



ourplace
NUMBER 36

HISTORY

CENTRE FOR APPROPRIATE TECHNOLOGY 1980–2010











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We are pleased to bring you this special edition of Our Place Magazine Number 36 which documents significant moments and achievements in the 30 year history of the Centre for Appropriate Technology (CAT). This edition coincides with the move of CAT's Head Office in Priest St Alice Springs to the Desert Peoples Centre located at the Desert Knowledge Precinct on the South Stuart Highway. It also coincides with the transfer of the leadership of CAT from the founding CEO — Dr Bruce Walker — to Peter Taylor who has been appointed as CEO for the next stage of CAT's journey.

The feature article is an essay written by Glenn Morrison based on research by Professor Alan Mayne on the history of CAT. The essay tracks the story of CAT, from the early days when Bruce Walker arrived in Alice Springs to take up a position as Lecturer in Appropriate Technology through times when the CAT workshop employed more than twenty full time Aboriginal staff, designing, building and selling a range of products to Indigenous people and communities. It explores the growth of CAT, nurtured by the strong leadership of its long serving and committed Indigenous Board, into education services, technology research and evaluation, project management, service delivery, the establishment of corporate partnerships and new ventures. The essay also highlights the responsiveness and flexibility of CAT in identifying issues with technology and working alongside Indigenous communities to problem solve those issues.

Snapshots of projects and initiatives undertaken by CAT are featured throughout. These snapshots provide a flavour of our work over the past 30 years and are a testament to the many staff, Indigenous and non-Indigenous, who have been employed at CAT. In the space available it has not been possible to provide a more comprehensive picture of CAT's endeavours nor to record each and every person who has been a part of CAT. We have attempted to weave the narrative of community, achievement and opportunity that is the Centre for Appropriate Technology.

Metta Young

Centre for Appropriate Technology

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Our Place is published three times a year by the Centre for Appropriate Technology, an Indigenous science and technology organisation, which seeks to secure sustainable livelihoods through appropriate technology.

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Opinions expressed in Our Place are those of the authors and not necessarily those of the CAT Board or staff.

WARNING: This magazine contains images of Indigenous and non-Indigenous people. Caution should be exercised while reading this magazine, as some of these images may be of deceased persons.

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History

Centre for Appropriate Technology 1980–2010

Written by Glenn Morrison
Research by Professor Alan Mayne

In the early months of 2010, the Centre for Appropriate Technology moved out of the premises it had occupied for almost 30 years at Priest Street in Alice Springs. It would take up residence in the newly-constructed Desert Peoples Centre, the cornerstone of an innovative joint venture with Batchelor Institute of Indigenous Tertiary Education. The joint campus, about 5 kilometres south of the town, is dedicated to knowledge of the desert and its peoples.

To commemorate the occasion, CAT commissioned the writing of a history of the organisation, its work, the successes it has enjoyed and the storms it has weathered, over three decades. This history is drawn from a broader work by University of South Australia history professor Alan Mayne, who is researching an official history of CAT, drawing from archives to unearth the development of an organisation that has carved itself an important place in Australian Indigenous life and political history. Dr Mayne's extensive notes formed the basis for the writing of much of this essay.

Of course, CAT did not emerge in a vacuum, and it's important to tell the story of what went before, the political events that shaped the organisation and the challenges that now lay ahead.

As the 1970s drew to a close, the dawning of a new era in Aboriginal affairs was well underway. Under discussion was how to best help the growing number of settlements of Aboriginal people dotting the remote regions of central Australia. The residents of these communities were in need of basic needs including water, housing and sanitation. Many agreed that new technologies were required, one that was appropriate to the circumstances and needs of these people. In May 1980 Bruce Walker, a young teacher from NSW answered this call. He arrived in Alice Springs to develop a centre dedicated to appropriate technology and the development of Indigenous people.

Today the Centre for Appropriate Technology (CAT) is a major national Indigenous science and technology organisation employing more than 120 people working in projects across the globe. It is a large and independent, not-for-profit corporation aimed at supporting sustainable Indigenous livelihoods and communities through the use of appropriate technology, with an annual turnover of $23 million.

There have been three broad phases in CAT's development. During the 1980s it became known for its ability to build things in the bush; essential services such as running water, housing and functional toilets. Many of these early works are still in operation

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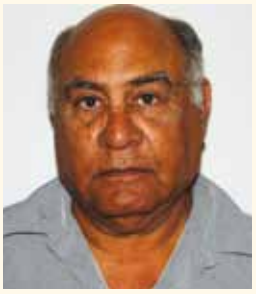
THE BOARD

The Board of CAT was established with its incorporation in 1989. Jim Bray has been Chairman of the Board since its inception. Board membership has evolved over the life of the organisation reflecting responses in governance to the shifting Indigenous affairs environment. In the 90s the Board membership reflected ATSIC representative expectations.

In 1994 the Board set up a National Advisory Committee (NAC), which ran until 2002. It was made up of representatives of three state and territory governments, CSIRO, the association of professional scientists and engineers, universities active in technology research, the research leader from Rio Tinto Technical Laboratories to provide advice on CAT's research and national program activity.

Many of the current Board members have been serving CAT in a voluntary capacity for 15 years or more.


Jim Bray


Jenny Kroker


Steve Hirvonen


Frank Curtis


Jeannie Liddle


Rose Kunoth-Monks


Noel Hayes


Dale Jones


Peter Renehan

today. Its efforts made possible a return to country for many Aboriginal people and supported the emergence and establishment of the western desert art movement among other things.

During the 1990s, CAT broadened its role to become a training institution and ventured into the broader public policy debate regarding Indigenous Australia. By the turn of the century CAT had made its presence felt in Indigenous politics and formulation of policy.

As it matured, CAT found that it was one of a growing number of organisations striving to reduce Indigenous disadvantage at a time where policies of the past were under question. Positioning had become important. The award winning Bushlight solar energy program was launched in 2002 and CAT started commercial operations through Ekistica Pty Ltd in 2008. CAT had, by virtue of almost three decades of hard-won experience on the ground, become a leader among its peers.

Yet these past few years have been demanding for CAT, says founding CEO Bruce Walker. And perhaps its greatest challenges still lie ahead. Ongoing shifts in government policy and investment arrangements have escalated uncertainties and issues for the very communities CAT was created to assist.

CAT came from humble beginnings. Its seeds were sown with the monumental shifts in attitudes towards Indigenous people wrought in Australia during the 1960s, and in the changes following the 1967 referendum, which is where our story begins. National sentiment towards Aboriginal people in Australia is often said to have begun with the

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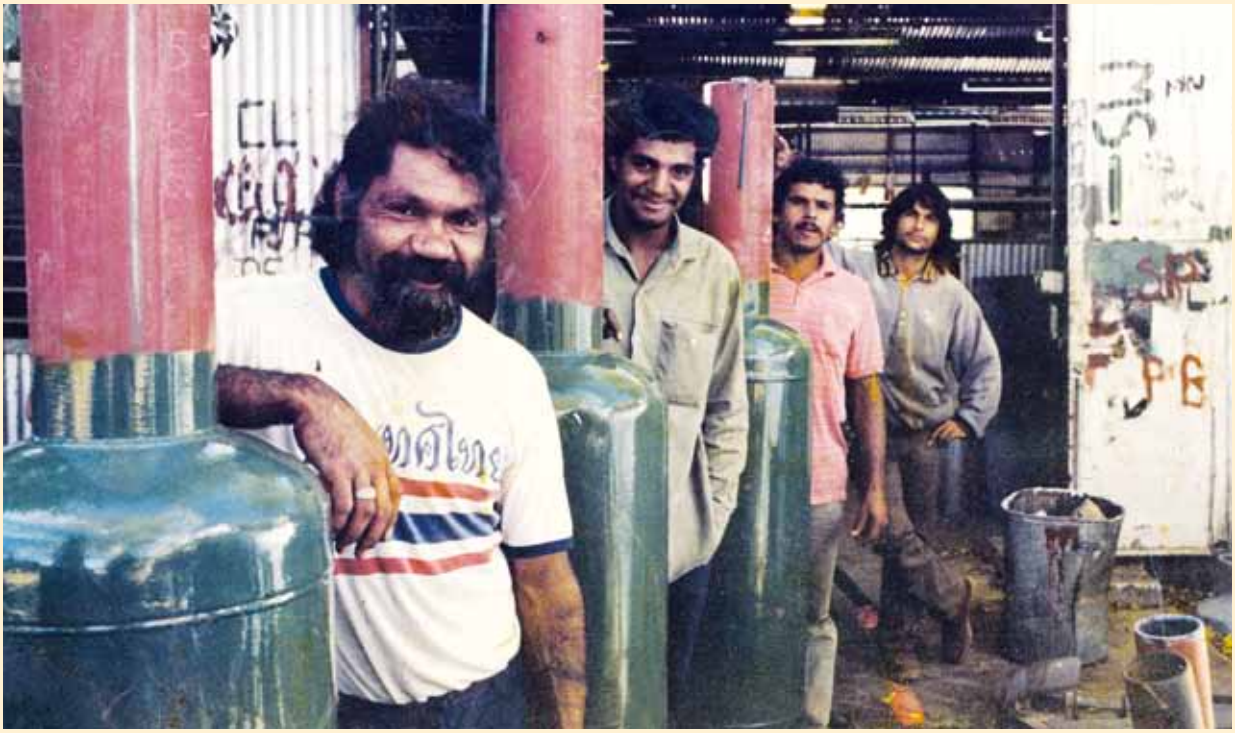
RESIDENTIAL COMPLEX

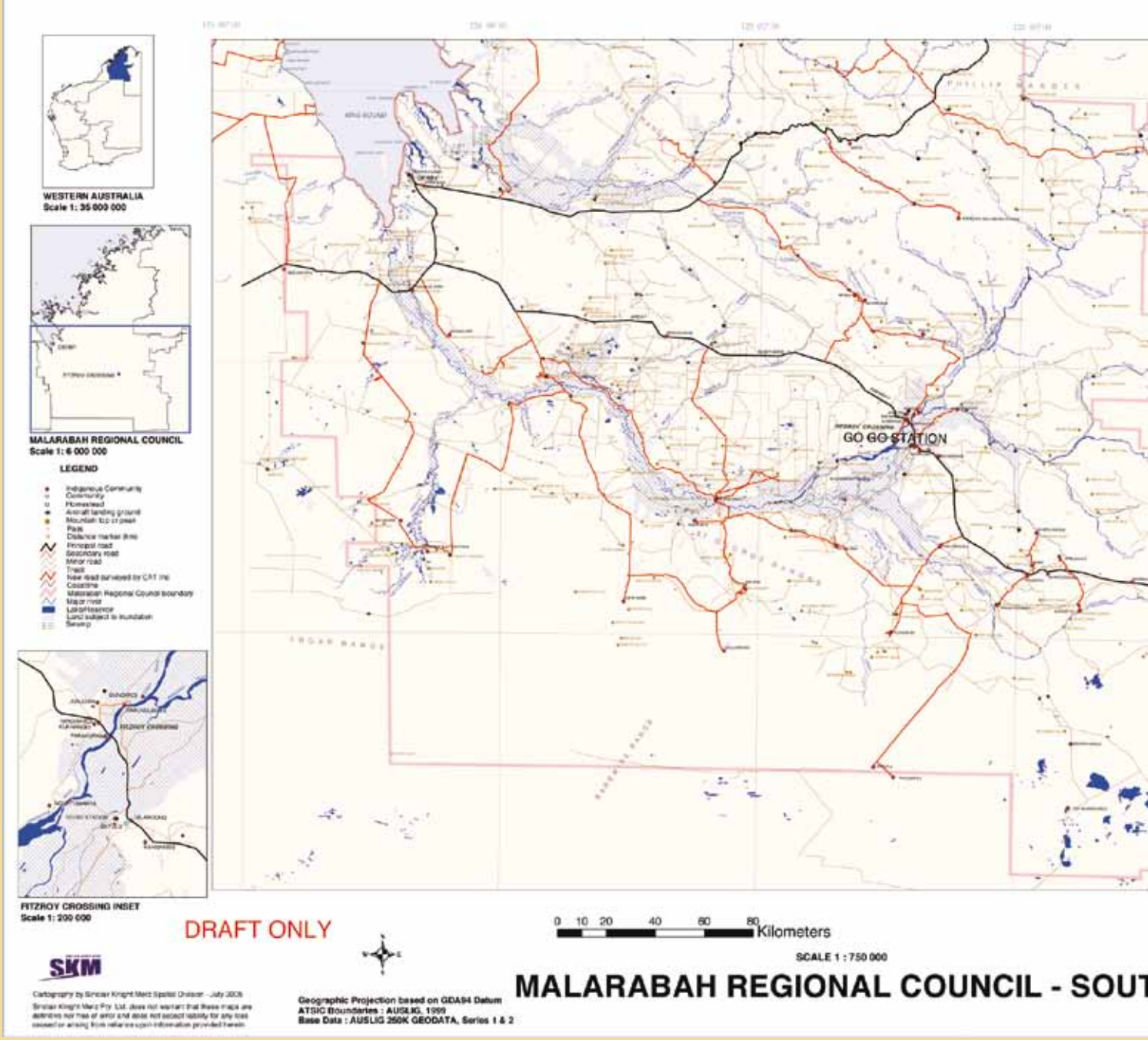
The CAT Residential complex was constructed in 1988 following a visit from the Commonwealth Education Minister who found Aboriginal people undertaking training at CAT sleeping in swags in the back yard because we didn't have any accommodation for them whilst they were in town.

