



## Summary

### ***Challenge and response***

Much of Australia's wealth is created in our remote regions, yet many of the people who live there are unable to fully participate in the economy. This market failure causes high levels of social and economic disadvantage, and is proving to be an intractable challenge despite significant current investments, as it involves the complex interplay of economic, environmental and societal factors.

The impact of economic exclusion on the Indigenous population in particular is acknowledged by the Council of Australian Governments (COAG) as a national policy priority through the National Indigenous Reform Agreement (Closing the Gap).

Responses to the challenge so far suffer from poor data and information, a fragmented view of the issues, and 'imposed' initiatives generated from outside the regions which prove not to work on the ground. This situation is exacerbated by the inherent difficulty of conducting research in remote regions, including logistics, expense, environment and cross-cultural misunderstanding.

We believe that the combination of expertise and commitment brought together in this submission represents a rare opportunity to tackle the issues facing people in remote Australia. The issue is urgent and the right time to tackle it is now.

The CRC for Regional Economic Participation (CRC-REP) establishes a unique collaborative research platform that works with communities, businesses and people in remote regions of Australia to systemically investigate and provide practical responses to the complex issues that drive economic participation. It will use the Desert Knowledge CRC's (DKCRC) networks, unique and locally- relevant methodologies, core knowledge and management systems.

### ***Approach***

There is very strong support across governments, industry and communities in remote Australia for tackling this problem, as CRC-REP's list of 60 partners shows. They include:

- COAG members (Australian, NT, Qld, WA and SA Governments)
- Aboriginal organisations and communities
- non-government organisations
- research providers
- private businesses and industries.

Our approach will be 'whole of system' and multidisciplinary. Consultation with end users has identified three central research programs to achieve the needed economic and social impacts:

- Regional Economies - strengthening the economy of remote regions
- Enterprise Development - building remote enterprises to provide jobs and livelihoods for people living in remote regions
- Investing in People - improving the education and training pathways for people living in remote regions.

Research excellence and innovation will be achieved by building on theory developed in the DKCRC and using cross-disciplinary, cross-cultural and inclusive teams, leading experts and soft-systems methods. This application addresses all of the National Innovation Priorities.

## **Outputs**

The research outputs are designed to transform peoples' lives by driving policy and service delivery innovation, business development and employment.

## **Impacts**

Robust modelling estimates the impacts from CRC-REP's research will be transformative, with a return on investment of 1.71. Within 15 years the impacts will include:

- Over 2,295 jobs for Aboriginal people
- Savings in welfare payments of \$160 million
- Additional profitability in remote pastoral industry of \$292 million
- Improved educational and health standards of residents in remote regions
- Increased health and wellbeing.

## **Response to Selection Criterion 1 – Research**

Successful research in remote regions of Australia requires highly developed and trusted networks, unique cultural skills (language and cross-cultural understanding) and innovative methodologies that cannot be easily replicated without substantial investment. The CRC-REP will use a 'whole-of-system' approach to increasing the levels of economic participation in the remote regions of Australia. The end users of CRC-REP have identified priority issues that constitute major barriers to economic participation in remote regions, including limited employment opportunities, very low educational attainment, a highly mobile workforce, fragile supply chains, high production costs and poor access to market opportunities. CRC-REP's research agenda has a significant focus on increasing Aboriginal economic participation. Our government partners are strongly committed to the COAG National Partnership Agreement on Indigenous Economic Participation, whose aims are to:

- halve the gap in employment outcomes between Indigenous and non-Indigenous Australians within a decade, involving employment growth of around 100,000 jobs for Indigenous people
- reduce the proportion of welfare payments as part of overall Indigenous household income
- ensure the Indigenous working age population has the depth and breadth of skills and capabilities required for the 21<sup>st</sup> century labour market
- see Indigenous people are represented in all employment sectors and at all levels of the labour market within ten years
- increase the productive capacity of the economy by enhancing workforce participation and retention across the labour market.

