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**TELECENTRES AND TELECOTTAGES:
A NEW APPROACH TO RURAL COMMUNITY DEVELOPMENT
AND TECHNOLOGY TRANSFER**

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ABSTRACT

Information technology and telecommunications are opening new production and marketing possibilities for rural producers and new ways of assisting community sustainability. In the 1980s, telecottages first opened in Scandinavia seeking to reverse the decline of isolated communities. These provided access to information and services, plus facilities for training and distance education, and income production through tele-commuting. The Australian Government has provided \$4m for the establishment of community managed telecentres in rural areas, providing public access computing and IT facilities for employment, business enterprise, tele-marketing, community service information, education and training. Over 25 communities have received telecentre funding.

Introduction

The Australian Government introduced a program to fund the establishment of telecentres (sometimes called telecottages) in rural communities to assist their adoption of new telecommunications and computing technologies for the purposes of increasing local employment, facilitating business enterprise, exploring new methods of marketing and delivering community services including education and training, to communities affected by the rural decline of the 1980s and the fundamental changes to the nature of business which have occurred in the past decade.

The Past Decade - An Environment of Fundamental Changes

In the 1980s, major changes to the nature of business behaviour and industrial structure occurred, driven by both social and technological changes. Principal amongst these was the quantum leap in information exchange made possible by the proliferation of highly capable and affordable computer technology. This has led to a variety of outcomes, including an internationalisation of business perspectives and the timely availability of processed information to support complex business decision making processes. The world has truly become a much smaller place, a global marketplace.

The secondary industries upon which Australia's postwar development was focused, have found themselves under pressure to restructure or to face failure. The shakeout of those industries which once provided prosperity and employment for Australia's urban and industrial areas has seen rationalisations and closures in the motor industry, in iron and steel works, the clothing and footwear industries and many others. Those industries which have survived have changed form, shed traditional management methods, changed their employment arrangements, eliminated layers of middle management to become "leaner and meaner", adopted computer controlled processes and utilised "just-in-time" inventory strategies. The world of business (and that of the communities which those businesses sustain) have changed irrevocably.

Rural industries and communities are also affected by these changes. Coinciding with a time of low commodity prices in recent years, these pressures for change have impacted severely on people in rural areas. While they are aware of these pressures, many people in the rural community have not recognised the fundamental nature of these changes, nor responded to their challenge, to the extent which those in secondary industries and people in urban communities have.

Changes in the Rural Community ; The Brave New World of the 1990s

Manifestations of these changes may be seen in many rural industries and communities. The following examples illustrate some of the impact of the greater use of telecommunications and information technologies on rural decision makers.

Marketing of many rural products has changed from the provision of bulk commodities with little differentiation, to a situation where more differentiation and pricing categories exist. Niche marketing of branded products or products with some form of additional processing or marketing services added is becoming more prevalent as producers seek higher returns in an increasingly sophisticated market. Such marketing strategies are only possible where the flow of product information is possible and suitable communications links to facilitate sales can be established.

The institutional arrangements which were put in place in the postwar years have generally proved to be unable to handle the changing conditions and no longer hold the central place in commodity marketing which they once did. These changes have directly exposed primary producers to their markets, bringing both new opportunities and new risks into their decision making framework.

The deregulation of the financial and international exchange markets also has added new considerations to the management decisions of primary producers.

In the past, these markets for commodities, finance and foreign exchange all operated on a face-to-face basis through traditional institutions. Increasingly these are now characterised by substantial electronic information flows of transactions and supporting data. Also, trading activities are not tied to particular locations or traditional times of operation but rather are conducted within telecommunications and computing networks which may be accessed for 24 hours a day from around the world.

Information on these markets is also increasingly being provided in electronic form, for access either directly or through information intermediaries.

At the community level, the impacts of change may also be seen. Changing delivery methods have led to the withdrawal of traditional forms of service providers, both government and commercial, from many rural areas. While the low level of rural incomes has doubtless accelerated these changes, the ability to use telecommunications and information technologies to conduct business from a distant location has changed the patterns of representation for many of these service providers in rural areas.

New ways of operating using telecommunications and computer technologies also are generally less labour intensive, removing the need for example for permanent staff in many country locations in organisations such as Telecom or the State Railways.

At an individual level, many country people use fax and telephone to bypass local distributors and deal directly with the head office of a supplier, often at a price advantage to the buyer. The individual may then face the realisation that his or her behaviour which is rational at the individual level, is reducing the viability of the service providers in their community.