The Minister made available $240,000 to construct the CAT residential complex. Jim Bray was recruited to manage the complex.



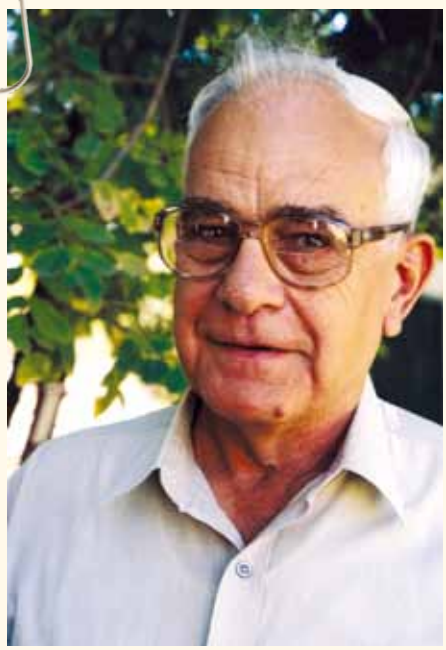
CAT EMPLOYEES

CAT has employed over a thousand employees over the past 30 years. Some people have arrived on a voluntary basis and others have been recruited through interviews on railways stations, in shopping centres and by writing persuasive letters outlining their commitment to the principles that CAT has espoused. There are numerous people who have served more than 10 years of their working life at CAT.



CONTRACTS IN CHINA

CAT has been contracted on three occasions to provide technical services to rural development projects in China. CAT staff Bob Lloyd, Mark Moran and Michael Adams were involved in various community water supply, roads and rural infrastructure and renewable energy projects mostly in western China.



DERBY ROAD MAP

CAT's Derby office was first located in the premises of Winun Ngari Aboriginal Corporation and staffed by Keith Bowden in September 1999.

CAT commenced operations in Derby at the request of the local Aboriginal organisations and one of the first needs was identified through an ATSIC meeting where people learned that a service provider had spent days trying to find the right road to a community. Keith Bowden suggested that it might be useful to construct a basic map of the region. With the approval of the local committee he set about making GPS recordings of all major road intersections and community locations. At the end of his work Keith had produced a very valuable road map of the NW Kimberley region which was later published by Auslig.

1967 referendum. It was then that 90 per cent of Australians voted to remove clauses in the constitution which discriminated against Aboriginal people, who would finally be counted in the census.

However it had all started much earlier. Aboriginal activists had been protesting for better conditions for their people since the 1930s. Citizenship came in 1948 and the right to vote a year later. It was not for another decade that these changes would take practical effect, and not until 1968 that voting rights were available in all of Australia's states and territories.

An attempt was made to introduce equal wages for Aboriginal workers in the northern Australian cattle industry in 1965. The bid initially failed when pastoralists argued equal wages, if paid immediately, would ruin the industry. A decision on the matter was put off for three years.

In the meantime, 200 Aboriginal stockman of the Gurindji people and their families walked off Wave Hill pastoral station in the Northern Territory in 1966 as a protest against the work and pay conditions. The stockmen were under the leadership of Vincent Lingiari, a member of the Gurindji who had worked at Wave Hill.

The protesters set up camp at Wattie Creek and demanded return of traditional lands. There followed a seven-year fight by the Gurindji people to obtain title to their land, which led ultimately to the Commonwealth Land Rights Act (Northern Territory) 1976. This gave Aboriginal people freehold

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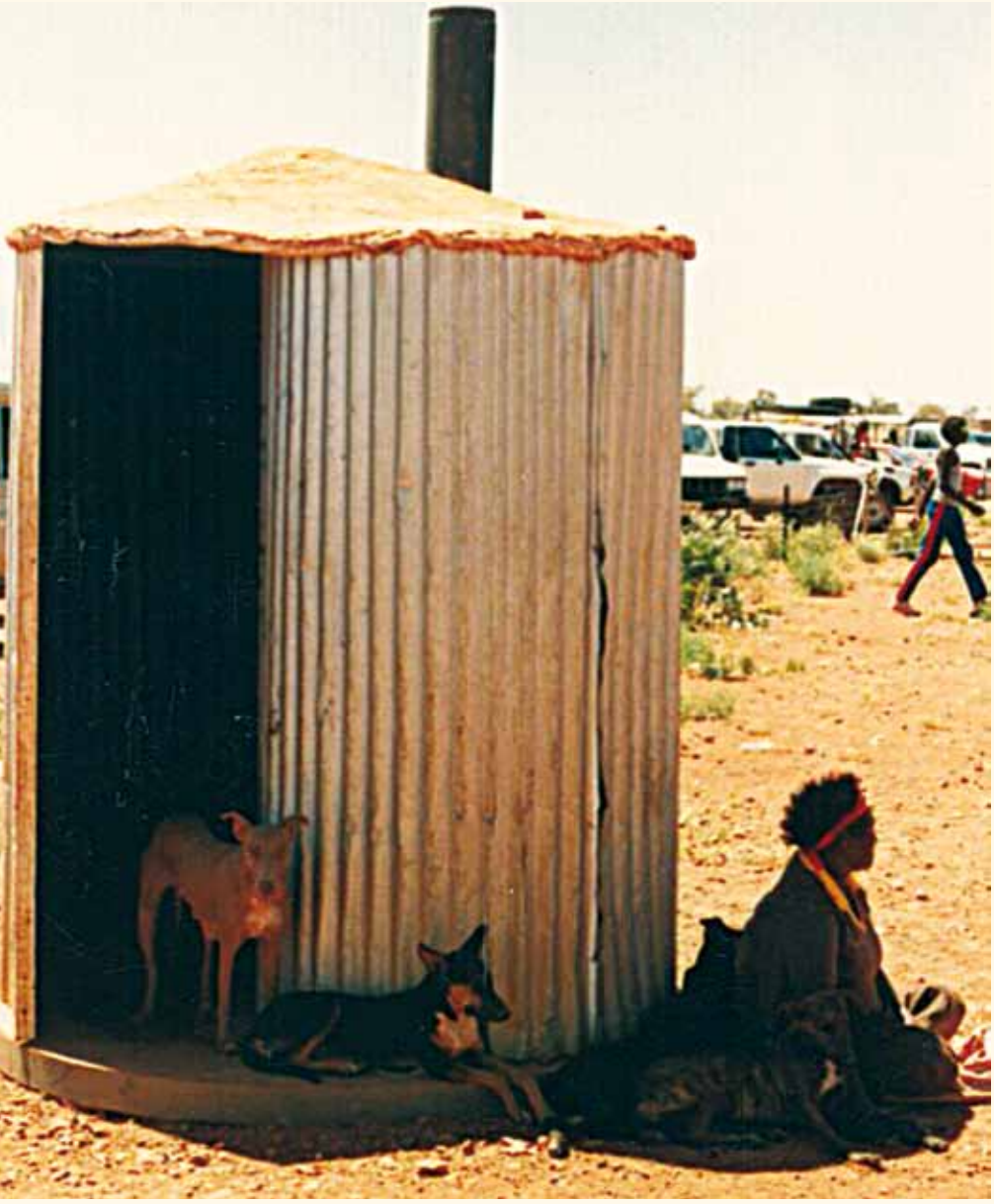


VIP LATRINES

Ventilated Improved Pit Latrines (VIP's) were a toilet solution designed to prevent flies and smell from being a nuisance and health problem in dry pit latrines. The VIP was modified for central Australian conditions using a single wrap-around sheet of corrugated iron wrapped around a spiral frame and placed on a concrete slab over a 4 cubic metre pit. The VIP could hold enough waste to last a family more than 10 years. It could also accommodate a range of other disposal issues particularly babies disposable nappies. Water borne systems had proved not as versatile and continually blocked up. Hundreds of VIP's were produced along with chip heaters and shower blocks for communities that wanted to run local training and employment projects. Demand was such that CAT established an Extension Service to work with communities to install these items in their outstations.

title to traditional lands in the Northern Territory and power of veto over mining and development of those lands.

Equal wage rights were granted to workers in the pastoral industry under the Commonwealth Cattle Station Act in 1966. But those rights proved to be a double-edged sword. No longer able to afford their Aboriginal employees, cattle station managers laid off workers in droves.

Small remote settlements had been springing up in the Western Desert and other parts of the Territory for some decades. Now there were more people than ever requiring resettlement. But Australian government policy toward Aboriginal people up until the 1960s had been one of assimilation into white society. During the 1960s, this policy started to be dismantled.

New CAT CEO Peter Taylor explains: 'Up until the late 60s significant resources (were being spent) from (Church) missions and (Government) reserves. People were getting wages, or the equivalent of wages. With the wind-back of missions and reserves and the beginning of the hand back of land, a lot of these resources were withdrawn.'

Increasingly, bush settlements came to rely less on missionary and philanthropic support, and more on government sources such as welfare. With the handback of lands under the Land Rights Act, the policy transformation was complete.

The introduction of Community Development Employment Program (CDEP) in 1977, provided an > p11

MAPOON PLANNING

Mapoon community (also known as Old Mapoon and Marpuna) is on the west coast of Cape York peninsula, north of Weipa. The people of Mapoon were forcibly removed from Mapoon in 1963 and their houses were burnt. From 1970, people gradually began to return to Mapoon.

A small community centre (office, school, workshop), some housing, a small water supply system and a large generator were located at Red Beach. Despite the small population and limited access to transport, the remaining dwellings in Mapoon were spread across a 12 kilometre arc tracing the coastline of Port Musgrave. Self-made bush tracks linked the living areas which were serviced by small gen-sets and backyard wells. Of the forty houses in Mapoon in 1995, only five were community rental homes, the remaining thirty five homes were owner built dwellings. This existing development and chosen living environment reflected a strong tradition of self-reliance and close links to the natural environment.

CAT was asked by the community to assist with a community planning process and early in the project undertook household surveys. The surveys revealed that there was a strong preference not to live in Red Beach, that people preferred a spread-out development to the overcrowding experienced in many communities. This was expressed during the project as a desire to 'live in the bush'. It also became apparent that many families strongly identified with the blocks that their parents had occupied during the mission days, in fact many families had already returned to their historical blocks to build their own houses.

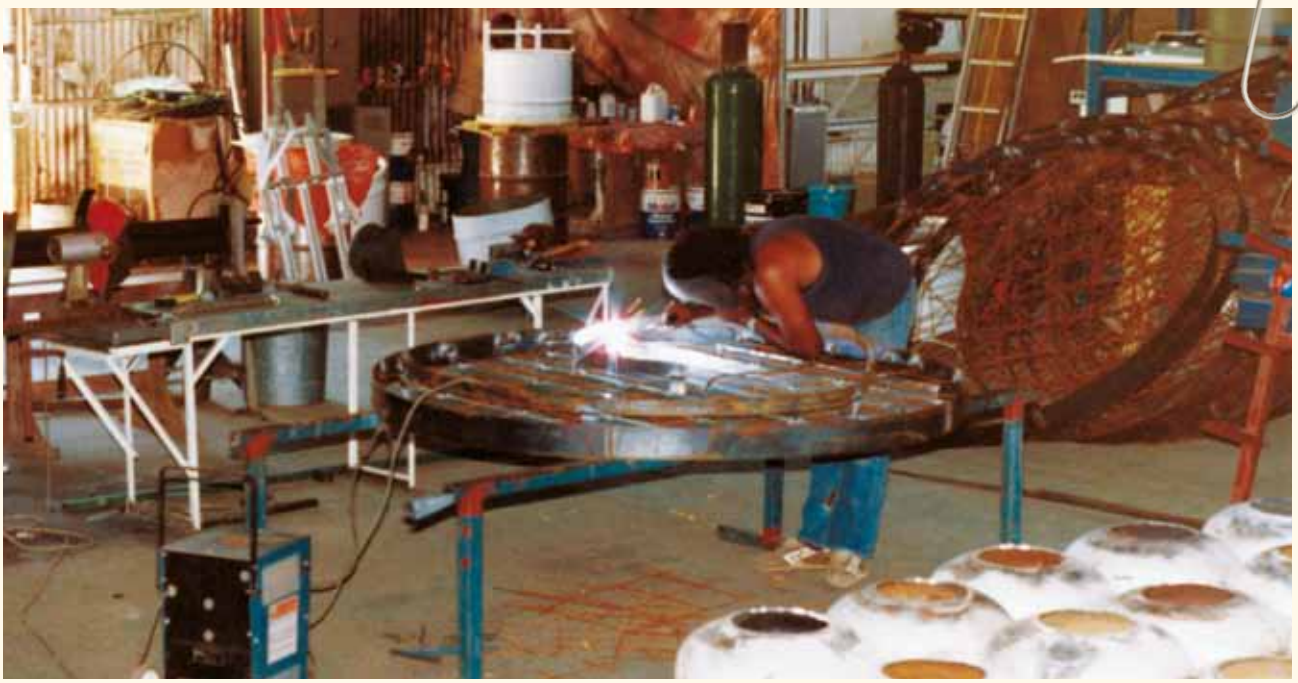
CAT then worked through a community planning process to develop a final plan that was an innovative response to the wishes of the Mapoon residents.

The plan allowed for bush buffers on all boundaries of each housing allotment. These bush buffers enhance the notion of 'living in the bush' whilst acting as filters for dust and noise, providing drainage paths and maintaining discrete living areas for family groups. Traditional and historical sites were carefully recorded for incorporation in the settlement plan, with many historical family blocks identified as living areas and other significant areas preserved as no-build zones.

