People working with technology in remote communities

our place

Number 18

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our place

You might have noticed a few new words above our heading on the front cover of this edition of *Our Place*. We were getting concerned that new and potential readers would not immediately know what the magazine was about, so we have used that publishing device known as a 'strapline'. We plan to extend the readership steadily over the next two years. It helps if our identity is absolutely clear.

My guess is that many readers of *Our Place* pick it up in the office of someone else or from a display case or a leaflet mounting as they wait in a reception area. So our strapline now tells them that we are all about 'People working with technology in remote communities'.

To work effectively with technology in the most demanding conditions in our country requires a broad understanding. This means not only understanding the physical demands in remote communities, such as moisture and dust, but also the complexities of bush life in general. Whether in Cape York, the Kimberley or the Top End, as people make a go of their communities, so they find themselves performing the roles of clerk, book-keeper, environmental health officer, energy specialist, housing maintainer and so on. Technology works for people when people have confidence and support to do this range of work. These messages come through loud and clear in this edition of *Our Place*, which includes some powerful voices from the bush.

Special thanks on this occasion to Trish Morrow, who did more than her share of the work for the magazine. *Our Place* has been edited for the first time by Kathie Rea, a new member of staff of the Centre for Appropriate Technology and based in Alice Springs. We welcome Kathie and look forward to you sharing in CAT's ambitions for the magazine and its contribution to the progress of remote communities.

Steve Fisher
Centre for Appropriate Technology

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Front cover: A section of road under construction on the southern side of Cherrabun Creek in the West Kimberley. The road has been formed to a gradient suitable for heavy duty transport, prior to sheeting with gravel.

Inset: At Yulumbu, Old Jock (right) showed Ernie Hunter (CAT Derby) two successful projects; this sturdy chook shed and a large bough shelter with braces welded from metals found in the community. CAT was invited to advise the community about its airstrip and access road. Yulumbu is 150 km inland, east of the Mount House turn-off on the Gibb River Road.

Our Place is published three times a year by the Centre for Appropriate Technology Inc., an organisation that works with people in remote communities to achieve sustainable livelihoods. Inside are stories about how people use and develop technologies. The production of *Our Place* is funded by the Aboriginal and Torres Strait Islander Commission.

The Centre for Appropriate Technology (CAT) welcomes reader views on *Our Place*. To give feedback or to subscribe, telephone the editor Kathie Rea on (08) 8951 4311 or email to ourplace@icat.org.au .

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Uncle Banjo Wumpi Kepple (left) talking with Adrian Shaw

When the horse was number one

In this interview, Uncle Banjo Wumpi Kepple talks about his life as a drover in Cape York where horses were the major form of transport.

It was recorded at Coen and produced as an **Our Place** radio program. The interviewers are Adrian Shaw, radio producer at CAT Alice Springs, and Sonny Levers, community liaison officer with the CAT team in Cairns.

BANJO: My name is Banjo Wumpi Kepple. I was working on cattle stations mustering, moonlight mustering, on to 3.00 o'clock and getting near 4.00 o'clock in the morning, and we have a sleep, then get out mustering again.

ADRIAN: Tell me more about you mustering and breaking in horses.

BANJO: Breaking in horses, all them cattle breed horses, their worse horse, they buck like one thing but we got to put up to it. If we fall, old Kepple he make us get on again, we got to hang on. We been doing a lot of breaking in, lot of mustering. I been all over the place. We started from Maloona station, was the 1st December, droving, making bullock walk from Maloona to Coen River for one week, and then we got to cross 20 mile, then from there up to Laura. We ended up 4th April at Mareeba and we was very glad. We had 580 head of cattle.

ADRIAN: How long did you work on cattle stations for?

BANJO: I been working on cattle stations from 1933 until 1961 when old Fred Kepple died. After I went back to Meripa, work at Meripa, lot of other stations. I also work at Yaratan station for two year, then I went to Silverplain, worked there for one year.

ADRIAN: So, they were good days, hey? You know, mustering. Tell us how good days it was for you.

BANJO: Oh yes, good days. Lot of time, we stay at the stations for 12 month, work hard, come into town for Christmas, or the races. But, it was hard times, those times. You know, our people didn't have that freedom, until early 70s.

ADRIAN: Oh, you mean 1967, the referendum; you know what I mean, Uncle Banjo? You remember when they voted for Aboriginal people to become equal people in their own country?

BANJO: Yeah, that's right, that's when we got that freedom. Now we got equal today, and independent on the country. Did you know I'm also a local JP (Justice of the Peace)

ADRIAN: No, I didn't know that Uncle Banjo, what does that mean to you?

BANJO: Oh, I understand the rules and regulations of the country.

ADRIAN: Can you tell me a bit, just a little bit more, about how you broke horses in?

BANJO: It was very hard breaking in horse. For us, say you get young colt, or young filly, you put him in the yard. You then get one old quiet horse and put him there together. You got to rub him with a stick, till he gets quiet. Then, end of stick, we put a rope around his neck, then we make him lunge around. Then we put tacklin' on, and oh, they buck like one thing, with the tacklin'.

ADRIAN: Uncle Banjo, what do you mean by tacklin'?

BANJO: What I mean is tack, the riding gear for horses like saddle or bridle. When you put that on him, he fully buck then. But

that old quite horse in the yard with him, helps us break him in.

SONNY: When you actually finish up on the stations. Was it 1985? Is that right? Do you know how old you are now?

BANJO: Yeah, that's right Sonny. I am 79.

SONNY: You got good memory Uncle Banjo.

BANJO: I got good memory. I still think what's been happening to our people from the past, till today. I never forget. I keep that in my mind, till the day I die. But might have been a bit hard for us, to work that time, when we was under the Act, very hard work. We're very sorry for old Fred Kepple when he died. When Ol'Boss died, I feel sorry, lot. I had to think of him.

ADRIAN: He was a good boss for you, or not?

BANJO: He was good one way. He might have been hard, but he was good, hard way. You know what I mean Addy?

ADRIAN: I understand Uncle Banjo, he was good boss, but hard working boss.

SONNY: So, when you born; 1922 or 1923?

BANJO: I born 1922. I remember, don't forget, I got good memory.

SONNY: Where you born in those days?

BANJO: Born out at Meripa.

ADRIAN: What about the big rivers, you know, droving cattle through them, how hard was that?

BANJO: We got to swim, put the pack in one go, put the bullocks in, swim the bullock, and horse last.

SONNY: But you swim with them, which way crocodile, he take one or two beasts that straggling.

BANJO: Well, every river that we been swim, no croc been take a horse or cattle, we very lucky.

ADRIAN: You very lucky, Uncle Banjo.

BANJO: Very lucky.

SONNY: Might be the bullock, he swim with the fright?

BANJO: (laughs) Well, was a bit fright too, you know. You imagine that Moyet river, they reckon lot of crocs there.

SONNY: Our people today, they travel around in motor car, buses, truck, aeroplane, but in your day, that horse, he was number one for travel across country.

BANJO: Yes, yes, number one. Today they got truck to take cattle to Mereeba or even up to Weipa, or put them on a boat. But those times we had nothing, no truck at all, and when we get sick in bush, we just got to put up with it, no hospital in the bush.

Atlas maps health and housing

The most comprehensive study ever undertaken of health related infrastructure in Australia's 1200 discrete Indigenous communities has been published as a book.

The Atlas of Health Related Infrastructure in discrete Indigenous communities is the first detailed description of the current state of Indigenous housing and health-related infrastructure in Australia.

Produced for ATSIC by the Cooperative Research Centre for Aboriginal and Tropical Health, it aims to identify areas of relative need among Australia's 1200* 'discrete' Indigenous communities by presenting information in 'map' form.

The *Atlas* uses data from the 1999 Community Housing and Infrastructure Needs Survey (CHINS), which was carried out by the Australian Bureau of Statistics for ATSIC.

Data for the CHINS survey was obtained through a variety of sources including personal interviews with key members of Indigenous housing organisations and communities who were knowledgeable about housing and infrastructure issues.

Since 1992, ATSIC has been using CHINS data to assess the current state of community and housing related infrastructure for discrete Indigenous communities and to assist in policy development.

As well as providing health-related information on Indigenous housing, the Atlas also includes data on water supply, sewerage, waste disposal, power supply, communications, road and air access, education and health facilities

ATSIC will use the *Atlas* data to set priorities for intervention, both in geographical areas and in determining the most suitable type of infrastructure for individual communities.

The Atlas of Health Related Infrastructure in discrete Indigenous communities was prepared by Ross Bailie, Frank Siciliano, Geoff Dane, Lee Bevan, Yin Paradies and Bronwyn Carson. It has sections on housing, water supply, flooding and ponding, sewerage, rubbish disposal, power supply, communications and transport, roads within communities, education, and health facilities and health personnel.

For more information or copies, telephone: Geoff Dane, National Housing and Infrastructure Centre (ATSIC) on (03) 8619 8031 or Lee Bevan on (03) 8619 8033.