For many rural communities, manufacturing or service industries have broadened the employment base and provided the higher level of community amenity which a larger population may bring. Many of these produced inputs to rural industries, such as farm machinery, or alternatively, processed the rural products in some way, such as a flour mill, a cannery or a juice plant. In the past decade, many such communities have faced the closure of these service industries which have not remained viable in the face of changed market conditions. Anecdotal evidence suggests that many such plants had not kept abreast of changing technology or evolved management structures (and ethos) capable of operating in the changing business environment.

These changes have fundamentally altered the shape and structure of many rural communities. Some, principally the larger provincial cities, have benefited from the changes because the regional patterns of service delivery have focused on them. Others however, have declined in service levels and population as the service providers and infrastructure have closed or relocated elsewhere.

Responses to Change at the Rural Community Level

Many communities have instituted community development programs of various sorts, often sponsored by local government and drawing funding from a range of State and Commonwealth Government programs. These range from programs to train unemployed people, through programs to support the establishment of new small business ventures, to comprehensive economic development bodies.

Some communities have looked to their own resources and focused on self-help and cooperative local ventures. These range from the facilitation of small scale local enterprise by the establishment of a market structure, often focusing on cashless exchange systems where local people barter goods or services for "points", through to the formation of community business ventures. In a number of Western Australian towns, community companies have been formed to purchase empty buildings and to negotiate new tenancies (often at very favourable rental rates) to attract new ventures to their town. Several towns have also offered free land to anyone who would move to the town and set up a business.

Some far sighted communities have banded together to target a product from their district which could be niche marketed and then organised for community members to travel overseas to establish direct marketing connections for the sale of their product. The assembly and processing of the product may be done on a community basis through a local facility tailored to the identified market opportunity.

Community reactions to the present situation vary both between communities and within communities. The bulk of people in rural communities are aware that something needs to be done but are not certain about what that should be both at an individual level and at the community level.

At one extreme, there are those who see the changes as an opportunity for development of new opportunities in the information industries or through embracing new ways of doing business. Most of the community however respond by working harder at traditional solutions and finding that they are progressively slipping behind in their living standards, despite continuing hard work. Despite this, they generally are keen to support any development or education proposal in their community. At the other end of the spectrum are those who cannot adapt to the pace of change and may react in a number of ways such as falling into a distressed state or withdrawing from community activity.

The Telecentre / Telecottage Approach

One approach to adapting to the changes facing both individuals and the community, has been through the establishment of telecentres or telecottages. The terms are used interchangeably in Australia. The term, 'community tele-service centre', may also be encountered in the literature for similar facilities.

Telecentres are community owned and managed facilities which may contain a range of computing equipment, associated office equipment and in some cases, specialist

teleconferencing equipment. Their specific objective may vary from community to community, but generally is to enable community members to access modern computing technology, and through it, access to management software, on-line information sources, bulletin boards, distance education and information on local resources and services. The exact combination of facilities and services is tailored to match the local needs and opportunities by the local broadly based, community management committee. They generally operate on a cost-recovery basis.

Telecentres allow community members an inexpensive way to harness some of the benefits of the present changes while ameliorating some of the disadvantages of change. The impact of telecentres on local community life may be seen in terms of the impact on employment, business enterprise, service delivery, education and training.

Employment opportunities focus on two aspects of the telecentre. The first is the use of the information and communications resources to start small businesses which market to the world using those resources. There is an examples of an outback adventure tourism operator who started business using a telecentre to link into the travel agency networks. The second is the use of the telecommunications facilities for teleworking or telecommuting where a person works for an employer at another location, either on a salaried, piecework or contractual arrangement. Some rural telecentres have undertaken data entry, clerical or marketing work for city organisations under such arrangements. Experience has shown that this type of work is currently difficult to obtain. The formation of the Asia-Pacific Telework Association (see later in this paper) will hopefully provide a structure for the brokerage of this type of work and for the accreditation of teleworkers.

In addition, most existing telecentres have a local provider of secretarial services and sometimes book-keeping or desktop publishing, operating from them. In some towns, businesses have stayed because they can cut representational overheads by using a telecentre worker when clerical support is required.

Existing businesses, including farmers, can use telecentres to gain new management skills, to obtain information and to adopt new marketing techniques. Telecentres are the local access point to a variety of management training options, both from education institutions and locally provided.