Technical responses for water supply, power, roads, waste disposal, housing, living areas and management systems were then designed by the various technical consultants with relevant community people to suit the emergent plan. Design parameters included minimal clearing, observance of bush buffers, design population of thirty people for living areas, improved health hardware and health-related services, maximised local input and outcomes that fostered independence, minimal operational costs, and provision for growth within a climate of limited funding.

MOBILITY AID/WHEELCHAIR

CAT has regularly designed responses to the needs of disabled people. The mobility aid was designed by a group of students from University of Technology Sydney. Conventional wheel chairs were difficult to manoeuvre in sandy conditions and people with disability felt out of place sitting high in a chair when others were sitting on rugs on the ground. The low platform mobility aid could be self propelled or pulled along by a relative. The design relied on the fact that most disabled people had someone assigned to look after them and their mobility depended on the convenience and ease for the carer to be able to manoeuvre the person. Puncture proof tyres, were essential.



THE WORKSHOP: ENTERPRISE TRAINING

The CAT Enterprise Workshop commenced as a wage pause program in 1983. The workshop employed six Aboriginal trainees to produce the early hand pumps, washing machines, chip heaters and shower blocks that CAT had designed. The workshop grew in turnover and at its peak employed 12 Aboriginal people. In its day it was the only activity available to Aboriginal people where something was manufactured, sold and valued by the person who bought it. Most other work was in labouring or service provision but the employees of the CAT enterprise training workshop derived their enjoyment from producing things. Mainstays of the workshop like John Parfitt, Trevor Corbett, Herbie Bloomfield, Margie Lankin, Dorrie Wesley all contributed to CAT's early production effort.

administrative basis for local employment and income support', says Taylor. 'It was a platform for people to move back to country.'

Over the next thirty years more than 1000 settlements were to be established in remote areas of Australia. As economist and former Reserve Bank Governor H.C. "Nugget" Coombs argued at the time, the return to country was 'an attempt by Aboriginal people to deal in their own way with … problems and to evolve a lifestyle which combines what they wish to retain of the Aboriginal way with access to those goods and services from the white society on which they have come to depend'.

It was during the 1970s that the homelands movement began to gather real momentum. Concerns began to be raised about how to resource a growing number of new and remote settlements. In 1974, health care service Central Australian Aboriginal Congress (CAAC) organised the first of a series of meetings to discuss the ecological problems that were presented by these small communities and their long term needs. The conference, held in Alice Springs, was a high profile event to publicise to the national capital the needs of the homelands movement.

There was a follow up workshop in October 1977 with representatives from the Aboriginal community.

From this was formed a coordinating committee with a charter to foster appropriate research projects in Central Australia. These projects would concern themselves with land management, health, nutrition and appropriate technology.

The initiative won recognition from the House of Representatives Standing Committee on Aboriginal Affairs. In fact, the standing committee drew attention to the importance of appropriate technology in its 1979 report on Aboriginal health.

An emerging network, which had resulted from the focus on homelands issues, eventually became known as the Technical Advisory Group for Aboriginal

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Homelands (TAGAL). In 1978 the sub-committee organised an inspection of homelands, covering the region where the Northern Territory, South Australia and Western Australia converged. A report on this inspection came out in favour of outstations as the strongest, Aboriginal-inspired community initiative it had found. This was in preference to the old mission settlements it had visited. Importantly, it revealed the homelands movement was being constrained by technical problems over water supply, transport, communications and shelter. Further, it drew attention to a two-way lack of knowledge: of Aboriginal culture and language by most Europeans, and of European ways by most rural Aboriginals. The report helped TAGAL formulate a research agenda which would identify and respond to homelands needs.

Aboriginal health was the topic of a meeting held in Alice Springs in September 1979 that started to bring a focus to all of these issues. Participants at the meeting, which had been organised by DAA, identified adequate supplies of water as an overriding priority for outstations. It also flagged issues of sanitation, food

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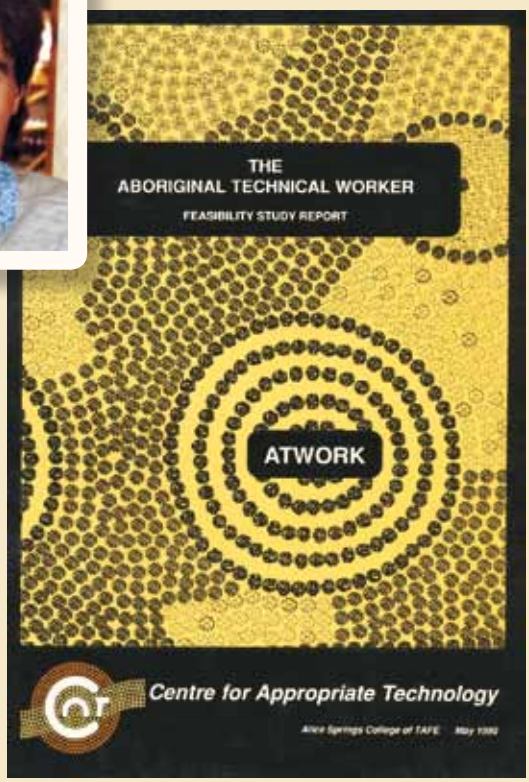
WASHING MACHINE

The hand powered washing machine was a response for women who wanted to wash blankets. There was little power available in small communities and where people had a washing machine it usually had a noisy diesel engine next to it. Washing blankets is a two person task to wring them out at each stage of the wash, therefore a noisy engine was a little antisocial. The plunging action of the HPWM created a temporary vacuum or suction that dislodged grit and grease and gave the plunger the washing action. The use of the plastic agitator out of conventional machines confused most people as they associated that shape with a rotational rather than a plunger action.

CHIP HEATER

The chip heater responded to the technology challenge of heating water where there was no access to electrical energy generation and the risks of existing alternatives such as the use of old 44 gallon drums (donkey boilers). After a tragic accident where a 44 gallon drum water heater exploded, the modified gas bottle chip heater was designed and manufactured at CAT. At the height of production 2000 units were produced and CAT was receiving condemned gas cylinders for recycling as chip heaters from all parts of Australia. Chip heaters were preferred to solar water heaters because they were not troubled by the water quality conditions that plagued early solar heaters. They were also able to heat water to a tepid temperature on scraps of fuel wood and rubbish rather than taking large amounts of firewood. A smouldering fire was sufficient to heat water for a warm shower.

ATWORK FEASIBILITY STUDY



In 1987 CAT received a research grant from the Australian Committee on TAFE Curriculum (ACTC) to research and assess the feasibility of developing a curriculum outline based on the range of functions and technical skill needs of remote Aboriginal communities. The result was the publication of 'The Aboriginal Technical Worker — ATWORK — Feasibility Study Report' published in 1990. The study, led by Bruce Walker and Kurt Seemann outlined the approach and content for a 'hands on' experiential teaching method with delivery in the community and an emphasis on design and technical problem solving along with tools, material and techniques. It was here that the term 'technacy' was coined. From the early 1990s the ATWORK program at CAT became the hallmark of its education and training activities. ATWORK provided broad based design and problem solving skills alongside more specialised technical training giving participants the skills and knowledge to use, adapt, repair and modify technologies encountered everyday to improve quality of life. Key people involved in the ATWORK program include Ron Talbot, Steve Patman, Richard James, Charlie Maher, Steven Bailey, Robyn Ellis and Yosi Henig and a number of graduates have returned to CAT as employees including Ronald Dodd and Kenneth Getawan.

LEARNING AT CAT

The ATWORK program provides a range of practical and hands-on experiences in repairing technologies encountered everyday, including leaking taps, door handles and parts of houses or vehicles. But, more importantly it teaches skills in problem solving: the ability to creatively resolve novel encounters; the ability to explore and analyse variables involved in the nature of the problem and in the context of the social and cultural dynamics of a community; and the capacity to propose alternative technologies which may be more appropriate to environmental and lifestyle conditions.

storage, and housing, and labelled the coordination of community services as quite inadequate.

It seemed the problem was a lack of technological solutions appropriate to the conditions to be found on outstations and in homelands generally. Newly appointed 'Assistant Principal' of Alice Springs Community College Jim Pearse, having convinced the NT Government to buy the Priest Street property in 1979, thought it might be a suitable place for a centre of what he called Intermediate Technology, after Schumacher's writings, though later he changed it to Appropriate Technology. He prepared a proposal which he presented to the Aboriginal Affairs Minister Ian Viner during an Alice Springs visit. As a result the DAA announced it would provide funds to the College to employ an appropriate technologist.

The move was very much part and parcel of the political mood of the day. Gough Whitlam had been replaced as Prime Minister by Malcolm Fraser late in 1975, and his Liberal — Country Party coalition government had been re-elected in the NT in 1977. It would be re-elected for a third term in October 1980. The Whitlam government had focussed upon self determination in its homelands policy during the early 1970s, in

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HAND PUMPS

A hand pump for water supply was the first product designed and produced at CAT. It enabled people in the western desert homelands movement to reoccupy their country. Hand pumps were installed on roadside bores and exploration bores in about half a day and at a cost of just a couple of hundred dollars. Progressively the hand pumps allowed the expansion of the Pintubi back across the western desert through to Jupiter Well and it also facilitated a number of new outstations out from Docker River.

Experience with hand pumps provided an opportunity for CAT to enter international development activity when Bruce Walker was asked to join several AusAID design and evaluation teams on projects in Africa and Asia through the 1980s and 1990s.

DRUM OVENS

Drum Ovens responded to peoples desire to prepare and cook food outside their house. The drum oven allowed a range of meals and kangaroo to be baked in an oven. The oven was designed to keep food and utensils out of the reach of dogs.

NATIONAL TECHNICAL RESOURCES CLEARINGHOUSE (NTRC) AND THE NATIONAL ADVISORY COMMITTEE (NAC)

CAT's Clearinghouse strategy had a central focus on Indigenous housing and infrastructure issues, contributing to better national coordination and improved regional access to advice and services.

It provided an opportunity for States/Territories to share information about particular Indigenous housing strategies and program outcomes within a national framework.

The key aim of the Clearinghouse at CAT was to improve access to information on appropriate technical services and options for Indigenous people living in remote communities including:

- disseminating and sharing information between remote communities and across regions in an accessible format;
- providing technical advice and information to communities, consultants, service providers and government agencies on technology transfer and areas of community concern;
- providing an avenue for Indigenous people to direct research to key areas of concern for their remote communities;
- undertaking selected best practice projects with communities;
- visiting communities to provide support and advice when required; and
- supporting the sustainable development of outstations through appropriate technical services.

CAT's National Technical Resources Clearinghouse (NTRC) was guided by a National Advisory Committee (NAC). It coincided with the opening of the office in North Queensland and gave a strategic focus to the research undertaken by CAT. Many of the research outcomes were used to underpin the development of the National Indigenous Housing Design Guide.

full support of the Coombs ideals. But this was replaced by a Fraser-led push toward self management for Aboriginal people. Documents of the day reflected a change in terminology used by senior government bureaucrats. There seemed to be more emphasis on providing a guiding hand, on rules, measures and accountability. The identification of a need for more appropriate technologies for the bush reflected the changing policy emphases being signalled from Canberra.

A further complication was the gathering pace toward self government for the Northern Territory. This transition would require a shift in policy thinking and program delivery between the commonwealth and the territory, which the commonwealth had administered since 1911. Ultimately in July 1978 the Commonwealth's Northern Territory (Self-Government) Act would deliver full self government, paving the way for a new era of law making and administration. It was within this rich political context that the College advertised for an Appropriate Technologist.

Bruce Walker saw the job advertised in a Sydney newspaper, applied, and eventually started work as a lecturer in appropriate technology in May 1980. A draft of the position description for the job would note that Walker's role was to help with the development of a Centre for Appropriate Technology at the college. But it wasn't until June that same year that formal discussions were held about creating a Centre.

The idea for a centre had already been floated by Central Australian allies of the Aboriginal homelands movement at the meeting on Aboriginal health that had been organised by the DAA the previous year. The allies had even suggested a venue, at the Little

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MONOLITE

An innovative building material, Monolite, was introduced by Melbourne architect Mario Bernardi who financed a trial building that used a foam based sheet with reinforcing mesh either side and sprayed concrete render on the panel making a lightweight concrete wall and roof panel that was very durable and resilient. The monolite house was used by CAT's Communications Unit and contained the Our Place radio studio. Monolite construction was used to build two cluster houses at Kintore in the early 1990s.

WOMEN'S TECHNOLOGY NETWORK

The involvement and visibility of Indigenous women in the development and use of technology gave the Womens' Technology Network a national perspective on current issues. They held workshops nationally (Hamilton Downs Workshop October 1996) on topics relevant to women's roles in technology and networked nationally with women's groups and organisations.

One of the first initiatives when CAT received national funding from ATSIC was the establishment of a women's technology officer. Doreen Nelson worked with Jenny Kroker to bring together a network of women interested in taking control of the technological elements of their life particularly around housing. In time this lead to a teaching program called Women in ATWORK headed by Robyn Ellis.

Sisters Block, which then housed a fledgling Outstation Resource Centre. But as formal analysis of the idea unfolded, differences of opinion swiftly rose over the idea of a centre and how the program should be run.

With Pearse's departure the College at first opposed the creation of such a centre. It supported instead Walker's assimilation into a traditional teaching structure. Walker advocated a more dynamic and creative response to Aboriginal needs.