* *Discrete communities are defined as being 'communities in any location that are predominantly made up of Indigenous housing'.*

Communities seek hydro-power advice

Interest in renewable energy sources seems to be broadening as two communities distant in geography have requested advice on the feasibility of hydro-power.

At Djarrung, east of Katherine, people long had wondered if a nearby water course ran fast enough to power a turbine.

CAT engineer Sarah Milne visited in June to assess the feasibility. After calculating the flow of the water and the pressure available, she found it would generate only enough power to run a house for eight to ten months of the year. Installing a system powered by water was not a feasible alternative to solar energy.

A community in the Kimberley also sought advice on using the flow of water to generate electricity. The idea was not feasible there either.

Micro- hydro systems are used extensively in many countries, such as Indonesia and Nepal. Generally, water is diverted and piped downhill towards a small turbine at the base of a steep slope. CAT is able to offer advice to any community that feels it could have a water resource suitable for micro-hydro.

WATER RACE AT DJARRUNG

Learning through exploring at Akaltye Youth Event

In late August, 25 Indigenous, junior secondary school students from remote areas around the country met in Alice Springs for the fourth Akaltye Youth Science & Technology Event.

The main focus of the program was to promote problem-solving through the use of science and technology.

Chairman of the CAT Board, Jim Bray said at the opening ceremony that he hoped the four-day event would encourage the young people to consider careers in science and technology. The only way to solve a lot of the issues affecting us is to get some of our people up there working on them, he said. Mr Bray welcomed the involvement of students from several states. You'll be making links and friendships you can draw on later, he told them.

A traditional technologies bush trip on day two of the program was followed in the afternoon by a seminar on careers in science and technology.

The Akaltye Youth Science & Technology Event is run by CAT as part of its partnership with Rio Tinto. More than 100 young people have participated over the four years of the program. Akaltye means "opportunity to learn" in the Arrernte language.

The event was coordinated by Jenny Kroker and Julie Taylor and held during National Science Week. The program was delivered in collaboration with the Investigator Science & Technology Centre (SA) and Questacon (ACT).

The event also was supported by the Commonwealth Department of Education, Science and Technology.

The young people followed a design brief and solved production problems. Then it was time to test their go-karts.

Baressa (left) and Teska from Weipa put the solar cars they made to the test outside the training building at CAT.

Mt Isa housing repairs

During the remainder of this year CAT will be working with builders and tenants to upgrade some of the stock of the Jalanga Housing Co-operative in Mt Isa. CAT will be the project managers to prioritise and facilitate repairs. The focus of all renovations will be to improve safety and comfort for the residents.

The ATSIC Mt Isa office and the administrator of the co-operative directly requested CAT's services. The project team will consist of Tania Cobham and Sonny Levers from the Cairns office and Ian Benjamin from the Alice Springs Office. The work will be a dynamic mix of interaction with tenants, co-ordination of tradesmen and sharing knowledge about indigenous housing organisations.

Bushlight builds Regional Council collaboration

ATSIC regional councils in three states and the Northern Territory are being invited to collaborate with Bushlight, an Indigenous community support program that aims to improve access to energy services for small, remote, off-grid communities.

An early and significant role for the Regional Councils will be to identify and prioritise communities for consideration against Bushlight eligibility criteria.

Bushlight aims to increase access to sustainable energy services for remote off-grid communities of Indigenous people in the NT, Western Australia, Queensland and South Australia.

CAT and Bushlight staff have presented to north-west WA Regional Councils at a zone meeting in Wyndham, to Wunan regional council at a meeting held in Kununurra, to Papunya regional council, to Kullarri at a meeting held in Broome, to Yappakurlangu council via video conference, and to a Queensland State ATSIC meeting held in Cooktown.

The aim is to reach all Regional Councils by December.

Bushlight is a joint venture project of the Australian Cooperative Research Centre for Renewable Energy (ACRE) and CAT.

Bushlight offices have been set up in Alice Springs, Derby and Cairns. An office will open soon in the Top End. Each office will be staffed by an Indigenous liaison officer and a regional manager.

To be eligible for Bushlight, a community must have a population of less than 50, no access to grid power, secure land tenure or occupation, and at least one permanent building that conforms to standards. Once communities are identified are having Level 1 eligibility, factors such as access, occupancy, cost recovery and management will be considered. Ultimately, the location of Bushlight systems will be decided in discussions between communities, Regional Councils and Bushlight staff.

Regional councils are being invited to develop a memorandum of understanding with Bushlight to describe their shared objectives.

Bushlight is a four-year project funded by ATSIC and the Australian Greenhouse Office.

Supporting sustainable livelihoods in the Kimberley

"There's a lot of suffering going on. Vehicles getting wrecked on a rough road," says Ivan McPhee, from the community of Koorrabye in the Kimberley. CAT not only aims to help communities to respond to this suffering but to actively promote opportunities for enterprise and trading. Our work in the areas of roads, waste, shelter, energy, livelihoods, training, water and environmental health is making an impact on communities in the Kimberley region where people are keen to be self-sufficient while caring for their traditional country and living on their traditional lands.

Trish Morrow provides an overview.

Responding to the challenges

Marc Seidel, Ernie Hunter, John Schmidt and Brendan Trust staff the CAT office in Derby in the Kimberley. Much of their work is in project management, especially for infrastructure. This has included airstrip construction and upgrades (Koorrabye), and significant road construction programs (Cherrabun to Bidijul). Current projects include new homemakers' buildings (Imintji) and road construction from Bidijul to the Koorrabye turn-off.

CAT staff also work as regional technical advisers, and, increasingly, in research to promote sustainable livelihoods. One role connects to another. When Marc Seidel arrived some 14 months ago, he found the quality of the technical advice provided by his predecessor, the late Keith Bowden, had prompted the ATSIC Malarabah Regional Council to request CAT to take up the management of road maintenance and essential services for small Gibb River Road communities.

Tourism enterprises

Much of the work in Western Australia has an impact on people's livelihoods. A recent example was when CAT organised repairs to a radiotelephone for Pantijan community. ATSIC and OAED (Office of Aboriginal Economic Development) are considering the viability of Pantijan for enterprise opportunities in tourism. Pantijan also may function as a sustainable community centre for the surrounding outstations. Whichever option is pursued, the Pantijan community will need a working telephone.

Another example was providing road infrastructure to support a planned tourism and cattle enterprise for the Ngaliga Aboriginal Corporation at Kurunjie. There also were requests for advice from Kimberley Wilderness Adventures. The company is setting up campsites to take advantage of the huge ecotourism potential in the region. Information and ideas were exchanged about composting toilets, energy supply, energy efficient lighting and refrigeration.

Technical advice

The provision of technical advice is important in the Kimberley region. For example, the Mowanjum Aboriginal Corporation recently requested information on CAT products because people want to put in toilets, and a shower and laundry block. Which toilet is the best for us, they asked. How does a pit toilet compare with a composting toilet or a flush toilet? The CAT laundry block can be compared with other models to decide which best suits the community's needs.

A community at Wangkatjungka requested assistance with siting of its landfill and a community at Imintji requested assistance with the construction and management of a new landfill site. CAT has a new responsibility for the maintenance of waste management systems across the ATSIC Malarabah region.

Roads and airstrips

Road maintenance in the Derby region often has been treated as simply a matter of grading after the wet season. CAT upgrade projects involve local contractors in building a road rather than simply grading it. A well constructed road with good drainage will cost less to maintain.

Medical emergencies arising from motor vehicle accidents are an increasing concern. Gail Freeland of the Royal Flying Doctor Service (RFDS) drew service-providers together to discuss accidents and evacuation of patients along the Gibb River Road. Patients face delays due to the lack of 24-hour medical evacuation facilities, airstrips, communication and transport facilities, volunteers and health workers. A person injured in an accident along the Gibb River Road may have to travel many kilometres along an unsealed road to get to the nearest airstrip to be evacuated.

During the wet season, Koorrabye and other communities have had to fly in drums of diesel one at a time by helicopter due to problems with access. A new road links communities on the south side of the Fitzroy River to Noonkanbah and on to the Great Northern Highway. This project was managed by CAT in partnership with ATSIC, the Shire of Derby/West Kimberley and WA Main Roads. The new highway is out of the river flood plain.

Clockwise from top: Barge under repair at temporary mooring place near Oombulgurri (Wunan Region); Solar panels feed a submersible pump to draw water at Tirralintji community (off the Gibb River Road); Diesel tank near the barge landing at Oombulgurri stores the town's supply, transported from Wyndam by barge.

Transport

In the Kimberley, there is only one sealed road; Route 1, the Great Northern Highway. The only other major road through the Kimberley is the unsealed Gibb River Road, which runs from Kununurra to Derby. Very high rainfall during the wet season can wash away bridges and roads, and make airstrips unusable. Building materials for constructing and maintaining transport infrastructure are not as readily available. The region's extreme heat can affect the ability of certain types of aircraft to take off and also to land.

Airstrips used to be controlled by the Commonwealth Government but responsibility has been handed over to local governments and Indigenous communities.[1] There are about 12 airstrips for Indigenous communities in the Kimberley and most have a gravel surface.