They also provide managers with access to computers, business software and on-line information sources at a reasonable charge and with staff who can train and assist in its use. The use of various networks for access to E-Mail and bulletin boards is also common from telecentres. These communications facilities can be used for marketing certain types of products. These are usually time dependent products such as fresh flowers and live seafood, or highly differentiated products with niche markets. In Tasmania, one telecentre is used by fish farmers for contact with Japanese buyers of high quality live fish. In other places, marketing of cottage industry products is undertaken. At a simpler level, local exchange bulletin boards put buyers and sellers in contact for anything from feed grain or store stock to second hand machinery parts. Local skills registers may also put you on contact with a local resident who can design and install a database for your business, crutch sheep or teach you to play the tuba.

In many communities, the telecentre also acts as a community service information provider. Often a database with details of both government and local community services is maintained and may be accessible by telephone modem to off-site users.

Often the delivery of education and training is identified as a priority by a community. Communities may undertake the provision of a distance learning facility themselves, or in conjunction with an education institution or provider network. In Western Australia, most telecentres have formal links with the Department of Training which has provided funding and support for telecentres, coordinated through the TAFE External Studies College in Perth. With the deregulation of the education market, telecentres or individual students can negotiate to undertake study courses with a range of institutions within and across state borders (and presumably internationally?) for delivery by electronic means to the telecentre.

Some communities are planning to set up locally controlled education institutions independent of existing education bureaucracies. An example is the proposed C Y O'Connor College in the wheatbelt region of WA. This was not to be a traditional institution with teaching campuses, but rather a network of distance education sites taking courses from a variety of providers at different levels and locations. There is a level of overlap between this proposal, telecentres and open learning proposals. It will be interesting to see how the C Y O'Connor College proposal evolves in the future.

Because of the dispersed nature of WA communities, the development of satellite delivered video for education and training purposes has progressed further than in many other States. A range of mainstream education materials, plus in-service training aimed at groups like police and nurses (encrypted for privacy where needed), are delivered using a combination of one way video on the satellite and two way audio using telephone lines. Many WA telecentres have facilities to receive this service.

Education and training is not only delivered from education institutions. Some of the most effective training is delivered locally using available skilled persons (who are not always professionals or teacher trained). This local low scale training often proves effective in helping people who have had little contact with the education system since their schooldays, back into education and training. Typically, 'introduction to computing' courses fill this role at many telecentres. A range of simple follow-up courses may then be offered to build an individual's confidence and knowledge to the point where a return to formal education could be considered. Self paced video or computer based teaching packages also may be available for self-education purposes.

Another service which telecentres may provide within their community is teleconferencing. In its simplest form this relates to telephone audio conferencing. Businesses and community groups often will hire a teleconference facility for a meeting with other groups rather than having people travel long distances for a face-to-face meeting. One outback telecentre is equipped with a bridge which enables an on-line conference of a number of people to be organised at small cost, enabling committee meetings of local associations to be held without members leaving their homes.

Video conferencing is a more complex and expensive version of teleconferencing. It is expensive and fraught with technical difficulties, particularly where trying to connect

equipment from different suppliers. There have been a number of technical developments in video technologies in recent times and a number of PC based commercial systems are coming onto the market at reasonable prices. Some claim to be able to be operated over standard telephone lines, but there is considerable debate as to whether the images are of an acceptable standard and whether the telephone network in country areas can sustain the data transmission rates needed for video. Telecentres are unlikely to find teleconferencing services based on the current generation of video conferencing technologies to be economically viable. This may change in the future for centres which have suitable telephone network connections.

Telecentres are one method by which a community can work together to take the first steps to use the new computing and information technologies for their own benefit. They enable people to explore new business opportunities at a reduced level of risk by the use of communal IT facilities rather than initially outlaying the cost of their own equipment. They also provide a supportive and practical learning environment with a network of similar people, which is appropriate for the learning styles of many people in rural communities. It is also a way for rural communities to regain some control over the services and facilities in their own community.

Genesis of the Australian Government's Telecentre Program

The first telecottages were established in Scandinavia in the mid-1980s as a way to deliver a range of services to remote rural communities. Following these examples, a number of Australian groups experimented with the concept. In NSW and WA, several distance education programs experimented with the delivery of education to remote communities using this technology. In South Australia, the library service installed public access networked computing facilities at a number of sites and in Victoria, computerised community service delivery was experimented with within the neighbourhood house movement. These applications of the new technology created interest amongst a limited group of people who sought to extend the benefits to the broader community. However funding for such experiments was difficult to obtain and it was often difficult to convince the broader community the relevance of the concept.