The appointment of Bob Cruise as principal for the college in 1982 brought more sympathy for Walker's views. Walker's initial focus was supporting the homeland movement in Central Australia through the development of robust technologies. With Cruise's blessing, Walker moved to a property in Priest Street in June 1982. The NT Department of Education had purchased the site in 1979. One of the first things Walker did was to put up a piece of tin in the front that said 'Centre for Appropriate Technology'.

Here was the opportunity to establish a wide ranging appropriate technology program without the restrictions of the community college, something Aboriginal Affairs had encouraged Walker to do all along. Walker believed appropriate technology was more about a process, a way of approaching a situation and approaching people, than about the technical solutions.

'It's grounded in a clear philosophical approach,' says Walker. 'CAT only needs to exist while Aboriginal people want us to exist and technology is a means to an end that people define for themselves'.'

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PORT STEWART (MOOJEEBA -THEETHINJI)

The Port Stewart Lamalama were forcibly removed from their land by the Queensland government in 1961. Prior to 1961, many Lamalama had left the Port Stewart area to find work on the cattle stations and mines in Cape York.

During the 60s and 70s, Port Stewart Lamalama moved back to the region, mostly settling in Coen with regular visits to an outstation established at Theethinji in the 80's. In 1994, a shelter was constructed at a second camp, not far from Theethinji, called Moojeeba, after a nearby waterhole. This was the site of the Old Silver Plains Homestead.

People saw Port Stewart as a whole, encompassing both camps, and wanted future development to reinforce this. The 1997 Community Plan 'Planning for a Healthy, Growing, Community' facilitated by CAT, outlined a range of infrastructure and essential service recommendations and documented Port Stewart Community Settlement Plan. A site close to the two camps was nominated by the majority of respondents for a community centre.

CAT has been involved with Port Stewart community in a number of projects including self built housing and a community planning project that planned the growth of the community and the energy services to the community. Su Groome and Sonny Levers later undertook a building project using a pole construction and Sonny later supervised a group of Rotarians who volunteered to build a community multi-purpose centre at Moojeeba. In 2005, Bushlight installed two community Bushlight systems, at Moojeeba and Theethinji, and in 2009 facilitated a second community planning project to review the previous project undertaken in 1997. This plan documents the group's vision for the coming years.

KINTORE GOVERNANCE PROJECT: EFFECTIVE LOCAL GOVERNANCE AND SERVICES FOR KINTORE REGION

Following the turnover of about eight community advisers over a two year period the Kintore Council was threatened with their funding being withheld. CAT proposed that they move from a model where they employed staff directly to a model where they contracted the provision of those services to a managing agent. The governance project was designed in June 1998 by Dr Chris Kenna to enhance efficiency and effectiveness of local governance involving Walunguru Community Council and strengthen their capacity to provide effective regional services.

The managing agent model proposed CAT would inject a range of training and organisational inputs as well as provide engineering backup leading to more effective management and technical support for WCC. After an initial period where a CAT employee acted as the Council CEO the project was undermined by the defection of the CAT employee who organised a direct employment contract with the Council. Some people in the community were concerned that CAT would take the money that should go to the community and the project was terminated following Councils direct employment of the CEO. The CEO subsequently left the community and the cycle started all over again.

KINTORE OUTSTATIONS

In an ongoing relationship with the Pintubi at Kintore, CAT worked alongside the Outstation Resource Association's Peter Bartlett and Lance Abbott to develop the basic infrastructure for the establishment of eight outstations. These outstations became the places where many of the prolific artists of the western desert sat and reinvigorated their art work. CAT's involvement began by placing hand pumps and then VIP latrines. As the outstations developed CAT also ran a program of outstation building where a specially designed portal frame structure was erected then in-filled with walls. These structures provided protection from the elements and were constructed by a local building team working alongside Rick Callahan and Tony Clements.

When a community ablution facility costing $240,000 was destroyed after 3 months of operation in 1983, the community at Docker River asked CAT to construct a toilet and shower at each house rather than spend money repairing the community ablution facility. For the cost of the allocation to repair the existing facility ($120,000) CAT provided each of 14 houses with a VIP latrine and an ATAF ablution facility and had enough change to buy its first truck.

DOCKER RIVER ATAFS AND VIPS

The program used a three-pronged approach: technical training, research development, and information sharing. At its core was a goal for CAT to become a hub for community activities across Central Australia. Walker was working carefully towards closing the gap between CAT and the communities it served, and towards establishing CAT as a Aboriginal governed entity.

During these early days CAT fast became known for its ability to create innovative and useful products for bush people out of everyday items. Some of the first work CAT did was at Papunya, 300 kilometres west of Alice Springs with the emerging western desert outstation movement.

When the Pintubi people who had been moved to Papunya 25 years earlier began pushing back towards their own country they were hampered by the lack of access to a reliable water supply. Walker visited New Bore outstation near Mount Leibig to the west of Papunya not long after starting work in Alice Springs. He rigged up a prototype hand pump out of star pickets, with help from outstation workers. After several days of cutting steel, welding and fine tuning, he proudly photographed a completed pump and extension arm. Water was finally available. Within a week, settlers had moved to the bore site from the nearby Yinyilingi Outstation to the west of Papunya.

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Walker also installed a hand pump at what later became Kintore near the west Australian border in November 1980. Three months later in early 1981 a couple of hundred Pintubi moved back from Papunya to Kintore, CAT went on to install hand pumps around Kintore, Papunya and Docker River which supported the development of outstations in those regions. CAT soon started to develop other products, and by 1984 was building hand-operated washing machines, wheelchairs, chip hot water heaters, ovens, latrines, and shower blocks in its CAT Enterprise training Workshop. This workshop was an early social enterprise providing a starting place for the employment and training of Aboriginal people. But this was only one part of Walker's three-part plan.

There was also the matter of researching and informing people about what was being done and the methods of doing it. By February 1981, Walker had almost finished producing a booklet on the hand pump he had designed for outstation use in 1980. Another booklet, about CAT's hand-powered washing machine, was completed in 1983. The previous year in August CAT had produced

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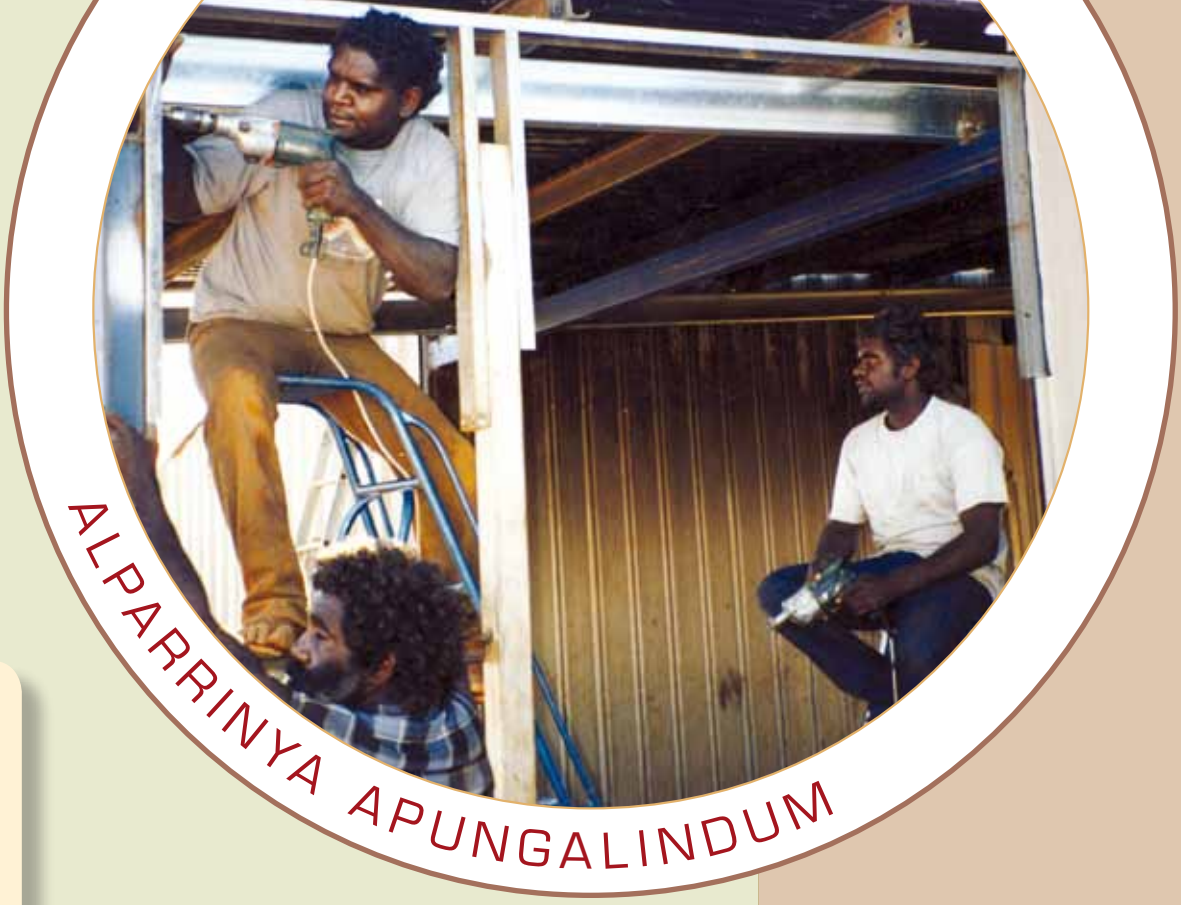
OLIVE'S PLACE AND THE *MUD EVOLUTION*

In 1995 Brendan Meney architect designed an earth building for Olive Veverbrandts who was planning an environment centre on her grandmother's country along the Larapinta Drive. Olive wanted to use CDEP labour to construct the house and CAT entered the mud revolution by purchasing a paddle mixer and batching plant. CAT, through Matthew Parnell, organised the training and coordination of the construction of thousands of bitumen stabilised mud bricks. CAT also designed and constructed a double bin Ventilated Improved Pit Latrine as part of the building.



ALPARRINYA APUNGALINDUM

CAT went on to train and construct in mud brick building at Alparrinya Apungalindum Aboriginal Corporation where groups of young men worked alongside Rick Callahan and Ken Kunoth to construct two houses, two ablution blocks and two single family cabins with substantial community participation in the construction process. Accredited training in construction skills and the Aboriginal Technical Worker (ATWORK) program were delivered. The community made and laid mud bricks using the bitumen stabilisation process. It was envisaged the community's experience with earth construction would form the basis of a future enterprise which would provide employment opportunities for local people.

BUSHLIGHT

A significant finding of the Australian Centre for Renewable Energy (ACRE) research project into the performance of Renewable Energy (RE) systems in remote Australia, demonstrated that if governments did not provide a level of community support any investment in RE capital would not yield reliable energy services to remote communities. The new Rural Remote Power Generation Program (RRPGP) of the Commonwealth would require a matching dollar for every dollar of capital expended on a new RE system. ATSIC was advised that it was likely most Aboriginal people would come to them looking for the matching dollar and that they should pursue the Australian Greenhouse Office to provide a matching sum for community support to facilitate the uptake of more renewable energy services. From this mix of research, policy shift and commonsense the Bushlight project was born to bring light and life to the bush. Bushlight was awarded the Engineers Australia National Engineering Excellence Award in 2006.

it's first comprehensive handbook called Appropriate Technology in Central Australia. It provided details about water, energy, shelter, and communications for remote communities. An expanded second addition was published in August 1984. In collaboration with CSIRO, CAT published the 1985 TAGAL conference papers as Science and Technology for Aboriginal Development. Walker had also commenced researching the prevalence of nitrates in many community water supplies. This work led to his secondment to the Northern Territory Department of Local Government to prepare a cabinet submission on responses to nitrate in community water supplies. This early work later expanded into a research and evaluation role for CAT.

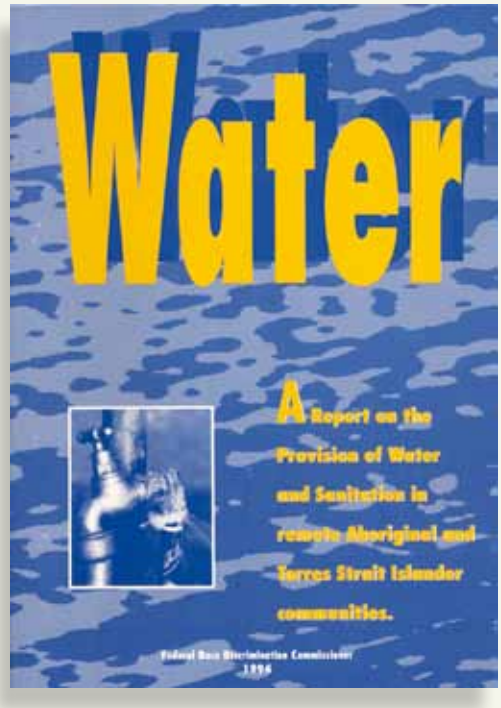
Finally there was the matter of training, a field in which CAT was to excel during the coming decades. In January1983, the Fraser Government announced its Wage Pause Program in support of training unemployed youth and older unemployed people. Under this scheme CAT was awarded a $50,000 grant in May. It used the grant to employ three adults and three junior Aboriginal trainees (including two women) to produce hand pumps, hand-operated washing machines, solid fuel water heaters, and mobility aids. The program generated almost $10,000 in orders within two months. In August a further $11,500 was > p27

SOLAR PACKS TO THE WESTERN DESERT

CAT partnered with Advanced Energy Systems (AES) Perth in the late 1980s to pilot the development of a series of solar systems mounted on shipping containers. CAT broke all the procurement rules by purchasing one of these solar packs and leasing it out to a community as a community store. CAT also worked with AES to install these systems in some far off places such as Jupiter well in WA. CAT's involvement with AES led to our inclusion in ACRE and our subsequent RE development.