High tides, strong currents and cyclones have a major impact on travel by sea and shipping, which affects the viability of many coastal communities. There is a barge service to Cockatoo Island, Derby and Wyndham that supplies the Indigenous communities at Kalumura and Oombulgurri with fuel and some supplies.

The Western Australian Government's Department of Transport has recognised the importance of transport in the region and has developed a regional strategy *Kimberley Transport Towards 2020.*[2] The population of the Kimberley is projected to double by 2020. The strategy aims to provide safe access for settlements located throughout the Kimberley region, in a sustainable manner. This includes improving access to communities, and the provision of emergency services as well as "containing the level of trauma and damage from floods, road crashes and other emergencies".

When it comes to actual funding, of the total funding of $46.645 million, only the paltry sum of $145,000 has been allocated to Aboriginal community roads.[3] In contrast, $10 million has been allocated to roads for sugar cane products. Main Roads Western Australia (a state government entity) estimates the cost to upgrade access and internal community roads to its standards at around $15 million over ten years.

Only about 20% of the road network is controlled by the Commonwealth Government (managed by Main Roads Western Australia), 9% is controlled by the State and the remaining 71% (including roads to Aboriginal communities) is under control of the local government network. Aboriginal communities receive funds from ATSIC for use on transport projects.[4]

There is no bus along the Gibb River Road in the Kimberley. Apart from vehicles which ATSIC has funded for use by Indigenous communities, there are very few privately owned motor vehicles. Road safety is an issue, as well as wear and tear on vehicles caused by unsealed roads in poor condition. There is an Aboriginal road safety program underway in remote areas, funded by the Road Safety Council.[5]

Some community buses are used in the Derby area. One example is the Muljim women's group bus, which has three runs a day out of Derby. This bus provides a service for women and older people who otherwise would have great difficulty in going shopping. The driver is employed through the Community Development Employment Program (CDEP). The bus also travels to Fitzroy Crossing and back once a day. Community buses are not feasible in many areas because of road conditions.

Apart from the poor condition of transport infrastructure, Indigenous people are plagued with problems of unclear responsibility for financing roads and community transport in general. Duplication of equipment is an issue. CAT staff have been asked to assist communities at Koorrabye, Yakanara and Djugerari with a plant purchase strategy. For example, one community wanted to buy a grader. However, graders already were in use at the nearby communities of Noonkanbah and Marra Worra Worra. Rather, the community asked for advice on which items of plant could be procured for local use. A six-wheeler tip truck was recommended. Now, CAT is developing a plant strategy for the whole region.

1 Government of Western Australia, *Kimberley Transport Toward 2020: The Kimberley Regional Transport Strategy*, Nedlands, Western Australia, September 1997.

2 http://www.kimberley.wa.gov.au/index.cfm?menu=245&page=ff_trans_ov Kimberley Transport Towards 2020.

3 Government of Western Australia, *Kimberley Transport Toward 2020.*

4 Government of Western Australia, *Kimberley Transport Toward 2020.*

5 Government of Western Australia, *Kimberley Transport Toward 2020.*

Training

There is a definite need for capacity building in the Kimberley area and there are not enough service providers working in project management. The Kimberley region does not have the history of community development and capacity-building that is seen elsewhere in Australia. There is a shortage of trained staff to work in communities, to a degree not seen in other parts in Australia.

CAT Derby staff have been able to provide advice to people seeking specific training. Communities at Djugerari, Yakanara and Koorrabye have requested licensing training in earth moving and truck driving. There are trainers available locally because of the mining industry. The key is to bring them together.

A more unusual request relates to the lack of maritime training for Indigenous people. Some communities are accessible only by sea and a coxswain's course is needed to train people to handle the barges that transport passengers, food and fuel.

Fuel and waste

Fuel is an enormous problem in areas where trucks don't have access and drums of fuel have to be manually transported from the nearest accessible road to the point of use. Sometimes a 5000 litre trailer can access the community, and this is a big improvement. There is a deposit of $30 per drum but drums are not returnable and so, this becomes an extra cost to the community. Renewable energy is considered not feasible for communities of 300 to 400 people, so fuel trucks are needed. One community that ran out of fuel needed four drums of fuel per day. The drums had to be left at the edge of the bitumen each day and hand-ported in.

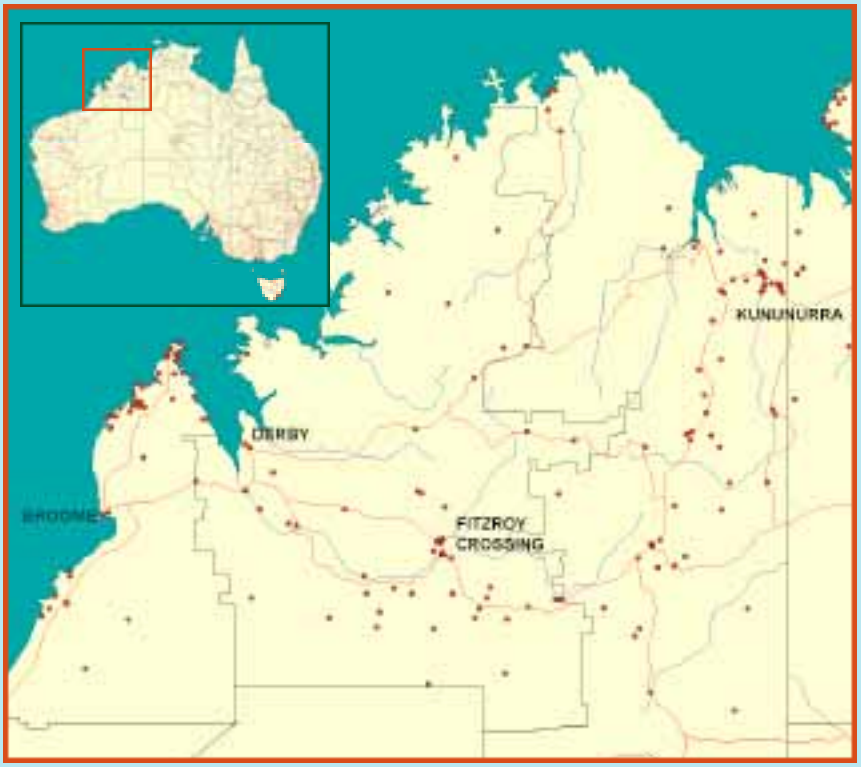
To avoid the drum deposit cost, Derby staff encourage community people to bring fuel drums back to the CAT shed whenever they are driving into Derby. When the community requires powerhouse fuel, CAT gets the drums filled and arranges transport out to the community. This system also reduces the waste management problem created by empty fuel drums. Currently CAT Derby has caretaker responsibility for providing municipal services, including supply of powerhouse fuel, to communities on the Gibb River Road.

IMINTJI COMMUNITY STORE.

Prototype at Noonkanbah – a rammed antbed basketball court?

Kulkarriya School at Noonkanbah approached CAT Derby for information on the construction and maintenance of rammed antbed sporting facilities. The school planned to build a basketball court and the local soil type was unsuitable for construction of a cement court. CAT staff carried out a thorough literature review, fed the information back to the school and also provided advice on possible sources of funding. The basketball court will be constructed as soon as funding is obtained. CAT staff will monitor progress so that practical experience gained in the construction of this unconventional sporting facility can be shared with other communities.

The Kimberley region



The Kimberley region is in the far north corner of Western Australia. Pastoralism, mining, fishing and tourism are mainstays of the market economy. Irrigation has brought agricultural development to the East and there is potential for aquaculture.

With an area of 421, 451 square kilometres, the Kimberley region includes rainforest, rugged escarpments and arid deserts. Town centres include Broome, Derby, Fitzroy Crossing, Wyndham, Halls Creek and Warmun, as well as Kununurra, its capital, which has a population of 6,500. The ATSIC regions of Kullari, Wunan and Malarabah are all part of the Kimberley.

Indigenous people have a strong presence in the Kimberley (officially, 45% of the region's population of 25,000). There are about 20 large Indigenous communities and 60 smaller communities, and almost half of the Indigenous population live in these communities, outside the major urban centres.[1] Many people live on traditional lands; excisions from pastoral leases, lands claimed under native title, and cattle stations owned and operated as enterprises.

[1] Kimberley Development Commission, *Kimberley Transport Toward 2020*.

Ernie Hunter (right) shows Adrian Shaw [CAT radio producer] around Koorabye community, south of the Fitzroy River in the West Kimberley.

What we have learnt

Work in the Kimberley has highlighted the importance of infrastructure such as roads and airstrips. There is huge unmet need for transport services. It is difficult to find opportunities for enterprise and trading in remote communities. Lack of reliable transport for food, fuel and spare parts, and to take products to markets, is a major challenge for people living and working in the Kimberley. Some communities are unable to progress because of the problem of vehicle access. On one community, water is scarce and a drilling rig is needed to increase the volume of water available. However, there is no road access and the cost to barge in the rig would be prohibitive.

Transport has a immediate impact on people's health and wellbeing. The construction of an airstrip at Koorrabye, in which CAT was involved, was primarily to allow for medical evacuations during the wet season.