CRC-REP's research aims to increase remote economic participation through three programs:

- **Regional Economies** – strengthening the economy of remote regions
- **Enterprise Development** – building remote enterprises to provide jobs and livelihoods for people living in remote regions
- **Investing in People** – improving the education and training pathways for people living in remote regions.



## DKCRC to CRC-REP

CRC-REP is a 'public good' CRC, with a multi-disciplinary research focus based mainly on the social sciences. The remote regions of Australia are physically and socially unique. DKCRC has a history of successful collaborative, participatory and culturally appropriate research in remote Australia. It has a track record of delivering results that end users and their constituents use. DKCRC has already completed many projects in non-desert remote regions of Australia (<http://www.desertknowledgecrc.com.au/>). This experience and track record has resulted in achievements of four main types:

- Practical solutions and technology based on grounded knowledge of living in remote regions
- New solutions through 'whole-of-system' approaches
- An evidence base of the reality of remote conditions and systems
- Theory and new approaches to research and working with people in remote regions.

The DKCRC partners have resolved to create this CRC-REP because:

- the challenges in remote regions are extremely complex. They require a multidisciplinary, integrative and systems-based research approach that cannot be conducted by any single institution. What is required is a diverse and cooperative partnership
- there are no dedicated and large-scale research initiatives investigating the system that supports economic participation in remote regions
- the proposed research contributes to an area of national policy priority identified by COAG in the National Partnership Agreement on Indigenous Economic Participation
- the challenge of social and economic disadvantage in remote regions is an intractable problem that will require transformational and innovative research to provide real solutions and achieve results
- CRC-REP will build on and leverage the networks, access, IP and knowledge created under the DKCRC, ensuring that it will be able to commence operations quickly and efficiently from the date of funding.

Wind-up planning for the DKCRC is expected to result in agreement from partners that Ninti One Ltd (trustee of DKCRC IP) will make that IP available where appropriate for the CRC-REP. Ninti One will continue to commercialise outputs of the CRC-REP and has attracted \$ 26.5 million in external project income to date.



## **Research Program 1 – Regional Economies**

This research program aims to build robust and strong regional economies throughout remote Australia through our partners in government, industry and communities. This will provide the sustainable employment and enterprise opportunities vital to increasing the level of economic participation for remote Australians. Remote regions have unique characteristics that affect their economies. The way these features interact differs substantially from the more populous regions. Remote areas are tough for new enterprises and industries because populations are sparse and highly mobile, resources vary widely in time and space and labour markets and economic conditions are highly volatile. Scattered resource hot-spots result in single large settlements and businesses in a region which can distort regional economies, leading to power imbalance. These features play a critical part in the social network and economic resilience of regions. This Program will develop solutions to these problems, employing methods developed during, and integrated into, DKCRC outputs <sup>(10, 16, 22, 23, 25)</sup>. These characteristics frame the themes within this program, which include:

### **Research Theme 1.1 – Mobility and labour markets**

This project will address the statistical failure that exists with ABS data to count highly mobile Aboriginal people <sup>(15)</sup>. The first stage of this theme will expand on a powerful and innovative methodology pioneered by the DKCRC. CRC-REP will sample micro-scale mobility in settlements and visually present it in a predictive geographic information system. A micro-scale sample will make the person and settlement the focus for data collection, rather than the household and statistical region, as is the case with ABS data. We will compare regions with different settlement patterns and expected levels of inter-and intra-regional mobility within a framework of social-network theory to test hypotheses about the relationship of mobility to regional social-network and economic resilience. This research will produce a better modelling tool for predicting population shifts in highly mobile populations, leading to improved service delivery. Training Aboriginal people living in remote locations to undertake this research will enhance future ABS data gathering and ABS will commit resources to this theme. The second stage will focus on mining labour markets associated with at least four case study communities. The research will develop a model of employment associated with the mines.