HREOC REPORT

In 1994 CAT authored a report for the Human Rights and Equal Opportunities Commission Race Discrimination Commissioner titled Water: A Report on the Provision of Water and Sanitation in remote Aboriginal and Torres Strait Islander communities. This report was tabled in the national Parliament in November 1994. The report allowed Bruce Walker to document twelve case studies of water in a range of Aboriginal communities across the country. This report was before its time in its recommendations.



PNEUMONIA COUNTER AND CENTRIFUGE

One early request from nurses in remote clinics at Utopia was to have a battery powered centrifuge so that they could spin down blood. Steve Patman from CAT made this early prototype for Sabina Knight when she was a nurse at Utopia.

CAT also designed a small pneumonia counter that enabled health workers to diagnose pneumonia like symptoms in young children by counting the number of breaths. If breathing was too frequent then a red light lit up and indicated that the health worker should alert a doctor as it was likely that the child should be evacuated to Alice Springs. This device saved considerable cost in avoiding call outs for the flying doctor through inaccurate counting of respiration.

DPC: WHERE DO YOU WANT TO BE IN 20 YEARS?

A seminal document challenged the CAT Board in the middle 1990s to think about where they wanted to be in 20 years and who they needed to be with. This document formed the basis for a discussion with the Institute for Aboriginal Development (IAD) and Batchelor Institute about the benefits of working together. The outcome of these discussions was the establishment of the Desert Peoples Centre joint venture and eventually CAT's new premises at the Desert Knowledge Precinct.

EXTENSION SERVICES

As the level of orders for shower and toilet blocks increased communities wanted CAT to work with them to install the items they had purchased. These were times when there were not significant numbers of contractors who worked out bush so CAT established one and then for a time two Extension Service teams to provide this service. The main team led by Rick Callahan worked under difficult conditions sleeping in swags and spending days working with community members to dig holes for VIP latrines and absorption trenches for ATAF's. The team was comprised of people like Charlie McAdam, Tony Clements, Alec Kruger, Henry Bloomfield and a host of other people who worked hard and provided CAT with an income stream that gave us the ability to invest in training and extension of our workshop premises.

awarded. By then, Prime Minister Malcolm Fraser had been defeated in a federal election in March, to be replaced by Bob Hawke and his Labor Government. Wage Pause was superseded as Labor unveiled its Community Employment Program (CEP) with $300 million in funding.

Early in 1984 CAT's Wage Pause success earned it a further 12-month CEP award of $80,000 for an Appropriate Technology Training Workshop. Initially employing six Aboriginal employees the workshop had, by mid-May, $60,000 worth of orders from 16 Aboriginal communities. Six trainees was increased to ten and CAT successfully started an extension service to the homelands. The aim was to work with and train people in communities where equipment was being installed. During its first three months the workshop generated $152,000 in orders. By March 1985, when CEP funding ceased, the workshop had become self-financing.

CAT had become the strongest unit within the Central Australian TAFE sector by the middle of the decade. It had expanded to 22 staff working with 40 Aboriginal communities in the Northern

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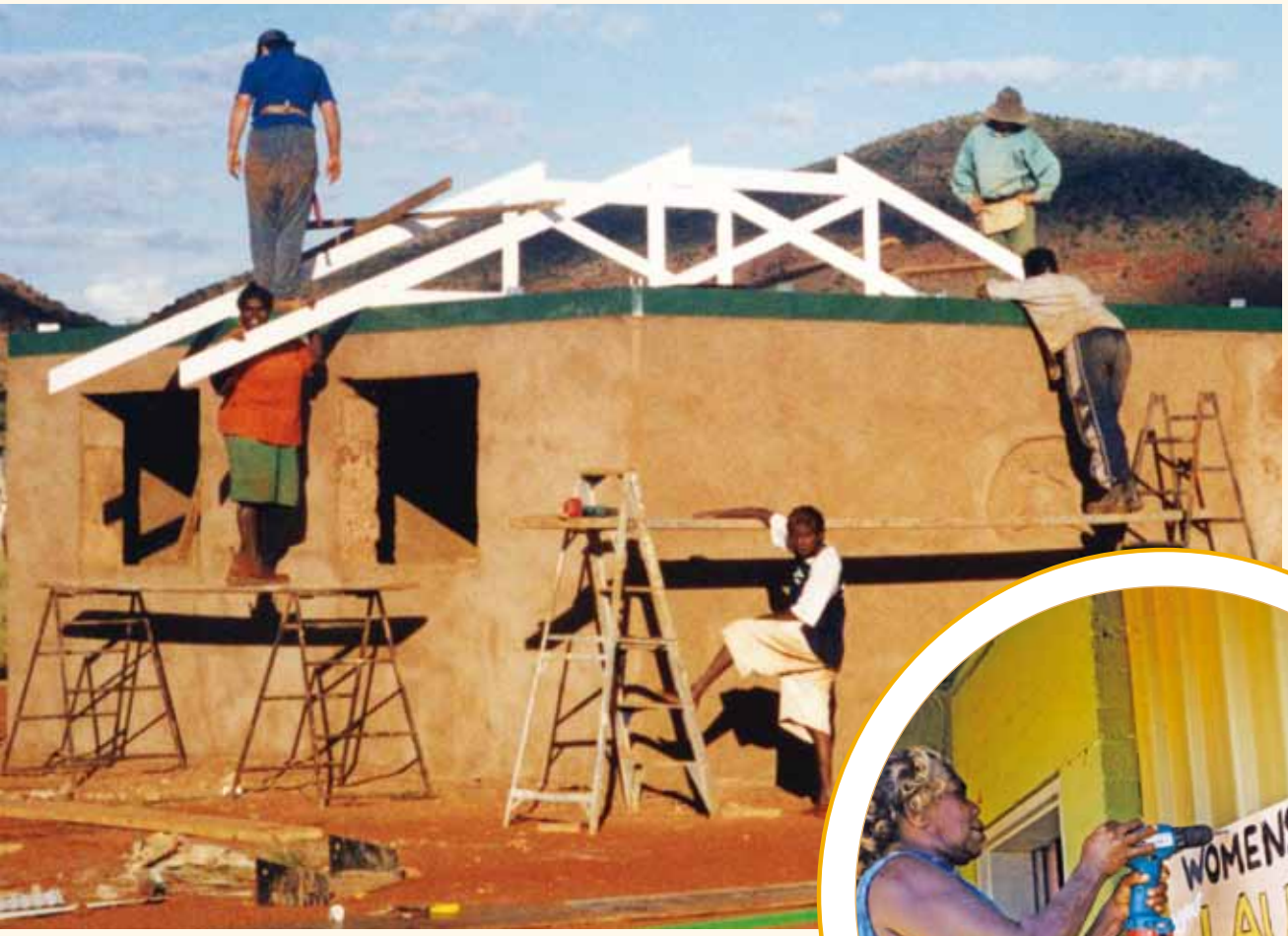
CRC'S, ACRE, WQ&T

On advice from the NAC the CAT Board decided to pursue a number of strategic partnerships in 1995. After early work on solar energy at Utopia CAT joined the Cooperative Research Centre in Renewable Energy known as ACRE. CAT undertook a ground breaking market survey designed by Bob Lloyd with field work undertaken by David Lowe. The outcomes of this research have contributed to the development of Bushlight, Alice Solar City, the DKA Solar Centre and the formation of CAT Projects.

CAT's membership of the CRC for Water Quality and Treatment saw the arrival of Robyn Grey-Gardner as Technology Transfer Officer. Originally employed by ANU and based at CAT Robyn has developed special recognition for small remote water supplies in the national water quality agenda. In particular the work on risk management which is a central response to situations where compliance is problematic and people have to manage the risk of using supplies that don't always comply with guidelines.



WOMEN IN ATWORK

Women in ATWORK was a program piloted by Robyn Ellis and Jenny Kroker to bring women and young girls into a closer understanding of the technology of houses and cars. Robyn conducted a long program with a group of women at Kintore where they built their own women's keeping place.

Territory, Western Australia and South Australia. The workshop and extension service had become self funding and generated substantial surpluses. Following a national curriculum grant to determine the feasibility of a problem solving and design teaching methodology, the Aboriginal Technical Worker Training Program, which provided a practical skills program rather than award-based apprenticeship training was established. Later formalised as ATWORK, the program was so successful that a student residential accommodation had to be built at CAT in 1988.

In 1989 CAT became an incorporated body with an Aboriginal board of management. Walker says of the move, it was to give over the ownership of the organisation to Aboriginal people. Current Chairman of the CAT board Jim Bray was chairman from the outset, and he remembers the period well.

'I was interested because the products that were made by CAT didn't infringe on people's lifestyles. It benefited them, but didn't overload them with electrical appliances. CAT always worked with the people. They didn't want to damage the culture. We wouldn't go out anywhere unless we were invited'.

Bray believes poor consultation had hampered previous efforts by others to help Aboriginal people.

'CAT would get people to work on the projects. And they'd learn to do things. Also they'd get money, which allowed them to develop a work ethic. The important thing is dignity and pride.'

As the 90s opened CAT was preparing to expand, both

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EDUCATION AND TRAINING AT CAT

CAT's problem-solving based education services and the innovative ATWORK program were supplemented from the late 1990s by programs in automotive, general and civil construction and more recently remote area power supplies. More than 3000 Aboriginal people have undertaken training at CAT, training specifically targeted at engendering skills in maintaining and managing the technologies in their lives, from cars to gensets to renewable energy. As the National Training System has become more regulated and the emphasis has shifted to developing vocational competencies for mainstream employment, capacity building strategies around specific technologies and technology management issues have become increasingly incorporated across CAT's work areas. The Bushlight project incorporates targeted demand side management and technical troubleshooting capacity development as a central platform in its commissioning of renewable energy services in remote Indigenous communities; developing capacities at the local level for risk managing small water supplies has been a core focus of CAT's work with Indigenous communities, often in association with industry organisations such as Water Quality Research Australia and government agencies such as the National Water Commission. CAT sees formal training against Nationally Accredited Training Packages as part of a suite of capability development initiatives needed to support improved livelihoods and well-being for communities of Indigenous people.

Nugget Blackmore has a special place at CAT as the first janitor and caretaker of the Priest St premises. Nugget was an outstanding gentleman who had some wonderful life experiences. An ex pugilist he didn't take nonsense but he put a lot of time and energy into tidying up the Priest St site when CAT first moved in. Nugget was grandfather to Adrian Shaw who has produced the Our Place radio segments for many years.

TRANSPORT BARGE: TORRES STRAIT

During 1993 in the Torres Strait Islands Mark Moran spent days on an inter island barge observing the cold chain in the delivery of fresh fruit and vegetables to Island stores.

Post harvest deterioration is inevitable during transportation of fresh food and is cumulative but the rate at which it progresses can be controlled by maintaining a cold chain and by good handling practices.

Each of the outer islands received a barge every fortnight. Depending on location produce had been in transit for 14–16 days by the time of arrival on outer islands. Deliveries were affected by tides with some deliveries occurring at night. The pressure of back loading on barges meant produce was often left sitting on the dock while back-loading occurred in order to catch a receding tide.

Suitable storage and display facilities for fresh fruit and vegetables were limited. By contrast all stores had chilled point of sale refrigerators for soft drinks. The arrival of fruit and vegetables in the store was a trigger for panic buying. Fruit was left out on the store floor to make the initial panic selling easier rather than being packed into fridges. The left overs were packed the next day.

The vulnerability of fresh fruit and vegetables to deterioration during and after arrival led to store staff minimising orders for fresh produce to prevent waste.

An added complication was whether the money supply coincided with the arrival of the fresh produce. Produce was rapidly sold and if people did not have cash then they missed out.

The report noted the absence of government support for traditional gardening. Most government interest was in quarantine which acted to suppress traditional garden supplies of fresh produce by reducing movement of local produce between islands.

RECYCLING AT LAJAMANU

The Lajamanu Recycling Project began in October 2006 with funding from The Department of Natural Resources, Environment, The Arts and Sport (NRETAS) under their EnvironmeNT Grants Program and the Packaging Stewardship Forum. In kind support was given by the then Lajamanu Community Government Council and CAT.

CAT assisted with community consultation and setting up the project as well as helping with the purchase of the crushing machine, the 'RamCan' used at Lajamanu. NRETAS funding was used to purchase the machine, which allows for easier and more economically viable transport by crushing cans and plastic bottles into bales.

The Lajamanu Progress Association and Store assisted by increasing community awareness and implementing a container deposit scheme. A 10c cost was added to the cost of drinks purchased at the store and refunded when these were returned and recycled.

Nearly 100,000 cans were gathered in the first few months, with children and older people among the most avid collectors. The project is continuing and Lajamanu is noticeably cleaner as a result!

geographically and in its role as guide and advisor to public policy. CAT's strategy was to redesign education programs to better meet remote needs and opportunities for employment. It argued that education and employment prospects for remote Aboriginal communities were dismal and declining. There was a significant gap, CAT believed, between formal trades-based training and the sort of knowledge and skills that were necessary for living on outstations or homelands communities. In a submission to The Senate Standing Committee on Employment Education and Training in 1991, CAT argued that over 90 per cent of people on remote communities were not serviced by existing training programs.

