importance that telecommunications infrastructure will play in any future developments in regional, rural and remote areas of Australia.

This submission highlights the potential usage of existing telecommunications infrastructure and its importance as a mechanism in allowing modern information technologies to reach and to be used by all Australians. I have included details of current work being progressed through a number of projects being developed in south west Queensland. I have also detailed some of the concerns and views raised by locals at recent meetings that I have held in various towns in the Maranoa region and other surrounding regions. The attached pictures provide graphic evidence of the type of telecommunications infrastructure in place in rural and remote areas.

The question of how to develop Australia's regional areas is obviously a very complex issue with many differing needs having to be addressed, including taxation systems, commodity prices, use of technology, transportation, marketing and promotion and so on. The solutions to finding a workable mix that will provide the basis for social and economic growth in regional, rural and remote areas needs to be found as a National priority. There is a great opportunity awaiting us as a Nation to take on the task of redeveloping inland Australia for the benefit of all. This can be achieved through Government, industry and communities working together. Hopefully my input in the area of telecommunications and information technology will be of use for discussion by your committee.

Please note that I have asked two of my Associates to view the attached submission for any further input. Both of these people are in agreement with what has been detailed and are willing to provide further feedback to the Inquiry if and when required. Contact details for my Associates are attached.

I look forward to providing any further assistance to the Committee at hearings in Canberra or to the members of the Committee whenever they have the opportunity to visit Roma or the Maranoa region of Queensland.

Yours faithfully,

Stephen McGinley
att.

ASSOCIATE CONTACT DETAILS

Name	Address	Phone	Fax	Email
Mr Billy Gusset	Project Officer Wide Bay 2020 PO Box 979 BUNDABERG Q 4670	07 4154 0168	07 4154 0196	billy@widebay.net

PROFILE

- Over 20 Years experience in telecommunications industry working in rural areas.
- Project Officer responsible for the development of the Regional Communications Information Network (RCIN) now known as the Growzone Online.project.
- Supporting Project Officer for the Maranoa Telecommunications Enhancement and Manufacturing Project (M-TEAM) which is being evaluated by Networking the Nation for up to \$1.35 million in funding.
- Supporting Project Officer for the LINCIT Project which is being evaluated by Networking the Nation for up to \$3 million in funding.
- Supporting Project Officer for the Burnett Inland (BITS) Project which has received \$675 million from Networking the Nation.
- Involved in other projects where up to \$500,000 in funding has been secured.
- Previous co-owner of Advance Communication Pty Ltd in Roma.
- Prior work as Technical Officer and Rural and Remote Co-ordinator for Telecom Roma District.

Name	Address	Phone	Fax	Email
Mr Kerry Nufer	Principal Engineer NUFER & Associates 325 Jackson Road SUNNYBANK HILLS Q 4109	07 3273 1793	07 3273 5493	kd@nufer.com.au http://www.nufer.com.au

PROFILE

- Over 20 years experience as a telecommunications and technology management engineer.
- Project Officer responsible for the development of the LINCIT Project.
- Employment with Qld Police Telecommunications, Snowy Mountains Hydro-Electric Authority and Mitec Ltd.
- Design, development, implementation and project management of microwave telecommunications for RADAR and other navigation systems in Shanghai and up the Pearl River in Southern China.
- Implementation of Digital Microwave Telecommunications around the Snowy Mountains including the highest powered microwave repeater in Australia at Grey Hill in the Snowy Mountains.
- Provision of telecommunications for installation of the gas pipelines and other SCADA infrastructure throughout Queensland.
- Business planning, technical consultancy and implementation schedules for comms roll out.
- Please refer to web site <http://www.nufer.com.au> for further details.

TELECOMMUNICATIONS INFRASTRUCTURE AND TECHNOLOGY

If we were to try to take a look at where technology is taking us in 10 years time you would probably find that there will be a greater convergence of information and telecommunication technologies. These are, and will continue to be, the real growth industries in the next decade and the effects of this growth will cut across all traditional industries. To provide economic growth in regional, rural and remote areas, people living in these areas must have access to the tools and mechanisms to conduct business as efficiently as possible. The growth of the Internet as a business tool is a classic example of this. In regards to telecommunications, people living in many of these areas are presently distinctly disadvantaged. The Networking the Nation initiative of the Federal Government is making some inroads to help address this situation. However much more emphasis needs to be placed on providing the right solution in delivering a reliable, effective and flexible telecommunications platform for people living and working in these areas. The proposed Telstra Future Mode of Operation does not seem to offer the solution the people in the bush are really looking for. The proposed solution of using satellite downlinks for inbound traffic and using the current PSTN for outgoing traffic should be of concern to all Australians as it has the potential to leave people living in rural and remote areas further behind their city counterparts. There are benefits of having satellite links, particularly in the more remote areas of the nation. The question that needs to be asked is why not progress the extensive terrestrial network that has been developed by Telstra over the last 20 years and beyond? Through the utilisation of current terrestrial infrastructure and modern broadband microwave solutions there is the potential for all Australians, regardless of location, to have access to quality voice and high speed data telecommunications.