Air transport is extremely important in the Derby area as many roads are only accessible in the dry season and can be inaccessible for five to six months during the wet. Derby, Fitzroy Crossing and other communities occasionally are cut off from each other as well as from larger centres. River crossings can be upgraded but the cost of bridges usually is prohibitive for small communities. Building airstrips often is far more cost effective.

The transport problem can be addressed partly by improving services in Indigenous communities so that people do not have to travel so much. This would require a much greater investment in the provision of basic services such as power and water.

Spreading the benefits of aquaculture

The Kimberley Aboriginal Aquaculture Corporation (KAAC) has expressed an interest in working with CAT to help ensure the success of their barramundi farming enterprise and to enable other communities to access the benefits of their experience in Broome. CAT is drafting a literature review on market opportunities and infrastructure requirements for aquaculture, which will be completed soon. KAAC have requested assistance with renewable energy for running aerators, processing and storage equipment, monitoring water quality, market research and working with communities.

Storing fuel and food

The capacity to store fuel affects the sustainability of communities and outstations. The previous pattern was to store enough fuel for three months. However, this has been extended to six months where possible, and some communities store enough fuel for an eight-month period to deal with the problem of being cut off during the wet season.

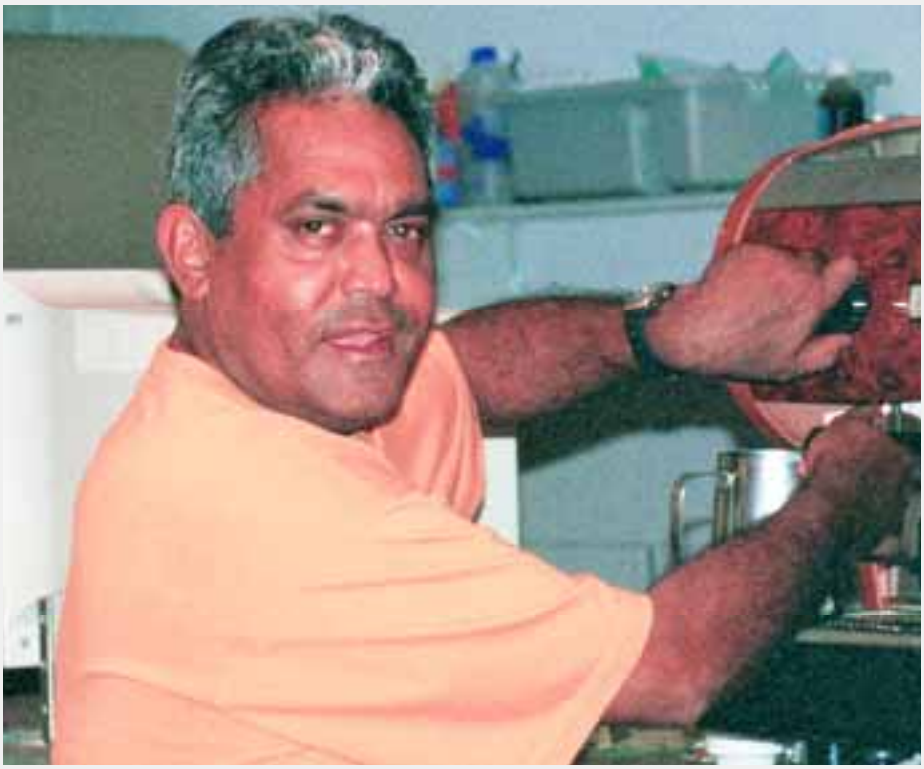
Food storage also affects the viability of communities and outstations. Infrastructure is required – dry storage areas and cool rooms. Communities need support to organise and budget because it's very expensive to buy enough food for six months to enable it to be stored. Most communities in remote areas do not have a main store. About ten out of 70 communities in the Derby area have stores. The mail train tends to bring only fruit and vegetables, not dry goods. More than a few hundred people are needed to make a store viable. Some smaller communities are trying to start up their own form of a store in a spare room but it's very difficult to make it work without support. During the dry season, an important reason for travel is to visit a store in a neighbouring community.

Communications

Improved communications facilities are very important if communities and outstations are to become more viable or more self-sufficient so that people do not have to travel to communicate with each other. Telstra provides a good service in general (although mobile phones do not work in remote areas). However, the conditions and the logistics of reporting a fault can present their own problems. One community had a public telephone that was struck by lightning. The community members did not have a radio and had to travel 80kms to the nearest telephone so they could ring Telstra and report the problem. Telstra service staff came out and repaired the telephone and it was struck by lightning again the same day.

A radio backup is essential. Broken radios are a problem in many communities. The Royal Flying Doctor Service channel can be used or other channels are available. Larger communities and resource centres have radios and some people have radios in their vehicles. The RFDS was advocating the use of satphones. However, these are not a good option as the primary or sole means of communication in emergencies as access to the service may be cut off for non-payment of bills.

The Kimberley is a different kind of place, with its own unique challenges, governance structures and cultures. If communities in the Kimberley are to survive and prosper, urgent action is needed at a policy level; to look at long-term structural change that will enable communities to meet their livelihood aspirations.



Glenn Bird — this business wants for nothing

"I have found the matrix", Glenn Bird declares. "My dream was to bring three products together – the internet, Aboriginal art and coffee. I knew they would complement each other, and I can now honestly say, in July, coffee sales came in on top at 35% with art sales at 33% and the internet at 31%."

The mix hasn't settled yet and is not likely to be so neat over time but Glenn has definitely found a winning combination. The three products in one, in a shop that can be run by one person, is a small business success story. On one day Glenn might sell three didjeridus. On another, art might not sell, but sales of sandwiches and coffees will keep up the cash flow, and there's money coming in from the internet.

Glenn thought up the idea five years ago and opened the Didj Shop Internet Café in Katherine in October 1999. In early September he paid the last installment on his bank loan.

"This business wants for nothing," Glenn says. "The power source is within; it needs no other knowledge. I don't have to teach people to make art." Or how to grow coffee, but learning how to make good coffee was, Glenn says, the most stressful part of the business in the first 12 months.

Glenn had been selling didjeridus on the internet since the early nineties, but he didn't have a cafe latte upbringing. Coffee was the mystery corner of the triangle for a man who grew up at Cherbourg, drinking tea. To find out about coffee, Glenn picked up a book. It was a lot more complicated than he had thought.

Seeking to buy a commercial coffee-making machine, Glenn found the wholesale agent ran a cafe in Alice Springs. After ordering a machine, Glenn asked if he could come down and work for free in his café. Glenn took the bus down to Alice Springs one Friday and worked the weekend. This training was enough to begin with but it was some time before Glenn conquered the art of producing the crème on an expresso. "It's like anything else", he says now. "You've got to master it."

The gallery section of the shop was the easy part. Glenn's years of experience in the Aboriginal art and crafts business were his strength. Start with what you know, he used to tell people back when he was a TAFE training officer in the early 1980s in Rockhampton. "Every decision you make at any time is the right decision because if you don't make a decision you're going nowhere."

Glenn saw the potential of e-commerce early and registered http://www.didj.com.au as a web address. Of course, he only sells didjeridus that are cut and painted by Aboriginal people. "This means that not only do you get a good playing didj, but you get a good painted didj," he tells visitors to his website.

Glenn studied bookkeeping and counts this as essential to the success of the Didj Shop Internet Café. Knowing how to read accounts not only gave him the tools for making decisions but also the confidence to negotiate with financial institutions.

While running his didjeridu business, Glenn was assisted by a special training program from 1991 to 1993. He studied the certificate III in business at the NT University regional centre in Katherine.

Glenn's eye for design has been an asset. After taking a lease on the space that would become the Didj Shop, he spent a long day trying to work out how best to fit in the three elements; café tables, a bank of networked computers and an art gallery. Fed up, he sat down on the floor in the middle wondering if he'd ever get it right. Then he realised that was it. He would be in the middle. Glenn drew the design with chalk on the floor.

The Didj Café is painted ochre with a deep red floor. Glenn serves coffee, sandwiches and cake from an island in the centre. On one side, honey brown tables shape out a relaxing café. On the other side is a gallery of fine art and crafts. Customers access the internet from five computers on the café side of the central counter. When they look up from the screen and across the counter they see a display of Aboriginal art.

The Didj Shop Internet Café has won a favourable mention in the Lonely Planet guide to Australia, the backpackers' essential, but Glenn's largest group of customers are caravanners; retirees who have the time to sit and relax. Glenn plans to add office facilities for the travellers; word processing, faxes, CD burners and scanning.

Other frequent visitors are children who drop in on the way home from school for a drink of water. "Is this your shop?" they ask. Yes, it's mine, Glenn tells them, happy to be a role model.

The Didj Shop Internet Café is at shop 3, 22 Katherine Terrace, near the intersection with Gorge Road.

Glenn wears a T-shirt bearing his business trademark; an image of a Mimi spirit.

Container deposit legislation (CDL) would set up a deposit-refund scheme that involves providing a deposit on the return of aluminium cans, glass and plastic bottles.

Deposits on drink bottles: Will it work in the bush?