Further support was being fostered for regional extension services and a Cairns regional office opened in 1993. With support from ATSIC, a National Technology Resource Centre was established at CAT the following year. This was to be an information clearing house and research hub, identifying issues and formulating programs to enhance life on remote communities.

Walker's Water Report for the Federal Race Discrimination Commissioner in 1994 pushed CAT in earnest into the arena of public policy debate. In the report, Walker argued that water policy for Indigenous Australians be rewritten based upon the principle of self-determination. He wanted to raise the profile of consultation and negotiation with communities,

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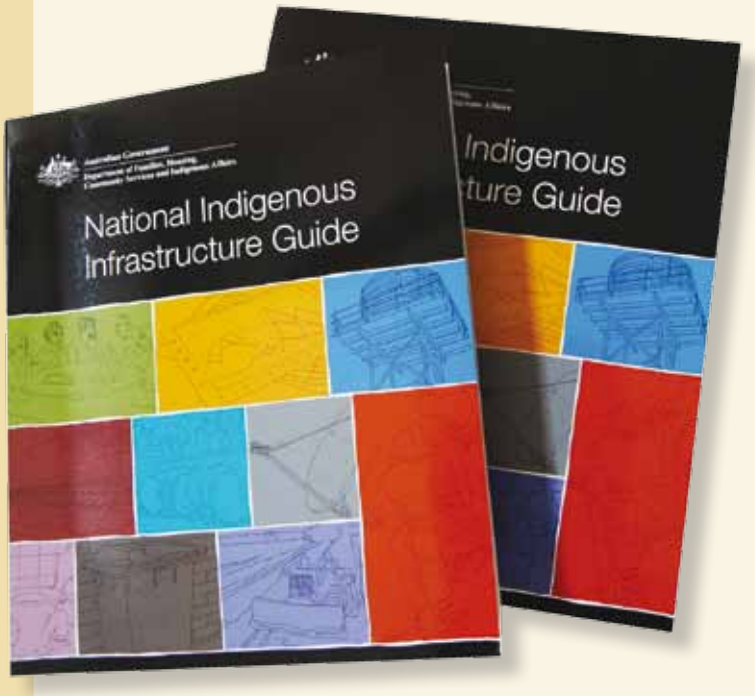
DESERT KNOWLEDGE RESEARCH

CAT's instrumental role in developing the Desert Knowledge concept and the establishment of the Desert Knowledge CRC has matured into undertaking robust research in a range of areas with the DKCRC. CAT led the Collaboration Project which developed a road map for working ethically and effectively with desert Indigenous people in research. Metta Young led the first comprehensive analysis of how the National Vocational Education and Training system is working with Indigenous people across the desert; CAT instigated the remote Community Water Management Project, to trial risk management approaches with five Indigenous communities in four States; CAT-conducted research into sustainable livelihoods with the Engawala community; and has been lead agent for a core CRC project 'Desert Services that Work', with research activities occurring across three States and the Territory investigating a suite of case studies into effective local governance structures, service delivery (housing, essential services, communications) and community engagement.

NATIONAL INDIGENOUS INFRASTRUCTURE GUIDE (NIIG)

The National Indigenous Infrastructure Guide (NIIG) was developed by CAT with the sponsorship of FaHCSIA in 2008-2009. NIIG provides guidance to Indigenous communities, contractors, government agencies and community staff who are involved in developing or maintaining infrastructure in remote communities. CAT staff developed material on community involvement, project management, water, waste, telecommunications, waste water, stormwater and transport and energy to create a 'one stop shop' book that gives advice on how to choose appropriate systems for communities of different sizes across Australia. CAT also developed a complementary website that accommodates feedback and updating advice as regulations and materials change.



THE CAT PHONE

Community Access Telephones evolved when people experiencing humbug when a phone was placed inside their house, asked for the phone to be mounted outside. CAT designed the prototype which was dubbed the Ned phone because of its metallic robustness and resemblance to Ned Kelly's armour. Subsequently CAT participated in a project together with Telstra, the Commonwealth Government and other community organisations which has resulted in over 250 phones being installed in communities throughout northern Australia, particularly in the Kimberley, Central Australia and the Top End of the Northern Territory. The phone design has been refined over time, but has consistently been based on a standard domestic phone instrument, thus simplifying the spare parts and repair logistics. Pre-paid cards rather than coins are used to pay for phone calls, to eliminate the need for a coin box and frequent emptying. The community phones continue to be maintained by CAT staff.

from being an optional and minor part of the process, to being the fundamental starting point and linchpin for entire programs. The report signalled a policy shift from managing compliance to managing risk in remote community small water supplies. Within this was also a focus on demand responsive services that engage end users rather than simply relying on government to supply.

'It was a really significant public policy challenge', says new CAT CEO Peter Taylor. 'Basically (Walker) was saying there are a lot of problems with remote community water supplies. But deriving a set of mainstream norms around water quality, water standards and water systems was going to be unsustainable. And it may even impede the overall social and economic development of communities.'

Taylor argues that the objective of providing 24-hour power and high standards of building construction in remote areas, although aimed at achieving equity, was not helping to make Aboriginal people more self reliant.

As the decade reached the half-way mark, CAT's role as builder of clever products for the bush was changing. But it would never disappear completely. The role of the organisation was simply becoming broader.

CAT formally separated from the Community College of Central Australia in 1995 and in the same year established a Women's Technology Network leading to a national conference for women in 1996. By that time CAT's energies had diversified to include training, applied research, community planning and capacity building for local governance. As the organisation spread its wings,

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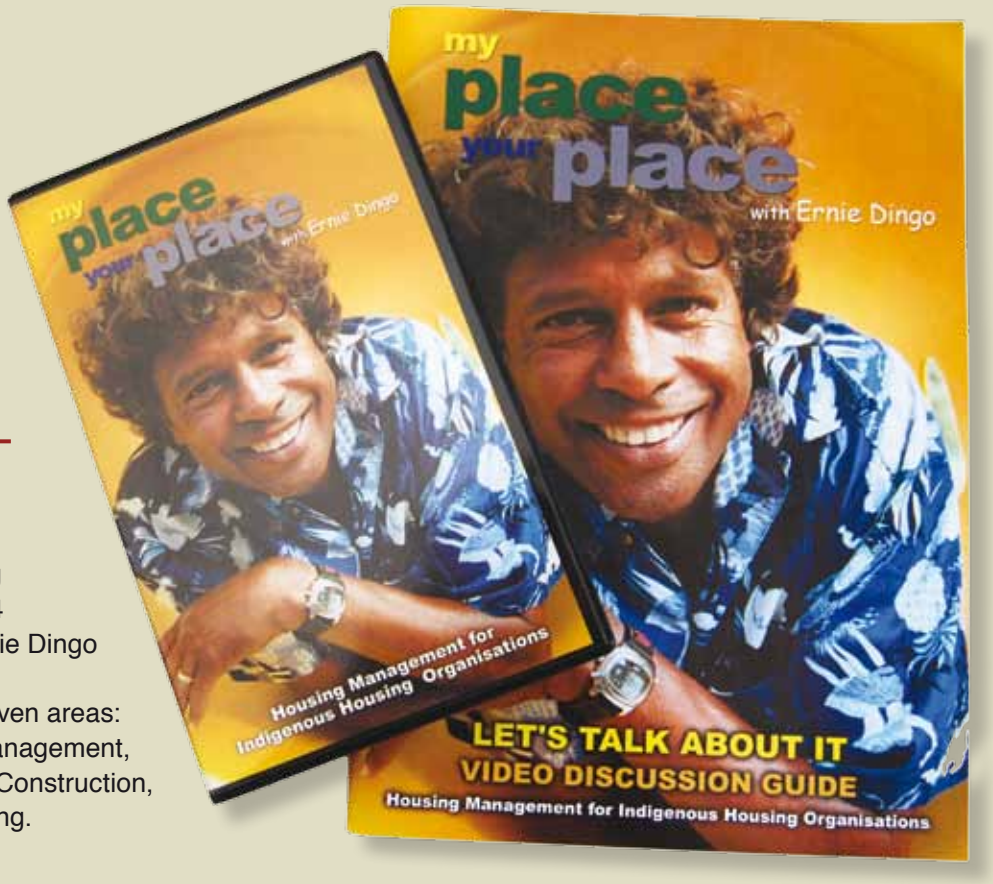
ROYALTY AT THE CENTRE: THE QUEEN'S VISIT AND PRINCE CHARLES

CAT received visits from the Queen in 2000 and from Prince Charles in 2006. We are also regularly visited by Ambassadors from overseas countries.

HOUSING MANAGEMENT

CAT produced an asset management video resource for Indigenous Housing Organisations. Filming took place in 24 communities around Australia with Ernie Dingo as presenter.

The Video covered the following seven areas: Association Management, Tenancy Management, Overall Community Planning, Design, Construction, Purchasing and Maintenance of Housing.



it forged partnerships with mining giant Rio Tinto, Batchelor College and The Australian Centre for Renewable Energy.

CAT launched its now widely-read magazine Our Place in February 1996, and would later broadcast an associated radio program starting in February 2002.

A review of the National Technology Resource Centre, and in turn of CAT, was undertaken in 1997. The review came in its first triennium of operations and was undertaken as part of the agreement governing the NTRC.

By this time the needs of remote Indigenous communities had changed considerably. Many of CAT's products were no longer required as more contractors and suppliers entered the area of remote infrastructure and essential services provision. Also, as the report states, CAT staff were becoming increasingly aware of the changes occurring in organisations with similar mandates in North America and the developing countries of sub Saharan Africa and south-east Asia. These organisations were increasingly seeing their role within a broader context of community development, both in terms of policy and practice.

The review recommended CAT invest more in NTRC staff and leadership development with a view to establishing greater consciousness of quality standards and a more sophisticated marketing and communications strategy targeting more women and youth. The review recognised the rapid growth of the NTRC/CAT required greater proficiency in project planning, monitoring and evaluation.

CAT had much to contribute to international benchmarking, the 1997 review stated, as many issues faced by remote Indigenous communities were common to both developed and developing societies elsewhere.

A Derby regional office was opened in 1998 and in the lead up to the introduction of the GST in 1999, CAT lobbied the Australian Democrats to funnel diesel excise back into better renewable energy resources for remote communities. At the time the Democrats held a majority in the Australian Senate and used their numbers to lobby the Federal Cabinet. The lobbying was successful and the initiative channelled through an ACRE/CAT joint venture.

Taylor recalls: 'CAT saw an opportunity to argue that the states shouldn't be getting all of that rebate, because the Commonwealth was putting a fair bit of diesel into remote community energy systems. We argued successfully for the Government to slice off some of that money and put it directly into an Indigenous remote renewable energy services strategy. This is where Bushlight got its start.'

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CAT'S ENERGY STORY

Responding to a request from communities in the Utopia region in the mid 1980's, CAT investigated and designed small solar powered light units for inclusion on community clinics to provide light for after hours emergencies.

This work led to a collaboration with the Murdoch University Energy Research Unit and later Advanced Energy Systems in the development and monitoring of the Solar Pack power generation units that were prevalent in WA in the late 1980's.

As a result of these associations CAT was a core partner in the development of the Australian Centre for Renewable Energy (ACRE CRC) and undertook a significant market survey of the performance of renewable energy systems across Australia. Following a number of community and industry forums CAT developed a policy paper based on the ACRE report which was presented to the federal government and shaped the nature of the Commonwealth RRPGP program which was introduced at the time of the GST. The paper convinced the AGO and ATSIC that investment in RE systems was not going to be sustainable unless considerable resources were invested in community support.

The Bushlight project has delivered renewable energy services to over 113 Indigenous communities in NT, WA and Qld, with a reduction in average household energy expenditure of $5500 per year, a significant enhancement in remote communities ability to service these systems, significant direct commercial opportunities for renewable energy installation contractors (in excess of $33 million since inception), reduced greenhouse emissions through reduced reliance on diesel, and new opportunities for the Australian renewable energy industry.

Key impacts on the RE industry have been:

- significantly increased RE industry capacity and capability in regional areas of Australia;
- significant contribution to the development and refinement of Australian Standards for the

design and installation of RE systems;
- improvement in quality of non Bushlight funded systems through use of components and techniques approved/developed by Bushlight;
- dissemination of generic Bushlight education and communication material to broader RE industry for use with other Indigenous and non-Indigenous clients;
- multiple RE industry training and work placement opportunities created — approximately 3 university placements per year for 5 years — 15 in total.

Bushlight delivers energy services in small remote communities using nationally and internationally recognised best practice in renewable energy system design and community consultation. Bushlight's commitment to the principles of uniform system design, appropriate quality standards and national procurement strategies (including volume purchasing) bring an efficiency to this work which would be unattainable in anything other than a national format. For example, three Bushlight maintenance staff currently manage the scheduled and unscheduled maintenance of $24m of renewable energy assets spread across more than 100 communities in remote areas of Western Australia, Queensland and the Northern Territory. The development of RE system service runs incorporating communities from different states and Territories into one run in order to minimise mobilisation costs is another example of the efficiencies gained through this national approach.

Bushlight's high national profile (2006 National Engineering Excellence Award) enables CAT to attract staff of the highest calibre to the Northern Territory which ultimately furthers the reach and impact of CAT's work.

Bushlight manager Grant Behrendorff was awarded the prestigious 'Engineering Technologist of the Year' in 2008 by Engineers Australia.

The body of expertise accumulated by Bushlight and the technical specialists the organisation has attracted enabled CAT to play a leading role in the preparation of Alice Springs successful Solar Cities campaign.