Telstra, being the current Universal Service Provider, has invested millions of dollars in establishing a network of towers to provide people living in rural areas with telecommunications. In many cases people are using Digital Radio Concentrator Systems (DRCS). These systems are currently being replaced by HCRC systems over the next few years. Even with this upgrade, data traffic will be restricted to 19.6Kbs which is still too slow for many Internet type applications. A potential solution is to continue to upgrade the terrestrial telecommunications network and utilise modern broadband microwave technology to provide high bandwidth and quality telecommunications. This will be evidenced in the development of a project named LINCIT which is being managed by the South-West Strategy Group in Charleville. Details of this exciting project are attached. Also attached is a copy of Telstra's current Transmission Plan for Queensland showing optical fibre cable and microwave radio infrastructure and paths. From this plan you will see that the backbone for broad base terrestrial telecommunications is set in place in most parts of the State. Not shown on this plan are the numerous repeater and homestead towers used with the current DRCS and HCRC systems. For example there are two 100 metre high towers approximately 40 kilometres apart, south of Morven, which are purely used to service DRCS customers. Multiply this scenario around other areas of the State and you will soon form the picture of a great deal of infrastructure set in place with a lifespan of at least another 20 years, but which is under utilised in the technology and services being used and provided. With the deregulation of the telecommunications industry and the potential for tendering of the Universal Service Obligation there is the opportunity for other players to enter the market to deliver better telecommunication solutions to the bush. This infrastructure must be opened up for use by other carriers in a cost effective manner. Currently, Telstra charge exorbitant fees for the fixing of antennae and associated telecommunication's equipment using their towers and base sites. In some cases this can equate to \$7000 per antenna, per site, per year. It should be a priority of the Federal Government to allow other carriers willing to provide better solutions in rural areas to have access to the current infrastructure at a much more reasonable rate.

Deregulation of the telecommunications industry should parallel the way our airlines operate. You have your main carriers along with a number of regional or spur operators. The same picture could be drawn over the top of the telecommunications industry with a carrier such as Telstra being the main backbone carrier and other smaller carriers feeding into it. It is expected that due to the changes in the telecommunications industry, as mentioned, that a

number of rural telecommunications companies could be formed to provide the best solutions for people living in regional, rural and remote areas. At the moment Telstra is not offering the best solutions for people living in the bush and this being the case, these people, their communities and their Shire Councils should take the matter and seek out the best possible alternative solutions to provide real and lasting benefits. If a case can be developed for local Shire Councils to form their own non-profit rural telecommunications company, then they should be entitled to use the Telstra infrastructure at a dramatically reduced rate in order to provide a better telecommunications solution to their communities. This should be considered in any privatisation plans for Telstra and included in any social bonus. The proposed Telstra plan takes away any form of community input in the way people wish to communicate in the bush. It is the case of yet another platform being pressed upon people living in rural communities whether they like it or not. The proposal of forming rural telecommunication companies to become licenced carriers, owned by the communities, will allow for community control over the telecommunication technology to be used and will return to them some form of competitive advantage.

The inquiry should set as a priority, the drafting of a mosaic or overlay of existing infrastructure that is and could be used to provide the most effective terrestrial telecommunications network for regional, rural and remote areas. If you were to take a drive through almost any rural area you would notice the tall Telstra towers, the grain silos, telephone and power poles, other towers and lines. On top of this you could map the players who currently have their own private infrastructure in place such as electricity companies, Grainco, the Department of Defence, State railways and other Government Departments. This will also highlight the unnecessary duplication in the provision of infrastructure in some areas. This seems to be evident in the duplicate rollout of fibre optic cabling up and down the east coast of Australia by not only private operators but with the support of the State Government with little or no attention being paid to what could be provided to the areas most in need, west of the Great Divide. The final picture will show the missing pieces of the infrastructure jigsaw. By strategically placing additional towers to form a grid pattern, the majority of inland Australia could be networked terrestrially. This would be a very large and expensive project but with the current profits being made by telecommunication carriers it would be a good investment for future generations and for the benefit of the Nation. The platform for economic growth on the basis of quality telecommunications infrastructure and services would then have been addressed.