By the late 1980s, the telecentre concept spread from Scandinavia to the USA, UK and the Continent. These early telecentres tended to focus either on providing education and training, or alternatively, on teleworking. Within the rural policy area of the Australian Department of Primary Industries and Energy (DPIE), the potential of telecentres as an agent of change and community development in rural areas was recognised. A study on this potential was then commissioned from the Rural Development Centre of the University of New England. The report (Horner and Reeve 1991) detailed possible applications of telecentres to the Australian situation and concluded that telcottages had the potential to contribute in a number of ways, while identifying a number of limitations and difficulties which needed to be addressed.

Also at this time, Tom Cass from Telecom Australia was seeking to assist a number of Australian rural communities to establish experimental telecentres. Tom also had based his involvement on a model which combined both the education and teleworking aspects at the one site. He worked with a number of communities which later went on to develop telecentres. His contribution largely focused on facilitating the future-

search process by which the community identified the opportunities which the new technology could present to them, and on part-funding of these projects.

A number of these groups sought further funding from the Rural Access Program (RAP) of the DPIE. The RAP is a grant program which makes limited amounts of money available to rural community groups for social and educational purposes. In 1991-92, funding was provided under RAP for the initial telecentres at Cygnet, Tasmania and Walcha, NSW, both in conjunction with Telecom funding.

It was however soon evident that the particular needs of telecentres projects were not well matched to the requirements of the RAP. In particular, the development of telecentre proposals was more complex than a typical RAP project and RAP program staff did not have the time and resources to assist applicants with the development of the proposal. Also it was found that the development phase of a telecentre project was longer than anticipated and the typical amount of funding required exceeded that provided under RAP guidelines. The normal period for which RAP provided funding was a maximum of one year while the amount of funding was normally capped at \$15 000. For telecentres, a period of two years was considered to be appropriate while project costs typically exceeding \$50 000. In the light of these difficulties, a specific program was developed and included in the 1992-93 Federal Budget.

The 1992-93 Federal Budget included the first appropriation of funds for the Telecentres Program. \$2.8m was provided for the four years ending 30 June 1996. This amount was subsequently increased to \$4.0m as a result of commitments from the 1993 Federal Election. The profile of funding is as follows:

FY 1992-93	\$0.70m	
FY 1993-94	\$1.00m	
FY 1994-95	\$1.55m	
FY 1995-96	\$0.75m	Total \$4.00m

Funding is provided to broadly-based community groups for the purpose of establishing and operating a community telecentre which is tailored to the specific, identified needs and opportunities of that community. The application process requires the applicants to undertake community consultation to establish these needs and opportunities and to develop a business plan which is based on the marketing opportunities thus identified. Some communities have conducted extensive exercises such as Future Search Workshops to help identify these needs and opportunities. The telecentre grant covers much of the initial capital and setup costs of the telecentre, including a part-time coordinator for the first year. Joint funding with other grant programs is permitted. Also, a community contribution in line with the circumstances of that community is expected. Second year funding covers part of the operating and salary costs. Funding is not approved unless the telecentre has reasonable prospects of attaining self-sufficiency at the end of the second year (in terms of its operating costs) from charges for telecentre activities.

Typical grants for individual telecentres are in the range \$30 000 to \$80 000, depending on the characteristics of the proposed telecentre. In several cases,

networked telecentre proposals covering several communities, have been approved with grants in the \$100 000 to \$120 000 range.

Australian Telecentres - Current Situation

As at 31 December 1993, 25 telecentre projects have been approved and are in various stages of development, including the initial RAP-funded telecentres which have now been incorporated into the new program and have received additional funding to bring them in line with projects approved under the new program. It is anticipated that some 45-50 grants will be approved under the Telecentre Program, which will enable individual telecentres or outstations to be established in over 70 communities.

The following projects have been approved for funding as at 31 December 1993;

Queensland	Blackall	Maleny	Wondai
New South Wales	Bega Eurobodalla	Byron Bay Walcha (originally RAP funded)	Tumbarumba
Victoria	Wangaratta (networked to multiple sites) Birchip (networked to multiple sites) Maffra		
South Australia	Wudinna		
Tasmania	Dover	Cygnet (originally RAP funded)	
Western Australia	Brookton Katanning Merredin Moora Narembeen	Hyden Wongan Hills Minginew Southern Cross	Leeman Perenjori

Note the Western Australian State Government has also funded similar centres at Kunnanurra, Derby, Broome, Carnarvon, Mt Magnet and Meekatharra, and various State Government have funded education focused open learning centres. The program is now at the stage where second year funding for the initial telecentres is being actively considered. Progress towards self-sufficiency is variable amongst groups with some having made considerable strides in this direction.