The container deposit legislation (CDL) proposed for the NT may have negative effects for Indigenous people living in remote areas of the Northern Territory, Trish Morrow wrote in a submission to the NT Container Deposit Review. The economic impact would be high and the environmental benefits almost non-existent. The CAT submission had two key recommendations: (1) a Territory-wide trial prior to full implementation to determine the impacts on communities in remote areas and identify ways to address any negative impacts; and (2) that any funds collected from beverage container deposits or handling fees, paid by Indigenous people in remote areas, should be returned to Indigenous communities for improvements to waste management and water supply, in cases where these deposits are not reimbursed directly to the consumer. Copies of the full submission are available free from CAT. *Below are some extracts.*

Possible impacts of proposed CDL

Indigenous people will have to pay the cost of a deposit on each beverage container (this is set at five cents for a similar system operating in South Australia), and there is no guarantee that this deposit will be refunded. It is understood that a non-refundable waste materials handling fee levy of up to four cents also would be paid by Indigenous people.

In some areas, Indigenous people have a higher consumption of carbonated beverages than non-Indigenous Australians, and would thus be disproportionately adversely affected by the proposed new legislation. For example a food and nutrition study carried out in an Indigenous community in Oak Valley found that the per capita consumption of soft drinks was 5.35 times the Australian national average.[1] Another study found that 291.70 ml per person of soft drinks were consumed daily by Indigenous people.[2] The increased consumption of carbonated beverages in Indigenous communities has been partly attributed to the quality of water in some communities,[3 4 5] however there are likely to be a number of other factors involved, such as extremely high daytime temperatures in summer and lack of water cooling facilities.[6]

The average Australian consumes 113.0 litres of carbonated beverages per year. Assuming that the average bottle size is 350ml and a deposit of five cents is paid per container, approximately an additional $16.00 per year cost would be incurred by Territorians who consumed average quantities of carbonated beverages. Residents of urban areas like Darwin and Alice Springs are likely to see this money refunded, whereas Indigenous people living in remote areas are not. **If Indigenous people Territory-wide do indeed consume about five times the national average for carbonated beverages, the economic impact on each individual in an Indigenous family would be $80.00 per year**.

Container Deposit Legislation may impose higher (non-refundable) handling fees on Indigenous people in remote areas than on residents of Darwin or Alice Springs. The highest container handling costs are likely to be incurred by the smallest retailers. Small community stores in remote areas will thus possibly be subject to a higher handling fee than their counterparts in Darwin where the benefits of the proposed new legislation would be experienced.

Many Indigenous communities are very small, with 644 communities scattered throughout Australia containing less than 20 people.[7] These small communities will never reach a 'critical mass' of population size to make the collection of empty beverage containers financially attractive to transport service providers driven by market forces. A trial is needed to ensure that transport service providers will actually collect beverage containers, as hoped.

Waste management is not the principal environmental health issue in remote areas. Not only might the proposed legislation fail to address the most important environmental health issues in remote Indigenous communities, but it might create new problems. To avoid a proliferation of pests in community stores, water is needed to wash beverage containers prior to storage or transport. Water is extremely scarce in many Indigenous communities,[8 9 10 11] affecting their long-term sustainability. Using water to wash beverage containers for recycling may make less water available for drinking, cooking, personal hygiene (e.g. trachoma prevention) and clothes washing.

The increased costs of handling for beverages are likely to be passed onto consumers. The UK Industry Council for Packaging and the Environment contend that these increased costs result in lower profits for the supplier also. Store owners or other retailers respond by reducing the range and quantity of these less profitable products. This could mean that consumers in Indigenous communities would have less of a choice of beverages and that a reduced quantity would be available for purchase.[12]

For a free copy of the submission *Possible unintended side effects of proposed container deposit legislation for the Northern Territory for Indigenous communities, and suggestions for redressing imbalances* by Trish Morrow, telephone CAT on (08) 8951 4311.

Afterword The steering committee that conducted the public consultation reported to Kon Vatskalis, NT Minister for the Environment, in May. At the time of going to press a ministerial statement on CDL was imminent.

Please turn to page 19 for footnotes

A toilet block on site at Devil's Marbles, and possibly more than the 50 metres required distance from a dwelling.

Last step for an order of drums ovens; burning out any remaining oil. Jon Veverbrants is speeding up the process with a blow torch. Usually, burning a fire for a few hours does the trick.

Quality products sold by word of mouth

CAT is best known as the producer of bush-hardy products like drum ovens, ablution blocks and chip heaters. These have been manufactured by hand in the CAT Workshop for more than 20 years. In more recent years CAT has increased its work in research, technical services and information provision. An ongoing review aims to bring the workshop into the new focus.

The workshop has built a reputation for quality products. As there is virtually no marketing, sales of some 200 items a year rely on the word of mouth recommendations of customers. Often new customers have seen a product operating in a remote community. Sometimes they have just heard about it, and the news may travel many hundreds of miles. Recently, a resident in the south of Western Australia requested information about a product she had heard about in the far north of the State.

The products are designed to work in remote communities and to suit the lifestyle of residents. The Hand Powered Washing Machine, one of the first products, was designed in direct response to requests; women wanted to wash blankets but didn't have electricity or couldn't get an electric machine repaired. The machine is powered by a hand pump, copes well with dusty conditions, is easy to use and easy to service and repair.

All products are manufactured by hand and often custom-made. Not surprisingly, in a prefabricated age, it is a big challenge to make this stack up economically. ATSIC helps with an ongoing grant towards staff costs. However, although the workshop order book has been full during most of the last four years, there is a big gap between costs and sales.

An initial review suggests there is a significant and probably higher demand for products than has been achieved in recent years. The workshop has highly-skilled staff and unique, quality products. With all these pluses, the CAT Board has adopted a plan to reduce the gap between sales and costs over the next two years.

The workshop will be re-organised with improved staff amenities, and work processes which conform more closely to industry practice. As an example, the most popular products may be produced in batches rather than as one-off items to meet orders. Storage space for stock will need to be created so a 'clean-up' and tighter control of space is first on the list.

An on-the-floor supervisor will join the team. Linton Espie, who has been a lecturer with the education and training section, has moved across. He will be tightening the arrangements with suppliers. While many products are being produced on a short,

Peter Howells attaches the door to an ablution block.

Products which work together. The Ablution Facility is a shower and laundry block made of modular panels with a concrete base, cast on site. Here the plumbing is connected to a Chip Heater, which runs on wood and leaves. There is plenty of room for the Hand Powered Washing Machine (right).

two-week turnaround, production is dependant on the availability of supplies and there have been long delays in some jobs due to a wait for parts.

Product development

There will be a more structured approach to product development and innovation. In part, this could build on the prototypes custom-built in response to requests. For example, a combination bush oven and hot plate recently was delivered to a community in East Arnhem Land.

Former part-time manager of the workshop, Andrew Lane discussed the product specifications of the Bush Microwave (oven) and the Low Stove (hot plate) with the customer who then asked if these could be brought together as one unit to put on a veranda. Workshop staff developed the idea and consulted further with the customer to design the unit so the fire could be fed from the most convenient direction.

Inquiries and orders

To find out more about workshop products and to order, please contact Linton Espie on telephone (08) 8951 4311.

Customer feedback on how the products are performing and your ideas for improvements and new products are welcome.

Quality control: Jon fits the final bolts on a bough shelter. Once checked, the shelter is taken down and packed for delivery.

TOP 5 selling products

Crowbars
Drum Oven Kits
Low Stove Kits
CLC Signposts
Chip Heaters

What's so special about the Crowbar? Surely, it's just a steel rod hardened and flattened to a blade at one end. But in the CAT Workshop, crowbars are custom made to length; shorter for digging when seated, longer for digging standing. At 16mm it's lighter for carrying over distance and the shorter crowbars can double as a walking stick. And, putting in that extra bit of thought, the blade is dulled a little; this tool will be lying on the ground around campsites.

Drum Oven Kits and Low Stove Kits. The kits were developed to make transportation easier. All shaping and tricky welding is done but the products are kept in parts and delivered as a kit. Communities save on freight and sometimes the products can be included in a regular delivery run. On two occasions now, assembling a batch of kits has provided a training opportunity. A workshop staff member has taught basic welding and oxy-thermal cutting, and led a CDEP group in putting the products together.

CLC Signposts. The Central Land Council is the biggest customer for signposts, mainly to display the large yellow 'you are entering Aboriginal land' signs at the entrance to communities. The workshop makes signposts for others but the CLC is a regular customer. Again, the product is custom-made; CLC staff drop off the signs at the workshop and the posts are made to fit.

To avoid smoke from the chipheater entering his house, Michael put an extension on the chimney.

How well have technologies worked?

On a recent trip to Mona Mona Aboriginal community, Stuart Downs of the CAT Cairns Office was able to check the performance of technologies installed four years earlier.

What are the lessons from the field? Even good design cannot anticipate all problems. And issues beyond the technical will affect the success of technologies.

Stuart interviewed Michael, a resident of one of the owner-built houses about how the technologies were performing. Michael's house had been provided with a composting toilet, generator, and chipheater, and the associated plumbing, drainage and electrical wiring works.