WORK BEING CONDUCTED IN SOUTH WEST QUEENSLAND

In the south west corner of Queensland a great deal of work has been undertaken to provide the benefits of modern information and telecommunications technology to people living in communities. The first step has been the development of the Growzone Online project or Regional Communications and Information Network. This project has been funded with \$2.65 million from the Regional Telecommunications Infrastructure Fund as part of the Networking the Nation initiative. It will provide a data communications platform to all people living in southern inland Queensland, providing local call cost access to the Internet, regardless of location. It will also feature a local Intranet for the promotion of local businesses, services and activities within the region. The economic development organisation for the region is the Growzone Development Network. Staff from this organisation continue to search to secure industry investment in the region and promote the availability of the data communications platform. The project also plans to provide high speed access to the Internet for up to 50 Information Management Centres, with each centre to be allocated a high speed data line, 3 personal computers, videoconferencing equipment and active network equipment. It is the responsibility of each Shire or Town Council to leverage off this platform being provided by Growzone and offer community access to these computers and to the Internet. The Maranoa region is leading the race in developing a network of Information Management Centres. This includes Internet Cafes at Mitchell, Injune and Carnarvon Gorge, an Enterprise Centre at Surat, enhanced library facilities at Wallumbilla and Yuleba and a Telecentre in Roma. When fully developed, these facilities will see the Maranoa as a region being "Online and Connected", using modern information technologies, to provide benefits to local communities and businesses.

The last mile problem, or providing quality telecommunications to local property owners is the final issue to be resolved. At present most property owners are poorly serviced by digital radio systems such as DRCS or HCRC supplied by Telstra. These systems are often unreliable and are not suitable as a platform to deliver high speed access to the Internet. As mentioned, modern broadband microwave radio solutions using terrestrial infrastructure is the potential solution for these people. The LINCIT project to be conducted as a trial of up to 40 homesteads between Charleville and Morven will utilise ATM switching technology over broadband microwave to provide up to 2Mbs of bandwidth to these properties. This will allow for quality telephone and fax usage, high speed access to the Internet, videoconferencing and video streaming which may eventually allow for local television content. Project LINCIT plans to use existing infrastructure where possible and install a number of additional telecommunication towers to complete the network. The interface in the homestead will be a Personal Computer fitted with a variety of hardware cards that will allow telephony, data and video services to be sourced through the one box. This project has the potential to showcase how state of the art telecommunication solutions and associated information technology services can be installed and provided to people living in remote locations.

The Roma Town Council is planning to establish a telecommunications technology centre as an initial step in the development of a science and technology precinct in the town. The technology centre will focus on research and development into modern telecommunication solutions most applicable for usage in rural and remote areas. Funds are currently being sought from Networking the Nation to assist in the development of the project along with significant input from the Roma Town Council and the Department of State Development. This project has the potential to showcase how a technology centre can be established in a rural town to serve the needs of rural communities.

THE DEVELOPMENT OF A BEST CASE SCENARIO

If we were to picture a grid pattern of telecommunications infrastructure in place across many areas of regional, rural and remote Australia what types of telecommunications technology would be used and what types of services and applications would be layered on top of it :

Telecommunications Technology

- Have a broadband microwave radio network with inbuilt redundancy and routing to replace DRCS and HCRC systems.
- Have a narrowband network for SCADA and digital trunking radio operations.
- Single PC device as point of connection for all convergent information and telecommunication technologies.
- Interconnection into the Telstra backbone network..

Applications and Services

- School of Distance Education lessons via videoconference either direct one on one, or one to many.
- Royal Flying Doctors Clinics or Consultation done online.
- Local television content being broadcast to customers on the network.
- High speed access to the Internet and to the Growzone Online Intranet.
- Teleworking opportunities.
- Greater agricultural applications such as controlled traffic networks as developed by Ag Systems.
- Mobile communications utilising state of the art Tetra digital radio trunking systems.
- A network of weather monitoring equipment providing very accurate weather forecasts.
- Electronic commerce opportunities.