Applications for funding by new groups will be closed on 30 June 1994. It is anticipated that the available funding for the program will be totally allocated on the completion of the assessment of these applications.

Rationale for Government Involvement

The rationale for public involvement in programs such as the Telecentre Program is broad and multi-dimensional, encompassing political, economic and social dimensions. The DPIE mission is to increase the contribution that the agriculture, minerals, energy, fisheries and forestry industries make to the wellbeing of Australians. It is useful to look at the goals of the Rural Division of the DPIE to see how the Telecentre Program contributes to this mission.

Three of these goals are particularly relevant. These are (inter alia);

- efficient, market oriented and internationally competitive rural and related industries, actively seeking value adding and export opportunities,
- continuing improvements in the management of agricultural industries and their resource base consistent with the principle of ecologically sustainable development,
- development of strong, viable and economically diverse and socially just rural communities.

The underlying rationale for involvement in rural community matters is the proposition that a viable rural industry needs a viable rural community to support and sustain it. There is also recognition of community pressures for comparable levels of social justice across all parts of the community. The telecentre objectives of increasing local employment opportunities, of increasing access to management resources, of increasing access to information, education and training, and of delivering community services all contribute to the achievement of these goals at the community level.

The issue of public funding of telecentres is one of market failure, not unlike that of the public funding of research and development. The economic argument for public funding of R&D usually revolves around the perception that small firms and dispersed industries will underinvest in R&D because of the inability to appropriate the benefits or through risk aversion leading to underinvestment. I do not intend to review here the vigorous debate which has proceeded for many years over the rationalisation for public involvement or the appropriate institutional arrangements to achieve it.

Telecentres address a similar problem, eg. the rationale for public assistance in the provision of access to modern computing technology, information technology and networks which may assist individuals or firms achieve higher economic returns than they might otherwise achieve. As with the R&D example, individuals will underinvest in computing and information technologies and in information search because of their inability to capture the individual gains or perceptions of the risk involved in the adoption of new technology. Telecentres provide a means for individuals to learn about the new technologies and to test the relevance and applicability of these technologies to new business ventures or existing enterprises without outlaying (and risking the loss of) substantial funds to obtain their own facilities. It is anticipated that users will at least pay the marginal costs and that once a technology or idea has been successfully trialed, many telecentre users invest in their own computing equipment.

Program funding is structured in such a way that telecentre groups must move towards financial self-sufficiency after two years. Organising Committees must thus focus on the identification of viable applications of the new technologies relevant to their local needs and opportunities. They must further plan, promote and market these services to their community to ensure the survival of their enterprise.

This process leads to a secondary spin-off from the program in that it leads to a local group in the community which is practiced in the business planning process, and is motivated and empowered to plan and implement other ventures or services which meet needs in their community. This is an expansion of the entrepreneurial resource available within the community. Anecdotal evidence suggests that many telecentre committees become the focus for a set of broader community development activities which may make a considerable contribution to both the level of economic activity and the social amenity within their communities.

TELECOTTAGE '93 International Symposium 1993

As part of its support for telecentres, DPIE part-sponsored along with Telecom and the Queensland Office of Rural Communities, a major international symposium on telecottages and similar institutions. The symposium, "Telecottage '93: Telecottages, Teleworking, Telelearning: Road to Rural Revival", was held at the Gold Coast, Queensland, from 29 November to 1 December 1993. The symposium was convened by Tom Cass of Telecom and conducted in association with The International Association of Community Tele-Service Centres (CTSC). Some 200 delegates attended, including strong international representation of key figures in the field.

Speakers from Europe, UK, USA, Japan and Australia presented papers on aspects of telecentres and teleworking. Key features which emerged include;

- In Scandinavia, government support has been reduced, leading to privatisation of telecentres and a reduction in their numbers. Cooperative working between telecottages has emerged, with brokerage (spotters fee) paid to the originating telecentre by the one receiving the teleworking job;
- In UK, a national association has commenced and is achieving useful coordination between telecottage groups. A large scale trial application of telecentres amongst remote centres in the Scottish Highlands and Islands is underway;
- In USA, the concept of satellite offices and tele-working is gaining pace, whilst in Japan the resort office concept is growing in acceptance and use.
- There was considerable discussion of the experiences to date with teleworking. It has been very successful with certain types of people, however, both the employee and the supervisor must be screened for suitability for this style of working.
- As a consequence of discussions at the symposium, a group catalysed by several commercial teleworking practitioners has proposed the formation of a group to broker telework and to accredit participants. Both of these aspects are important if an effective market for remote clerical working by telecentres is to be established.