Michael reports that the equipment has given him quite reliable service. The community water supply is much more reliable than the previous system and provides very good quality water to his house which he drinks straight from the tap. One complicating factor for the water supply is the need for improved management of the system and some local governance structure.

The technologies in Michael house all are working well but there are some problems.

Composting toilet

The composting toilet installed at Michael's house is a commercially available model; the Nature Loo. Michael likes the design ideas behind the toilet and says it has worked well but he has identified a few shortcomings.

The fan that draws air through the toilet pedestal into the composting chamber and up the vent is an essential element. When the fan is working there is no problem with flies. When it stops the toilet room becomes smelly and flies are attracted to the toilet. Both the initial fan and a spare replacement fan have failed. Each only lasted a few months.

The Nature Loo is a batch composting toilet. This means that one chamber is used until it is full. This chamber is removed and a second chamber put in place. The first chamber is sealed off and allowed to compost while the second chamber is in use. Michael agrees with this design principle but says the chambers are too big and heavy once full to move easily. Also, the liquid drain connection at the bottom of the chamber is awkward and messy to disconnect prior to moving the full chamber. Liquid flows out of the drain hole once the disposal pipe is disconnected. This could be a health hazard. Also, the chamber is too big to lift up on a tilt to allow the excess liquid in the bottom to drain out.

Michael has quite a lot of experience with composting and gardening. He decided to add a small amount of soil and some worms to the first bin while it was composting. This was not specified by the manufacturer but worked well. The material inside the bin turned into a soil-like product within a few weeks.

The toilet building located at the back of Michael's house is in good condition after four years. However, it gets very hot as the colorbond cladding absorbs the heat. On the plus side, it does stop people sitting and reading comics for too long.

Stuart Downs inspecting the composting toilet four years after installation.

CAT chipheater

The installation of chipheaters at Mona Mona brought hot water to showers for the first time. Overall, Michael's chipheater is performing well. However, there are two major shortcomings.

The firebox at the bottom of the chipheater is too small to take large logs. Michael suggested a larger firebox and also higher off the ground. The current, small firebox must be fed constantly to keep the hot water coming out.

The chipheaters seem to rust quickly in the tropical climate. If the chipheater is used every day then rust isn't such a problem but even one day of no use causes rust to form. It takes several days for the water to clear up after it hasn't been used for a while. There also is a metallic or steel smell and taste to the water. Michael says it isn't a problem but maybe you wouldn't want to wash clothes with the water as they may be discoloured.

Michael identified a third problem and solved it. His house is quite open and high. To avoid smoke from the chipheater entering the house he put an extension on the chimney to send the smoke above his roof. This gave the firebox a better draw-up for the fire. Michael's extension had a 'T-piece' at the top to stop rainwater entering the chimney. He had observed that the rain in north Queensland was easily enough to put out the fire in the chipheater.

Plumbing and drainage

All the internal plumbing, taps, sinks and drainage have performed well. Michael hasn't had any problems with these systems. He has emptied the grease trap twice since installation. It has worked well, meaning that no grease has made its way into the disposal trench. Some of the metal handles in the grease trap have rusted badly which makes the job of emptying it more difficult.

Generator and lights

The generator and electrical system have a mixed history. Michael had two generators fail in a short period. They were both replaced under warranty. The third unit has been performing well. He changes the oil and tops up the coolant levels regularly. There was an arrangement for all the generators to be regularly serviced. This was carried out for a while but has stopped in recent times.

All the wiring in his house continues to work. Several lights were fitted with push-button switches that stay on for a few minutes and then switch off. These switches have been constantly inhabited by ants, which stops the switches working. When cleaned out the switches work again but the ants come back. The lights still are intact and work when the switches are cleaned.

Where to from here?

At the time of installing these systems, much thought went into choosing sturdy and good quality components. The tradespeople employed had vast experience with the common problems that occur in remote locations and paid attention to addressing some of these.

It is clear that products sometimes can be faulty. This creates a much bigger problem when the product is installed in a remote location. In a town, the equipment can be taken back to the supplier. In a remote location it is a much bigger exercise to return the equipment even if it will be repaired under warranty.

Simple design and good quality products and installation work will contribute significantly to trouble-free operation. Often, this will cost more up front but can provide substantial savings by avoiding problems later.

There also are many unforeseen problems. A good product like a push-button timed light switch can be a perfect home for an ant.

Designing the hardware well is an important step but it is insufficient to ensure the service actually works. It is clear in Mona Mona that the key is governance: people's ability to work together to manage their services. Shortfalls in governance can stop the infrastructure at Mona Mona working well. If there is no water or power, it is probably due to a dispute over buying diesel. This becomes the weak link when the hardware is well designed and well built and isn't failing because it is faulty or of poor quality.

The hardware also may fail because it hasn't been properly maintained. Again this usually happens because of a lack of management and not simply a lack of maintenance skills. In a situation of strong governance people would work out how to access the maintenance skills; e.g. put cash regularly into a maintenance account and pay a tradesperson to come out and do the servicing.

ESSENTIAL WORKS AT MONA MONA

Back in 1997/98, CAT Cairns Office was involved in a National Aboriginal Housing Strategy (NAHS) project at Mona Mona, near Kuranda. The project started with an essential works phase to get basic water, wastewater, power and housing services in working order.

A new water tank was installed with rising main from the bore and a new reticulation main from the tank to the existing reticulation pipework. Each of four main houses had water, drainage and electrical systems checked, and repaired where necessary. Owner-built shacks were provided with a caravan-style power box, internal wiring to remove the need for extension cords, a sink and laundry tub where necessary, a CAT chipheater for hot water, a grease trap and wastewater disposal trenches. Shared ablution buildings were installed amongst nearby houses. Two owner-built houses were provided with composting toilets. Five small generators were installed and shared amongst groups of houses.

The essential works phase was followed by a participatory planning phase to consider future aspirations and uses of the Mona Mona land.

RADIO: ACCESSIBLE 24-HOURS A DAY AND ADAPTABLE TO MANY POWER SOURCES. IN KENYA, THIS WOMAN RUNS HER RADIO FROM AN ITDG SOLAR LANTERN. PHOTO COURTESY ITDG

COMMUNITY RADIO – the medium of the people

by Trish Morrow, CAT, Alice Springs

Friends, shamans, countrymen, lend me your ears…. What do a group of Bolivian miners, a Colombian Catholic priest, a Peruvian radical feminist collective and a group of refugees in Tanzania[1] have in common? The answer is community radio.

Community radio is a powerful force for change in locations as diverse as Kiribati, Zambia, Kununurra and Yuendumu. Of all the different means of communication for social change and development, radio has been found to be the most powerful.

"Community-based radio is one of the best ways to reach excluded or marginalised communities in targeted, useful ways", according to Denise Gray-Felder of the Rockefeller Foundation, who commissioned a new report on communication for development, entitled *Making Waves*.

What's so good about community radio?

Why has radio been more successful than the much-acclaimed internet, video, television and travelling theatre groups? One reason is that the internet requires sophisticated hardware which is not available in remote areas of many countries. Another is the high cost of video equipment, the need for more specialised training and the difficulties of maintaining video equipment. Radio is accessible 24-hours a day, and does not have as high a power consumption as television. You don't even need batteries to listen to the manually-operated Freeplay Radio in Africa.

Radio messages about environmental health, worker's rights, or domestic violence can form a backdrop to everyday activities such as chopping firewood or preparing food. Anyone who has travelled on public transport in Latin America has been bombarded with a whole spectrum of music, news and entertainment via radio, at decibel levels you can't ignore.

Community radio has the power to overcome the language barrier by broadcasting in local languages. It provides information to people with low literacy and those who prefer to learn by listening to stories rather than sitting in a classroom. It is a very appropriate technology for bridging the digital divide[2] and it enables Indigenous people to develop and share knowledge, using participatory processes.

"Radio, by nature, gives us the ability to 'hear' content, context, passion and pain," says Denise. This view is shared by Indigenous broadcaster Adrian Shaw, who has fifteen years of experience, and was with BRACS and CAAMA before joining CAT in Alice Springs. "Unlike television where the pictures tell the story, or print where you can look at a picture and then read the story, radio relies on the imagination", says Adrian. "If you can work the sounds, music and everything well, radio can be a very powerful medium."

"*Our Place* radio is about getting people's stories of their lives", according to Adrian, "You can have music on Aboriginal radio but the real strength of it is doing good stories about real issues from society."

There are thousands of small community radio stations all over the world. The community radio movement started in Latin America and has blossomed out to the rest of the world with Asia, Africa and the Pacific fast catching up. Radio is being used to share information and innovation, encourage people in remote areas to participate in the life of their community, enhance processes of democracy and other forms of governance, and celebrate local identity, diversity, values and culture.[3]

Development communication paradigms

A number of different methodologies of development communication apply to community radio. These include social marketing, community animation, IEC (information, education, communication) and adult education.[4] Initially, radio was used for mass communication for the top-down transmission of information, or educating people for their own good. Now radio is used for grass-roots community organisations to share stories and exchange ideas.