WHAT PEOPLE IN THE MARANOA SEE AS THEIR MAJOR CONCERNS

The following points provide a brief overview of what people see as major issues as evidenced by recent community meetings and surveys conducted in regions within south west Queensland :

- Access to and use of mobile phones.
- Improved telecommunications for those living on properties.
- Better quality television broadcasting including some degree of local content.
- More representation from politicians in a fairer distribution of seats covering regional, rural and remote areas.
- Greater control over their own destiny and input into solutions that have an effect on them.
- Stemming of the rural drift, especially of our youth.
- New industry development providing hope for the future.
- Governments willing to listen to concerns and put some faith in the development of rural Australia as a cornerstone of the Australian economy.
- A stop to the centralising of control to urban centres. For example the Office of Rural Communities in the State Government should be based in a rural area and not in George Street, Brisbane.
- Governments to provide greater returns on royalties earned back into the regions from where the primary product or resource is farmed or mined instead of funding allocation being formulated primarily on population criteria and funds being poured into coastal and urban areas.
- Tax concessions to entice industry relocation and development.
- Lowering of transportation costs.
- Policies and plans to attract skilled people to work in rural areas.
- An expansion on the push to attract doctors to rural areas to also include efforts to attract a variety of other skilled personnel including nurses, teachers, IT&T professionals etc.
- To be able to work with industry and Government in developing solutions to local problems instead of decisions being made from outside the region.

- The development of major national infrastructure projects such as the inland rail network that could revitalise local economies and the image of rural Australia.
- To be seen as not just an area west of the Great Divide where the only work done is done by farmers.
- Rebirth of Australia's enterprising and fair go spirit.

OTHER ISSUES

There are obvious cries for help from those living in our regional, rural and remote communities for any opportunities to be provided and to be developed to bring about economic and socially sustainable growth. Towns like Roma in south west Queensland are desperately seeking industry developments, to create job opportunities and to keep pace with an ever changing world. The statistics are on the table showing the loss of population in rural areas including all of the towns and Shires in the Maranoa region. A thorough investigation with subsequent and appropriate action to address the economic downturn in our rural communities should be seen as one of the Nation's most pressing issues as we move into the new millennium. People in our rural communities are questioning the direction we are setting ourselves as a nation as we prepare to celebrate one hundred of achievements as an Australian Nation. The vision our forefathers had 100 years ago does not seem to be evident today except through the provision of funds for enhancing tourism attractions through Federation funding. The big picture projects do not seem to be promoted and eagerly progressed with the total backing of the Nation.

The key to attracting industry investment in regional, rural and remote areas of Australia is to offer facilities and services which are at least equal to, if not superior to those offered in the city and at competitive rates. Rural areas are currently disadvantaged by relatively poor telecommunications services and abhorrently high costs. High transportation costs are also restricting business development. However it must also be noted that some areas of regional and rural Australia are not badly served by current infrastructure. In many cases the road, rail and air transportation systems and infrastructure are in place and are adequate. The problem is that while similar infrastructure such as roads and rail is being continually upgraded in coastal areas, the same is not happening in many areas west of the Great Divide.

There are obviously many issues outside of telecommunications and information technology that would need to be addressed in order to make regional areas more attractive to industry and for future economic development and prosperity. It is my belief that the provision of modern information and telecommunications technology and the promotion of the same will become a leveraging mechanism that local Councils can use to attract industry investment and greater State and Federal Government recognition and funding. We therefore must make every attempt to provide the best possible telecommunication services and technology to regional, rural and remote areas to give these areas a fighting chance as we move into the new millennium.

DETAILS OF ATTACHED PICTURES

- A. Telstra repeater tower
- B. Common 25m DRCS tower
- C. Typical Telstra base tower servicing small country towns
- D. Typical outback homestead with 25m DRCS tower
- E. Typical outback homestead with 25m DRCS tower
- F. Under utilised 125m tall Telstra repeater tower
 - Hundreds of these towers are scattered throughout rural Australia to service DRCS customers.
 - Many are being decommissioned due to the rollout of underground optical fibre cabling. More towers will be decommissioned following the phase out of analogue services over the next few years.
 - Use of these towers in strategic locations can help towards the formation of a grid pattern of terrestrial infrastructure in many regional, rural and remote areas.
 - Note the microwave repeater dish and DRCS antenna pack at top with the rest of the tower under utilised.
 - Tower is firmly secured with stays for stability in all conditions
- G. Alternative telecommunications infrastructure : Grain Silos
- H. Alternative telecommunications infrastructure : Main power grid poles and lines