The group is tentatively called The Asia-Pacific Telework Association. Interested people may contact the convenor, Nick Hough, at:

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- Providers of education and training are moving into new delivery methods as fast as funding and facilities will permit. One feature of the use of the new technologies is the breakdown of traditional geographic territories which education institutions have regarded as their own "natural" feeder markets. Students can now shop around and may choose to study electronically through an institution which is located outside their State or even overseas. Some education suppliers seem to feel threatened by the choice which this gives to a previously captive market.
- Some experimental applications of the telecentre approach in Less Developed Countries were reported. In Brazil, TeleBraz (ie. Brazil Telecom) has established a number of such centres in both urban and rural areas, in cooperation with European telecentre operators. The International Telecommunication Union (ITU), a UN based international coordinating body, is examining a proposal for extensive trialing of the telecottage/telecentre concept in a number of areas of Asia, Africa and S. America. This is to be discussed at the forthcoming ITU World Telecommunication Development Conference in March 1994 in Buenos Aires.
- Participants were addressed on international cooperation amongst telecentres by Lars Engvall, President of Community Tele-Service Centres International, which is the international association of telecentre operators and similar bodies and may be contacted at 44 Avenue de la Marne, Batiment B, F-06100, NICE, FRANCE.
- There appears to be a worldwide problem with the proliferation of different electronic systems and the associated absence of industry standards for some key technologies. This is particularly so for video systems, where a number of bodies (particularly educational institutions) have installed equipment which has not proved satisfactory, generally because of its inability to interconnect with other potential users' systems. There have been a number of "white elephants".

The general assessment of the Australian experience is that it is of world standard. The Australian approach which combines teleworking and telelearning contrasts with many overseas telecentres, which usually focus only on one of these. This dual approach reflects the Australian rural community needs profile. This particularly interested those considering the potential role of telecentres in LDCs, as it is arguably more relevant than the European experience. While the original telecottage idea from Scandinavia had its origins in service delivery to remote rural communities, much of the later European, UK and US experience was with urban communities. Some surprise was expressed by some participants that the Australian program was funded

and managed by the Department of Primary Industries and Energy, rather than a Labour Ministry.

Future Directions

The future of telecentres in rural communities in Australia depends very much on the success or failure of the present group. This includes both their ability to reach self sufficiency and their broader impact on their communities. At this stage it is too early to judge these questions.

International experience has been that telecentre-type operations tend to reach a stable sub-commercial level where the use of volunteers remains important to their survival and where some limited form of funding support from the community or from government remains necessary.

The current Swedish experience where telecottages, originally government funded, are now unsupported and operating on a commercial basis, is being watched with interest.

In general however, where telecentres have been supported by community members, it is generally believed by those communities that the telecentre has been a positive influence on economic development and employment generation in their community. Initial impressions from the Australian experience shows that some in communities the telecentre has become a focus for community activity and business incubation. The bringing together of local people through the centre has led to other activities, some government grant driven and others of a community based business nature. This is in addition to the benefits which individuals have derived from access to modern computing and information technologies.

For the greatest advantage to be gained from the new technologies, highly capable communications networks are required. The network limitations are a major influence on the range of services and applications which might be provided at any particular location. I do not propose to review the public policy debate on the technical specification and funding arrangements of the public telecommunications network, other than to say that the degree to which rural people will have access to emerging telecommunications technologies and to high capability networks will substantially shape future economic activity in rural regions and that the arrangements for funding the provision of these services continues to be a topical issue. While the public provision of such telecommunications services are being debated, some community groups are looking to establish low cost, low-tech solutions to their needs. In particular, some groups are looking to use packet transmission technologies on UHF CB radio to provide voice and data transmission through community operated low cost repeater stations. Negotiations are occurring with regulatory authorities on such options. The future will surely see other developments which open other communications options with the potential to change the way of life and economic activity in rural areas if the people have the awareness to grasp these opportunities.

The telecentres program will hopefully be an important step in raising the levels of awareness of the opportunities provided by the new computing and information technologies in the economic and social life of rural communities. It also is an institutional arrangement which places much of the responsibility for reacting to change in the hands of the community itself and gives some power to communities to influence employment, education and services delivery in their community. For some communities, it may provide the window to the future for their very survival.

Notes:

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These may also be contacted through the Countrylink Information Line 1 800 026 222

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