The need for participatory processes for development is now recognised.[5] Radio is no longer seen as a tool for transmitting only technical information. It also is used to highlight awareness of the assets people have; the different challenges, constraints and problems that they face; and the conflicts between different interest groups. Rather than promoting technical solutions as a *fait accompli*, radio is being used to develop *technacy* so that people at the grass roots obtain the infor-

Women who speak up: feminist women's radio in Peru

Mariella is one of a group of university-educated women who have eschewed high-profile, high-paying jobs to work together with their sisters in Peruvian villages on community radio. Their mission is to inform women about human rights, rights to choose whether to have children, rights to access education without fear or prejudice, rights for women undergoing the painful process of divorce. Women in Peru suffer from a conspiracy of silence. For some, violence and abuse are everyday events. Manuela Ramos's program *Forbidden to listen to us* helps to break the silence by broadcasting information and opinion to a wide audience on a whole range of forbidden topics such as contraception, family planning and violence.

The radio counts a change in attitudes as its major success. Women and men in increasing numbers have become aware that violence is not acceptable. This sort of message was not being broadcast on the mainstream media.[19]

mation they need to solve their own problems.

There is debate in the international literature about how political community radio can be and whether it should be used for education and information only. A different approach is taken by those who believe in 'the paradigm of another development'. This paradigm recognises that there is more to development than material prosperity. Development includes cultural development and community development, not just opportunities for enterprise and trading.

This principal methods used for this 'paradigm of another development' are examining local problems from a local perspective, prioritising, formulating possible alternative solutions, identifying the information needed to implement or research these solutions, and acting to bring about change[6]. Any changes made are broadcast within the community and to outside stakeholders such as local authorities.

Community multimedia centres

There is an international trend towards integrating community radio with other types of information and communication technologies to form Community Multimedia Centres. The centres may consist of simply a small portable radio station, and a single computer terminal for emails, surfing the internet, and office and library facilities. Other, more elaborate, centres include a wide range of multimedia facilities, the ability to download and print newspapers and link to the local hospital for telemedicine applications.[7] Whatever the level of technology, these telecentres are geared towards collective community access.

While community radio has a wide range of benefits, its application can be improved even further by combining it with other information and communication technologies. Radio has a limited broadcast range, and to link community radio with the rest of the world, it is necessary for the community to also have access to telephones, faxes, email, television and newspapers. The usefulness of radio is multiplied by 'radio browsing programs'[8], where listeners can request information from the broadcaster, who surfs the internet to find the requested information, then presents it in a culturally-relevant way using local languages.

Women making (air) waves

International research shows that the inclusion of women in all aspects of community radio, or 'gender mainstreaming' is the next frontier.[9] The case study of the Peruvian feminist radio collective *(see box)* is one example of this. Radio is one avenue for women to gain entry to the world of information and communication technologies. The confidence gained from the use of radio stands women in good stead for tackling the internet, especially women who have had little formal education.

How does community radio operate in Australia?

Radio station 5NPY Anangu Winkiku (people's radio) has broadcast studios at Umuwa linked to mini-studios throughout the Anangu Pitjantjatjara (AP) region.[10] It was the very first Indigenous radio program to be produced entirely within Indigenous communities. A dedicated 10kHz telephone line is used to transmit the radio signal from Umuwa to Alice Springs, to Imparja TV. The signal is encoded and uplinked to a satellite, then narrowcast to the AP lands using BMAC decoders which change the signal to FM for re-broadcast using existing low-powered transmitters.

Broadcasting of local news and information is carried out in local languages. Some content is sourced from CAAMA (Central Australian Aboriginal Media Association) and NIRS (National Indigenous Radio Service). Any member of the target audience can broadcast information using one of the small mini-studios found throughout the AP lands.[11]

Ernabella Video and Television, now called PY media, was one of the first pirate media stations in Australia. Warlpiri Media was set up at about the same time. Warlpiri Media aimed to broadcast in language for internal consumption. Video tapes also were broadcast. After the formation of EVTV and Warlpiri Media, the BRACS (Broadcast Remote Area Community Scheme) network was set up. This allows certain smaller communities to broadcast through the bigger stations.

"Australian Indigenous Community Radio has helped to maintain language across the country", according to Adrian Shaw, CAT radio presenter. He gives the example of a woman in Alice Springs who cried when the radio was turned on because it was the first time that she had heard a broadcast in her own language.

There are many other radio stations broadcasting through the BRACS scheme.[12] Most of the funding for Indigenous radio broadcasting is provided by ATSIC. Each BRACS station has the ability to broadcast two FM radio channels; CAAMA and a local station, as well as two UHF television channels; ABC and Imparja. Imparja is the Central Australian Aboriginal Broadcasting Service.

A typical BRACS broadcasting station has two video recorders, two CD players and two audiotape players tied into a mixing desk. There are two television channels so, if local content is to be broadcast, then either Imparja or the ABC must be switched off.

BRACS networks have been installed in

Community radio in Africa. Workers hoist the new antenna on to the roof of the community broadcast studio.

Adrian Shaw preparing a radio segment.

North Queensland and the Torres Strait Islands, northern South Australia, in the Pilbara and Kimberley regions of Western Australia and throughout the Northern Territory.[13] Broadcasting agencies in the Top End grouped together to form the Top End Aboriginal Bush Broadcasting Association (TEABBA).[14] The network was based first at Batchelor Institute in Batchelor, where it provided training to Indigenous students enrolled in a diploma program in broadcasting and journalism, as well as broadcasting under the call sign of Radio Rum Jungle. In 1994, TEABA moved to Darwin. TEABBA provides communities in the Top End with programs to celebrate their culture and identity (as distinct from the Central Australian focus provided by CAAMA). A number of language groups are served by TEABA, which provides a model for a radio satellite network.

For information on the Indigenous radio station closest to you, contact the National Indigenous Radio Service in Brisbane; telephone (07) 3252 3710.

What's new in Australian Indigenous community radio?

A Community Development Radio Service is planned for North East Arnhem Land.[15] This will cover over 90 outstations as well as nine major communities and will broadcast in Yolngu Matha. An FM service will allow Yolngu people in Darwin to keep in touch with what is happening at home on their traditional lands. Content will include news, current affairs, education, cyclone warnings, talk-back shows, traditional poetry, songs, music, proverbs and bedtime stories. Traditional song cycles will be recorded and archived. People will be able to broadcast personal messages to their relatives. The Community Development Radio Service will operate from a station in Nhulunbuy and will involve Yolngu BRACS operators in developing content materials.

1 http://www.cityradio.nu/waves.htm Community Radio: A 'Most Appealing Tool' for the Common Man

2 http://www.unesco.org/webworld/news/pdf/telecentre-us.pdf UNESCO community multimedia centres

3 http://www.unesco.org/webworld/com/broadcasting/broad03.shtml UNESCO Communication Development: Community Radio

4-6 http://www.idrc.ca/books/focus/802/bessette.html Participatory Development Communication

7-9 www.unesco.org/webworld/news/pdf/telecentre-us.pdf UNESCO community multimedia centres

10 & 11 http://waru.org/pymedia/radio/5npynet.html Radio 5NPY BRACS

12 http://www.phm.gov.au/hsc/bracs/Broadcasting for Remote Aboriginal Communities Scheme

13 http://www.phm.gov.au/hsc/bracs/history.htm History of Broadcasting for Remote Aboriginal Communities Scheme

14 http://www.phm.gov.au/hsc/bracs/top_end.htm Top End Aboriginal Bush Broadcasting Association (TEABA).

15 http://www.ards.com.au/briefingpaper-frame.html Community Development Radio Service

16-18 http://www.comminit.com/11-342-case_studies/sld-636.html Radio Kwizera.

19 http://www.comminit.com/Danida/sld~1978.html

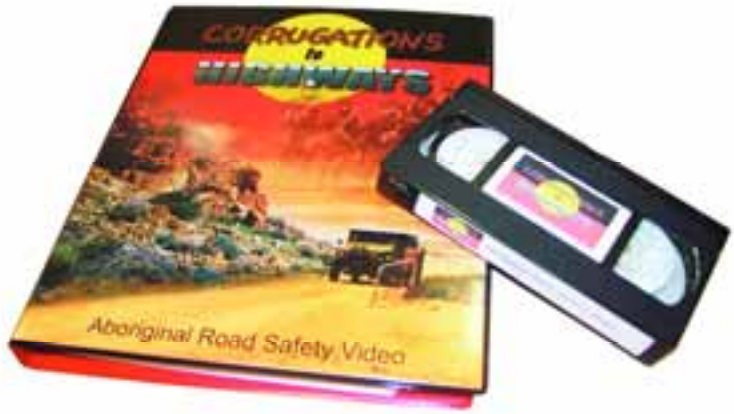
Hope radio takes over from hate radio in Tanzania

"I'm alive, I survived" says one of the community greetings on Radio Kwizera, broadcasting from the Tanzanian border town of Ngara to refugees from Burundi and Rwanda[16]. A bit different from your usual hello and greetings to relatives.