Bushlight staff prepared a feasibility study and now manage a successful solar demonstration project at the new Desert Knowledge Precinct in Alice Springs.

CAT has taken its learnings from the Bushlight project into a collaborative development and demonstration project of an optimised model for remote village electrification using renewable energy in India. This project provides distributed generation renewable energy supplies to six remote Indian villages. Implementation is structured around collaboration between Australian and Indian partners in the testing, development and documentation of best practice models of energy system planning, system design documentation and installation, and sustainable management of energy services. The project will collaboratively develop an optimised model for the electrification of remote villages in India using renewable energy. The project will document a readily replicable, quality implementation model for community sized solar (PV) and other RE technology systems. The model has great potential to facilitate more rapid and effective, consistent and sustainable RE distributed generation systems in rural/remote India over the coming decade.

COMMUNITY PLANNING IN QUEENSLAND

In 1997 Mona Mona community near Kuranda in Far North Queensland invited CAT to work with them to plan how they want Mona Mona to develop. CAT also began work with the Buru community on a community planning project in 1999.

Mona Mona is a former mission, which was closed down in 1963 to make way for a dam project which never went ahead. Many Aboriginal people in the Kuranda area still think of Mona Mona as home. Some people had already moved back to Mona Mona, and many more want to settle there in the future.

The first stage of the planning involved identifying and carrying out the minimum essential works required for the people currently living at Mona Mona. The second stage involved planning the longer-term future of Mona Mona, including locating areas for future residential development, deciding on preferred options for infrastructure and services and developing an environmental management plan.

The Buru community bought back the pastoral lease on their land in 1994. Since then, community members have been returning to Buru to live. CAT's role was to assist the Buru community to plan for how they want Buru to develop. The planning included choosing preferred infrastructure and technology options, determining administration arrangements, examining the impacts of tourists on Buru country, and a range of other issues that will affect the future of Buru. The planning work also involved working with community members to prepare detailed action plans for some of the high priority issues. Sony Levers, then went on to design and construct a composting toilet unit with the community.

With the opening of the new century CAT entered a period of consolidation. It launched its award winning Bushlight Renewable Energy Services program in 2002 to replace the ACRE program and in the same year became a partner in the Desert Knowledge Cooperative Research Centre. It opened a Darwin office in 2003 and another one at Kununurra in 2005.

It was during this period that CAT really began to take a role in the broader political sphere. Former Indigenous Affairs Minister Amanda Vanstone's 2006 criticism of the viability of remote communities for example brought a considered response. CAT reasoned that to simply 'declare communities unviable and infer all should move to larger centres of economic opportunity was as much head-in-the-sand as the expectation that people can rely solely on traditional law and culture to see them through the next 20 years'.

CAT's response to the Howard Government's Northern Territory intervention in 2007 was similarly framed. CAT questioned whether the 'failed-state' policy assumption underpinning the intervention could guide government investment towards long term sustainable solutions. In a submission to the

RIO TINTO PARTNERSHIP

In 1995 CAT decided it needed to form partnerships with other organisations that were operating in the same space across remote Australia. After a long courtship CAT signed an MOU in Parliament House in Canberra with the global resources company Rio Tinto on the 30th November 1999. The partnership was in place for 10 years and provided access for CAT to top engineering expertise as well as support for the development of the Akaltye Science and Technology Program for young students and the CAT/Rio Tinto Fellowship where employees of Rio's business units could compete to spend time at CAT to undertake projects of importance to selected communities. Examples of projects were a water harvesting arrangement adjacent to roads in the Pitjantjatjara lands in order to subdue dust, design of all weather crossings at Ngallagunda in WA, disabled lifting devices in place of long ramps to houses on stilts.

review of CDEP in the Territory in 2008, CAT argued that the program was subsidising government service provision in remote areas rather than providing jobs for local people. As a result, said CAT, CDEP failed the needs of remote communities.

On the home front, the success of the Bushlight program had made possible the commencement of project work in India and the start of commercial operations with the launch of Ekistica in 2008. These built on Walker's individual consultancies in social development in Burma, Tanzania, Kenya and Vanuatu which he had undertaken during the 1980s and CAT's increasing alignment with international evidence and experience of sustainable and participatory community development approaches. Bushlight itself was commissioning robust and reliable renewable energy services in remote outstations. It partnered with community residents to design and build systems that met their needs and aspirations. It also established training for local management and maintenance. CAT chairman Jim Bray has been a long time champion of the Bushlight program.

'It proved we can do things differently. It allowed our people

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HOT WATER PROJECT

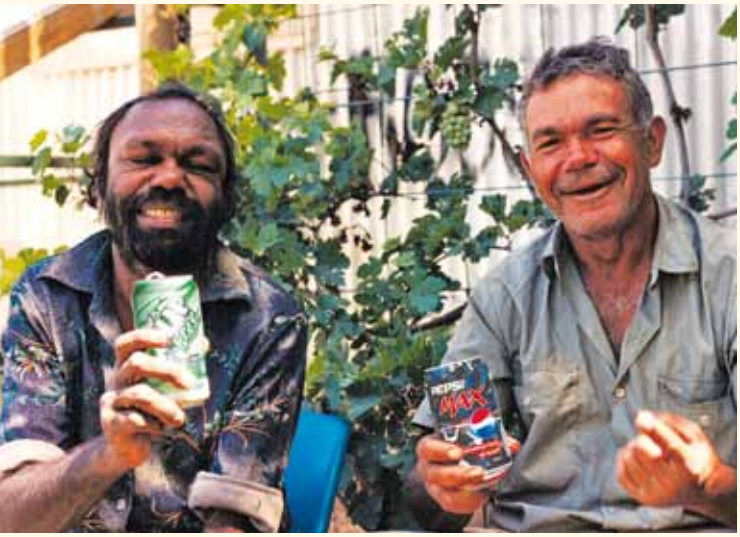
In response to a call for a reduction in the incidence of skin diseases CAT set up a trial of hot water systems to monitor and test new hot water services (HWS) installed in different communities and outstations with a view to assessing cost, efficiency, user acceptance and reliability of supply.

Systems were installed at five sites, namely:

- Alice Springs town camps
- Pipalyatjara
- An outstation in the Pitjantjatjara homelands
- Kintore
- Pormpuraaw

And they were monitored for:

- Energy consumption
- Water used
- Temperature (both inlet and outlet)
- Ambient temperature
- Acceptance of the supply
- Problems with the technology including maintenance and installation



HERB BLOOMFIELD AND TONY CLEMENTS

Herb Bloomfield and Tony Clements were the first two Aboriginal people to complete 10 years service at CAT. Herbie worked in the workshop and was able to teach all new workshop recruits every aspect of the work CAT undertook in the workshop. Tony spent time in the extension crew and ended his employment with CAT as the maker of the vibrated concrete toilet seats used in the VIP latrine.

DESERT KNOWLEDGE

CAT was instrumental in developing the Desert Knowledge concept. Bruce Walker convened a meeting at Ross River where a small group of community members from all sides of politics gathered to consider how we might use our knowledge of living in the desert to develop a new knowledge economy in the desert. This group ultimately combined with a NT Government initiative looking at 'Alice in 10' to form the desert knowledge movement which put together the successful Desert Knowledge CRC bid and saw the establishment of Desert Knowledge Australia as a Statutory Authority.

to do away with diesel and use the old sun. They could run their own households, budget and have full control (over their lives) and it put money back in their pocket for them to spend on their family.

'But it was how Bushlight did it. The (energy) units are so robust and strong. They put our people through a learning process, and taught them how to run it. They produced a book, which was easy enough for our people to understand. They didn't assume. They sat down with the people and with the people's approval. It wasn't like "you're not intelligent enough so we'll put it in simple terms".'

Toward the end of the decade, several policy initiatives of both Federal and Territory Governments began to signal a shift in philosophy toward the homeland movement, and to some extent frame the challenges that lay ahead for CAT. Since Kevin Rudd's historic apology to the Stolen Generation in February 2008, the Federal Government had been keen to capitalise on the momentum generated and fashion itself a set of practical aims for Indigenous policy. In February 2009 the government released a new policy statement, Closing the Gap on Indigenous Disadvantage. Almost in tandem the Territory Government released its policy statement A Working Future in May. Both documents aimed at setting targets to close the gap of Indigenous disadvantage, especially in remote areas.

Further, Rudd had announced in February that his government would appoint a Coordinator General for Remote Indigenous Services, responsible for delivering services to those remote communities to which it had given priority. Funding was diverted away from establishing any new homelands or outstations. Priority would now be given to resourcing a number of larger 'hub' communities. Existing outstations would need to be supplied from these 'hubs'.

CAT's move this year to the Desert Peoples Centre is a strategic one. It is a mark of the organisation's growing maturity and its deepening emphasis on positioning as it approaches its fourth decade of operations. There has been in recent years a growing feeling among key staff and stakeholders that CAT had to escape the 'back blocks' of Alice Springs and be more 'on show'.

Chairman Jim Bray explains: 'Here at Priest Street we're land-locked. You're restricted in your vision and your dreams. We needed land to build on, to

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CAT'S WATER STORY

In November 1980 Bruce Walker developed and installed a hand pump with one of the most excited group of traditional desert peoples at the place now known as Kintore or Walungurru. Kintore is the spiritual home of the Pintupi nation and the majority of the leaders of the now famous and acclaimed western desert art movement.

In February 1981 three hundred Pintupi moved back onto their lands from the government community of Papunya (250km to the east) where they had lived for the previous 25 years. CAT continued to work with these people to develop eight outstations all initially established on hand pumps and basic housing built by teams of people from Kintore. The outstations connected the senior artists with their country and provided new inspiration that has been expressed through their artworks and which have received international acclaim.

Handpumps opened up the track from Kintore through the western desert and on to new communities at Docker River, Kiwirrkurra, Jupiter Well and Well 33, then across to Port Hedland providing east west access through the centre of the desert.

The proposal to establish a new community at Lake Nash near the Queensland border prompted research into the effect and impact of nitrate in drinking water. The bores in that area revealed nitrate levels that fell outside the action levels in the Australian Drinking Water (ADW) guidelines.

Following research into the effects and understanding the background papers supporting the NHMRC recommendations, a cabinet paper was prepared to recommend an action strategy which explored options other than fully condemning the water supply. High nitrate is a problem in many remote

community water supplies. After 10 years of writing and conference presentations the most recent ADW Guidelines have a reference to management of water supplies in remote communities where nitrate occurs naturally and may be ingested by adults to a higher level. Many of the underlying research papers on nitrates were founded on work from Europe and America where animal waste and fertilisers caused the risk.

This early interest in water supply led to CAT's inclusion within the CRC for Water Quality and Treatment (CRCWQT) and enabled that CRC to establish a technology transfer officer at CAT to work with Indigenous communities across Australia on water quality matters.

Initial work of the CRC with CAT was around successful management of rain water tanks. Research was also undertaken into the causes of failure in small water supply systems and revealed that over 60% of water supply systems failed for mechanical rather than chemical or water quality reasons.

Under CAT's influence the CRC WQT joined forces with the Desert Knowledge CRC and the Commonwealth to explore the use of risk management policies and best remote area practice in situations where compliance with guidelines and regulations are not feasible and the alternative is abandonment of supply.

This work has culminated in the inclusion of a section on risk management in the latest Australian Drinking Water Guidelines. Further research into and the development and trialling of resources to support community's to risk manage their water supplies has also been undertaken with the support of the National Water Commission.

CAT AND THE MEDIA

CAT has not been a major publisher of news or a marketer of its products and ideas but it has had significant coverage over the years in the Bulletin, The Australian and other national daily's, and on television. In the early days most of CAT's marketing was by word of mouth as people talked among themselves about the products and services available at CAT. Whilst funding agencies may not have been aware of this subtle advertising and messaging at CAT we were well aware that this was a more effective way of communicating with Aboriginal people than by putting ads in the paper.

In the early 2000s CAT launched its Our Place Magazine to enhance the dissemination of practical and useful stories and research about people and technology in the bush. A few years later CAT also launched its Our Place radio segment which is distributed to over 200 radio stations nationally, giving voice to the views and initiatives of remote community residents. The Our Place radio segments, produced by Adrian Shaw for the past seven years, have received a number of National Broadcasting Awards.

expand, to give our people a better education. We've made a step into the future by starting the Desert Peoples Centre.'

Bray sees CAT's role in its new location as a one-stop shop for information, help, training and education.

'We've moved on from what we did in the early stages, helping set up the communities. A lot of communities wouldn't have happened if it weren't for CAT.'

Like others in CAT management, Bray sees Bushlight and its community energy planning methods as the shape of things to come for other sectors of CAT. At last count Bushlight was working in 327 communities across the country. That included, as Taylor points out, a growing portfolio of maintenance contracts for non-Bushlight renewable energy systems.

But the challenges remain. CAT's fundamental mission to support sustainable livelihoods and remote Aboriginal communities through appropriate technology has sometimes seemed thwarted by the pursuit of equity by governments. Successive governments have shown a desire to provide the same level of services to the bush that are available in the cities. CAT has long argued this sort of thinking is unsustainable.

In fact, according to Walker, this thinking is standing in the way of real gains in the fight to reduce Indigenous disadvantage. This conflict between a pursuit of equity and the empowerment of Aboriginal people is where CAT can perhaps have its greatest influence. It is also where the greatest challenges continue to emerge.

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JENNY KROKER

Jenny Kroker has been central to the good governance of CAT and the role of women and youth in technology. Jenny arrived at CAT 15 years ago from Charles Sturt University. It was not long before she was driving the Women in Technology Network and organising a national conference to bring it to prominence.