In 1994 there was only radio, Mille Collines, which was used to broadcast propaganda of hatred and division between the Tutsis and the Hutus in a context of war. Some 600,000 refugees fled over the border to Tanzania, to live in giant slums with no electricity, no piped water and limited supplies of firewood. Radio Kwizera was set up to provide education, assist reconciliation and keep refugees informed of developments in their own country. There are programs for primary school children, health education programs including information on maternal and child health, and tips on agriculture and livestock management.[17]

Radio Kwizera's audience includes listeners from neighbouring Rwanda, as well as western Tanzania. It also broadcasts news and current affairs, and community messages which serve an important social function as well as helping people to trace relatives who went missing during the war. Religious broadcasts help to promote inter-religious dialogue, which helps people to work together for community development. Radio Kwizera even uses soap operas to educate people about AIDS.[18]

Corrugations to Highways



Road safety agencies in WA, SA and the NT pooled resources and information to develop the first Aboriginal road safety video and *Corrugations to Highways* is the welcome result.

"Too many of our people have been killed and hurt on our roads", Bob Randall says in the introduction to the video. The statistics on Aboriginal deaths from road accidents are horrific. The supporting notes for this video quote the road death rate in WA, SA and the NT at three times the rate for the non-Indigenous population.

Many of those killed or injured are pedestrians and one of the video's ten segments focuses on how to walk along a road and cross a road safely. Adults are seen showing children how to watch for traffic and there are helpful hints on how to make yourself seen by drivers.

Kids shouldn't play on roads, we're told, because they might forget about traffic when they're having fun, and we watch children skylarking about, forgetting where they are. Such vivid demonstrations of the road safety messages are this video's strength. Aboriginal people are featured throughout and it was filmed in small and large towns, and remote communities.

People demonstrate the wrong way of doing things as well as the right. This works particularly well in the segment on travelling in open load space. Viewers are given more than the message that it's illegal and unsafe. In demonstrating the safety gains of travelling in open load space with a rollover protection device or, better still, in a troop carrier or bus with seatbelts, the video shows viewers how to make safer choices. Choose the safest vehicle available is the useful message.

The picture quality is excellent with good documentary footage, particularly in the segment on road conditions. The viewer is in the driver's seat for a demonstration of how dust obscures vision and also outside the vehicle to see the importance of allowing braking distance.

The sound is clear but varies in volume. However, the volume is consistent within each segment so can be adjusted before screening. The ten segments run from 1 to 5 minutes and are designed to be shown separately. Each segment is introduced and concludes with a review. The supporting notes include a clear guide for group leaders. Questions are suggested for group discussion and there are practical activities using readily available props. The video is in English and can be used across all jurisdictions.

Corrugations to Highways is available free of charge from Roadwise WA. To order: telephone (08) 9213 2066, fax (08) 9321 8378 or email roadwise@walga.asn.au.

FURTHER READING

HOW TO FIND OUT MORE ABOUT THE THEMES COVERED IN THIS ISSUE OF *OUR PLACE*.

POLICY PAPER: Deposits on drink bottles

Footnotes 1 to 12 from page 11

1 Palmer, Kingsley and Brady, Maggie, *Diet and Dust in the Desert. An Aboriginal Community. Maralinga Lands, South Australia*, Aboriginal Studies Press, 1991, Canberra.

2 Palmer, Kingsley and Brady, Maggie, *The Diet and Lifestyle of Aborigines in the Maralinga Region, South Australia*, Australian Institute of Aboriginal Studies, October 1988.

3 Williams, WM, Nicholas, JJ, Nungurrayi, PB, and Napurrula, CR, "Paediatric urolithiasis in a remote Australian Aboriginal community", *Journal of Paediatric and Child Health* (1996) 32, 344-346.

4 Hearn, Bill, Henderson, Graham, Houston, Shane, Wade, Alan and Walker, Bruce, "Water supply and Aboriginal and Torres Strait Islander health: an overview", *AGSO Journal of Australian Geology & Geophysics*, 14 (2/3), 135-146, Commonwealth of Australia 1993.

5 Fitzgerald, Jim, Cunliffe, David, Rainow, Stephan, Dodds, Sandy, Hostetler, Stephen and Jacobson, Gerry, *Groundwater Quality and Environmental Health Implications, Anangu Pitjantjatjara Lands, South Australia*, Bureau of Rural Sciences, Kingston, ACT, 2000.

6 Williams *et al*, "Paediatric urolithiasis in a remote Australian Aboriginal community".

7 Centre for Appropriate Technology, *CAT Submission to the Department of Communications, Information Technology and the Arts, Indigenous Task Force, Strategic Study for Improving Telecommunications in Regional and Remote Indigenous Communities*, 2001.

8 Hearn *et al*, "Water supply and Aboriginal and Torres Strait Islander health".

9 Plazinska, Alesandra, *Microbiological quality of drinking water in four communities in the Anangu Pitjantjatjara Lands, South Australia*, Bureau of Rural Sciences, Commonwealth of Australia, Canberra 2000.

10 Hostetler, S., Wischusen, J. & Jacobson, G., "Groundwater Quality in the Papunya-Kintore Region, Northern Territory", *Record* 1998/17, Australian Geological Survey Organisation, Commonwealth of Australia, Canberra, 1998.

11 Jacobson, G., Jamieson, M., Lau, J.E., Rose, B., Sollieux, M., Wischusen, J. and Woodcock, L., "The Western Water Study (Wiluratja Kapi): a decision-support system for groundwater resources in Aboriginal lands in the arid zone of central Australia." Paper offered for ATSIC National Forum, Canberra, February 1997.

12 http://www.incpen.org/html/excess.htm

Community radio

Communication Initiative http://www.comminit.com

Community Broadcasting Association of Australia http://www.cbaa.org.au

Pacifica Radio http://www.pacifica.org

World Association of Community Radio Broadcasters (AMARC) http://www.amarc.org

Aboriginal Multi-Media Society (AMMSA) - Native, Aboriginal, Canadian communications society http://www.ammsa.com/dsp_login.asp

Westcoast Amateur Radio Association (Canada) http://www.islandnet.com/hamradio/index.html

Community Media Association (England) http://www.commedia.org.uk

Pacific and Oceania radio http://www.business.vu.edu.au/bho2250/Radio/PacificnRadio.htm

Indigenous Program Initiatives, Australian Film Television and Radio School http://www.aftrs.edu.au/school/Special/ipi.html#1

TRAINING VIDEO

my job : Better Environmental Health

my job is a 42- minute video that takes viewers to work with Aboriginal Environment Health Workers. They describe and show what they do to prevent or control the things in the environment that can make people sick. Filmed on location in Western Australia and the Northern Territory, and hosted by Clayton Lewis, this often light-hearted video gives insights into the challenges and rewards of working for better environmental health.

An illustrated booklet includes information on

- The basics of environmental health
- Who works in environmental health
- Healthy living practices
- Education and training for environmental health workers
- Useful references and contacts

The environment includes everything around us – the land, our house, the yard, other buildings, the air we breath, the water we drink, other people, the animals we keep, and the ones we'd rather get rid of (the cockroaches, mosquitoes and mangy dogs).

For inquiries and to order *my job: Better Environmental Health*, telephone CAT on (08) 8951 4311 or email cat.production@icat.org.au

HEAVY METAL

From bore pumps to painting tables, the CAT Workshop constructs a wide range of products that work in remote communities. *(see pages 12 & 13 inside)* Workshop products are for sale on a cost recovery basis. For product specifications and a price list, please telephone Linton Espie at CAT on (08) 8951 4311.

Pictured is the **Mobility Aid**, designed to cope with rough surfaces. A low chair was made as people felt awkward sitting in a conventional wheelchair while family and friends sat on the ground.

The **Mobility Aid** is custom built to suit individual differences and disabilities. It is easy to operate and the occupant can manoeuvre the wheels.

A steel pull-bar is attached to the front of the **Mobility Aid** so it can be pulled through heavy sand or over rocks and stones. This folds back behind the seat when it is not required.

BUSH TECH BRIEFS

BUSH TECH BRIEFS tell you what we've learnt about working with technology in remote communities. Many are fact sheets. Some summarise emerging issues.

Four BUSH TECH BRIEFS are published in each issue of *Our Place*.

BUSH TECH BRIEF #1
Hot Water

BUSH TECH BRIEF #2
Renewable Energy

BUSH TECH BRIEF #3
Stormwater Harvesting

BUSH TECH BRIEF #4
Rainwater Harvesting

BUSH TECH BRIEF #5
Gas Fittings

BUSH TECH BRIEF #6
Carbon Farming

BUSH TECH BRIEF #7
Feasibility of gas and dual fuel

BUSH TECH BRIEF #8
How to get a telephone

BUSH TECH BRIEFS #5 to #8 are in the centre of this issue.

For a copy of BUSH TECH BRIEFS #1 to #4, please telephone CAT on (08) 8951 4311.

Our Place is published three times a year by the Centre for Appropriate Technology Inc.

To join the mailing list, email ourplace@icat.org.au, or telephone (08) 8951 4311.