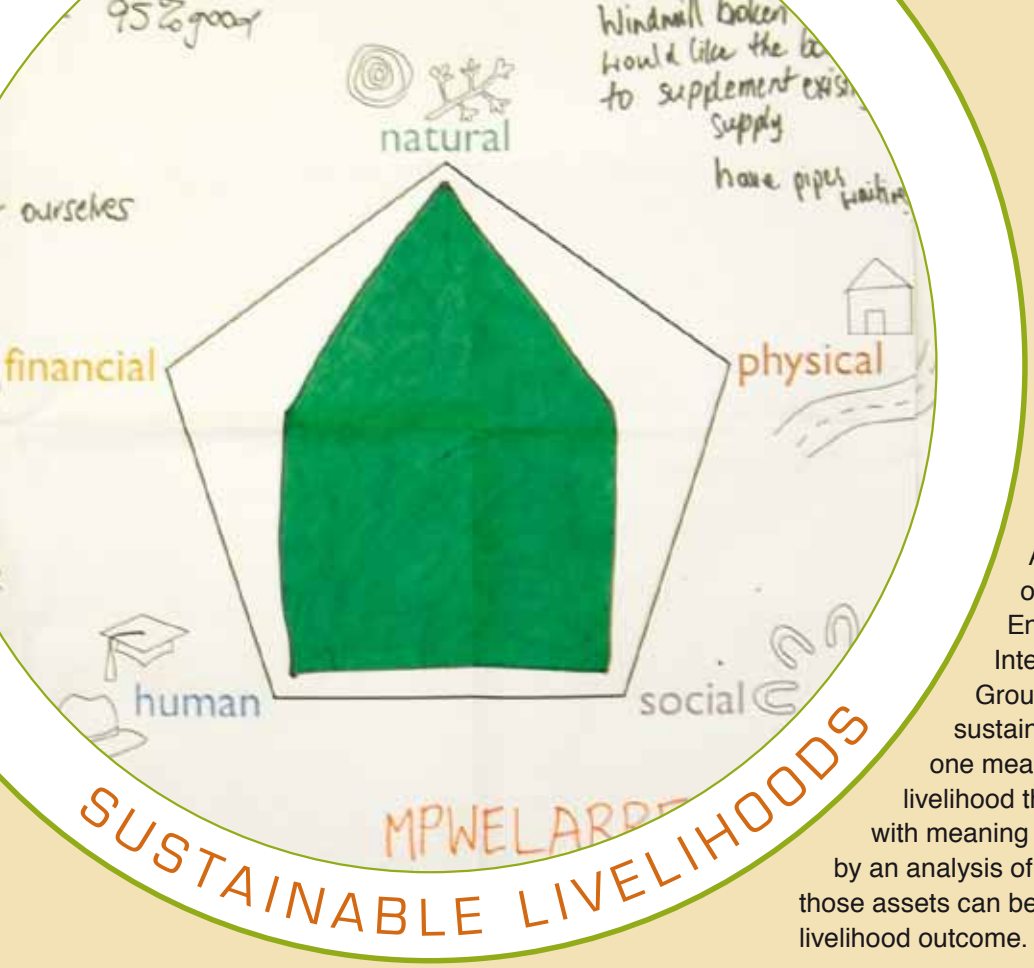
Jenny has also managed CAT's external partnership relationships with Rio Tinto and in particular has driven the development of the Akaltye Youth Science and Technology event to the point that it has been integrated within the science curriculum in schools in north Queensland. Her work has also seen her involved in the organisation of visiting VIP's and international visitors to CAT.

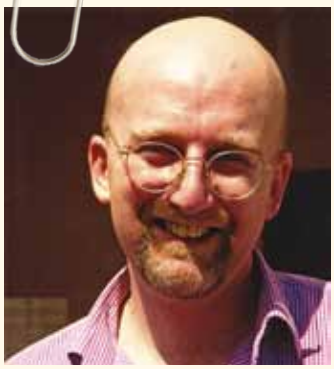
As Executive Officer she has played a critical role linking the Board with the senior Management of CAT both through her support of the Chairman and Board members and the CEO, COO and management team. For much of the past 10 years she has also provided executive support to the Board of the Desert Peoples Centre.

Jenny also has carriage of the cross cultural program of induction for all new CAT staff and regularly represents CAT at conferences. Jenny makes an ongoing contribution to fostering and nurturing the organisational culture of CAT by 'spotting' troubles before they arise and supporting Indigenous Staff.

DESERT PEOPLES CENTRE INITIATIVES

One of the first initiatives of the Desert Peoples Centre, a joint venture between CAT and Batchelor Institute was the TrainingPlus project. The project utilises a case management model to broker a range of accredited and non accredited training and personal support interventions that respond to both individual need and industry requirements and support successful transitions to employment. The project is based on an understanding that the transition from unemployment and the experience of multiple disadvantage requires investments in four key areas — Attitude, Knowledge, Skills and Networks. It also recognises that formal, informal and on the job training is part of a package of additional supports that help individuals move into work and enhance both employer and employee satisfaction. The project works with individuals, local businesses and job services agencies and has had some success in placing and retaining Indigenous job seekers in employment, work experience and ongoing training. A key learning from the ongoing evaluation of the project is the need for interim labour market employment opportunities that can give disadvantaged Indigenous job seekers experience in a 'real employment' setting but with a range of additional supports that enable the personal and professional development required to sustain mainstream employment.





As CAT started its third decade of operation it recruited Steve Fisher from England where he had worked for the Intermediate Technology Development Group. Steve introduced the concept of sustainable livelihoods. Technology became one means by which people could secure a livelihood that they enjoyed and that provided them with meaning and control in their life. It is underpinned by an analysis of five main asset categories and how those assets can be applied to derive and sustain the desired livelihood outcome.

For example, training numbers are down this year says Peter Taylor. He blames this on the number of political and bureaucratic changes the Territory has seen these past two years. These include the Howard Government's federal intervention, broad scale local government reform, wind back then re-establishment of CDEP and a thorough shakeup of the system of delivering jobs.

Walker goes on to explain. 'The past two years have been the toughest for more reasons than just (challenges to) the homelands. Post referendum (1967) the Commonwealth had responsibility for Aboriginal affairs. At the end of the Howard years, and continuing on, the Commonwealth has begun to transfer this responsibility back onto the states and territories.

CAT now urges that policy making for outback Australia move beyond its previous mindset. The issue is not, says Walker, and never was, about cocooning traditional lifestyles. Rather, he believes contemporary policy is failing to define pathways for remote Aboriginal people to engage with the global economy.

'All these investments are taking place and there is no defined link,' Walker says. 'There is no modelling or logic behind them.'

With 30 years of thinking and experience in appropriate technology in Central Australia and further afield, Walker believes Australia must reshape its view of its own backyard to better understand the systems that sustain the very fragile place we call the Outback.

For thirty years CAT has traversed the ups and downs of government funding and policy formation to bring its unique brand of development assistance to Australian Aboriginal people. Now, with offices in three states and a new high profile headquarters in Alice Springs, the Centre for Appropriate Technology looks set to remain relevant for some decades to come. Many in the organisation believe the highly successful renewable energy program Bushlight and its commercial counterpart Ekistica Pty Ltd will help shape the future look of CAT.

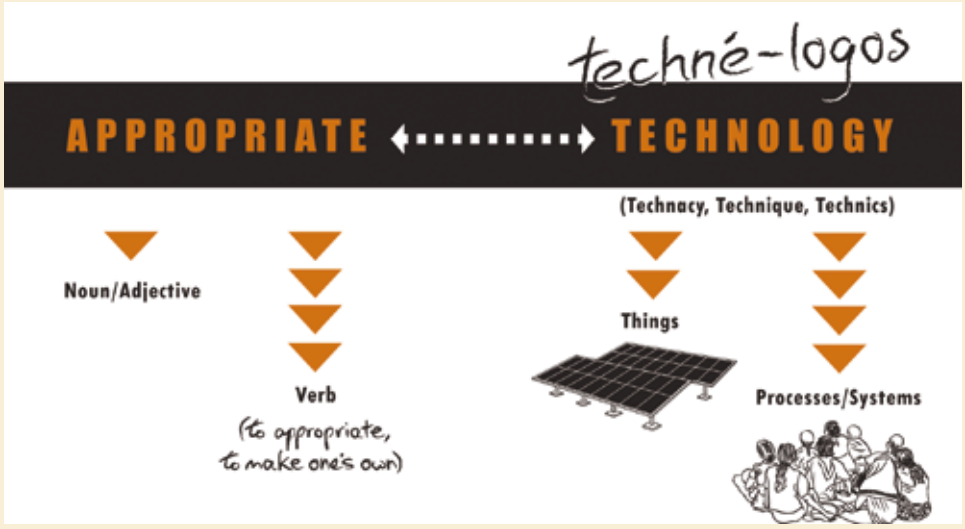
It is unclear how current shifts in federal and territory policy towards homelands might affect CAT operations. The organisation has seen challenges before, it is seeing them now, and will no doubt see more in the future. Perhaps Walker's own words of unfading pragmatic optimism are best: 'It's not over yet'.

THE IMPORTANCE OF INSTITUTIONS TO DEVELOPMENT

These stories highlight some important issues for community development and investment across Australia's remote areas. Each narrate a chain of events from problem identification initiated by Indigenous people, applied research, research dissemination and policy or programme development. Each are grounded in engagement with local Indigenous peoples aspirations and an exploration of the issues they face and possible solutions. Each story demonstrates the innovative adaptation of mainstream policy and program platforms to suit the unique requirements of remote Indigenous settlements. The stories also communicate a sense of time, strategy, persistence and collaboration. But most importantly the stories underscore the importance of institutions — local, flexible, responsive and visionary organisations- which survive the shifts and upheavals in government, policy and programs. Project by project funding would never have reaped the long term and sustainable results encapsulated in these stories. For it is the corporate knowledge of institutions, the shared understanding of success, failure, political detours, community resistance and resilience, that can bridge the gap between central government and local communities and craft sustainable outcomes from investments in each.

APPROPRIATE TECHNOLOGY

Many people believe appropriate technology is a thing or object that can be identified and provided. CAT has always had the view that technology is a means to an end and appropriate technology is more about the journey than the product. Appropriate Technology is about context, control, resource, skill availability and timing. The way people take and use both technology and opportunities, that is the way they appropriate the technology is as important as the design quality of an object. Appropriate Technology is about technique, systems, problem analysis and how people organise themselves to achieve outcomes and resolve problems. This broad interpretation of CAT's role is no doubt behind the many and wide ranging projects it has become involved with.



JIM BRAY

Jim (James) Bray is an Eastern Arrernte man who has provided leadership, strong support and inspiration to all people who have worked at CAT.

Jim is one of a number of outstanding Indigenous leaders sent from central Australia to St Francis House in Adelaide and finished his schooling in SA.

After completing his schooling, Jim started his working life picking fruit in the Riverland. He returned to the NT and took up a trade in welding and worked with Dillingham Engineering in the construction of the minerals processing plant at Gove. Jim's work was of such quality that Jim was offered an opportunity to work for Dillingham in Canada.

Jim went on to work for the water resources division in the Northern Territory undertaking early drilling for the community of Yulara. He has managed Aboriginal Hostels in Katherine and Alice Springs and after completion of his Diploma in Community Development he worked at the Institute for Aboriginal Development promoting cross cultural awareness.

Jim has dedicated his last 20 years to the understanding of appropriate science and technology at CAT. Jim's extraordinary vision and tenacious leadership over nearly twenty years as Chairman has provided strong direction for the organisation and Indigenous people living in remote communities.

Jim has instigated partnership developments with mining companies, Co-operative Research Centres, government and other science and technology organisations and business in line with the core business of CAT.

At all times Jim's vision has been to provide opportunities and development options for Indigenous people through better understanding and involvement in science and technology.

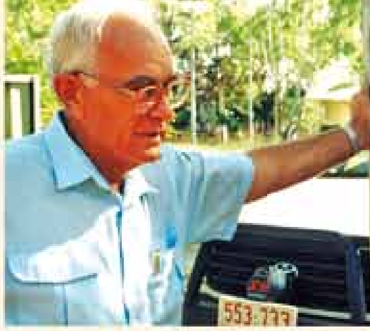
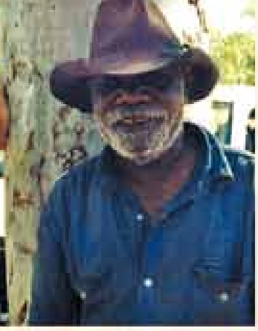
Jim has maintained this vision and his determination to create opportunities for Indigenous people and he has withstood pressure to take easy or popular decisions preferring to face difficulty head on and act strategically. Jim's determination and willingness to be unpopular rather than bend is also legendary.

Jim has been central to the partnership between CAT and Batchelor Institute of Indigenous Tertiary Education that has resulted in a new institution being constructed in Alice Springs that will offer 21st century opportunities for Indigenous people.

Jim is not a public leader, he leads with his ideas and his dogged defence of his right to speak and to be a person of the world. He has not sought out public office nor media but he has quietly worked with industry and government to see that no piece of the vision is missed.

Jim's insists that the future opportunities for young Indigenous people are in science and engineering. It is through these technical skills that people are able to shape their world and engage with the global community.

Jim has pursued Desert Knowledge because he believes this is the only hope we have in addressing the gap in employment opportunity. He knows this will only be achieved in partnership with industry and the wider community and we need new knowledge to do this.

















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