### **Research Theme 1.2 – Maximising the regional impact of mining investment**

This project will analyse benefits flowing from mining and how these can be translated into a flow of enduring benefits to communities and SMEs during and beyond the mine's life. It will generate strategies that remote communities can use to deal with sudden shocks and global changes. Firstly, we will develop a systems understanding of the size and flows of benefits and costs generated by mining (and related processing) activity over its lifecycle, where these impacts are felt spatially, and by whom. Spatial and economic modelling will be used to develop a predictive model of the mines' impacts. Secondly, we will develop new methods and an evidence base to prepare communities affected by mining operations to manage risk and become more resilient. We will use methods pioneered by McAllister et al <sup>(16)</sup> in the DKCRC to describe the local community as a system (of social and business networks) and analyse the networks using graph theory metrics to describe system resilience and adaptive capacity <sup>(16)</sup>. This will help *a priori* selection of case study communities in regions with varying properties such as density (how interconnected a network is), redundancy (how many alternative connections there are between nodes) and centrality (the relative importance of each node in the network). These analyses will yield a practical understanding of the risk profile for each community of its susceptibility to dominance and power imbalances, and develop the information base to enable the community to make informed decisions about future-proofing itself. This model will be transferable nationally and internationally.

### **Research Theme 1.3 – Climate and energy futures**

This theme will develop regional strategic plans for dealing with climate change. These include health preparedness, infrastructure investment for lower greenhouse gas emissions, comfortable and healthy living conditions and more prosperous and sustainable settlements. The first research focus will be on strategies to manage climate change impacts, including changes in plant and animal behaviour leading to disruption of wild harvest, farming and grazing systems; new pest and disease outbreaks; and



changed climatic comfort levels in current houses and buildings which will place pressure on energy, water and health systems. The second research focus will be on energy security, which is a major topic globally. This is critical in remote settlements, where reliance on fossil-fuel generation plants is normal. We will explore moves toward distributed energy generation built on hybrid fossil fuel and renewable power technologies (4). Using the renewable natural resources of remote regions requires long-term planning and investment, but is a vast opportunity that can attract new investment, boosting regional productivity, economic resilience, new enterprises and job opportunities.

### **Outputs and Utilisation**

The outputs of the Regional Economies Program will include:

- Predictive model of remote area micro-level mobility for service delivery and labour planning
- Data on the size and flows of costs and benefits generated by mining operations
- Models on how to maximise the local impact of mining
- Case studies and methods for communities to manage risks and become resilient over the lifecycle of a mining operation
- An input-output model of remote Australia
- Case studies and pathways to alternative climate change and energy futures
- At least 7 post-graduate students; 30 Aboriginal people trained as paid field researchers; 5 honours, VET or vacation students.

These outputs will be directly used by CRC-REP's end-user partners (mining companies, Australian, State and Local governments and communities). They will also be extended domestically and internationally via consultancies and the publication and dissemination of papers and results.

## ***Research Program 2 – Enterprise Development***

This program will create successful models for MSMEs that are appropriate to remote locations and inclusive of Aboriginal culture. It will facilitate their survival and growth in the long term so that they can employ more people in remote Australia, providing the 'engine room' for jobs and livelihoods. It will address barriers to growth, such as distance from markets, fragile or faulty supply chains and the scope for efficiencies to overcome high production costs. DKCRC research has already explored the application of community development and sustainable livelihoods frameworks to remote economic development (9, 18). These theoretical explorations have added to the success of applied DKCRC work on enterprise development (e.g. 6) by highlighting the importance of the role of social and human capital to business opportunity and success, and multifunctionality as a feature of livelihoods in remote locations where there is market failure (10). This program will use these theories to inform experimental design and action-learning approaches. In consultation with our end-user partners, this program will focus on the following themes:

### **Research Theme 2.1 – Economic participation from cultural knowledge**

Many Aboriginal people living in remote regions want to participate in the economy, but they will rarely do so at the expense of their culture. This theme will provide Aboriginal communities and existing MSMEs with the knowledge, information and data to develop new business opportunities built around non-exploitative commercialisation of cultural knowledge (20). The world-wide demand for products from the world's oldest living culture has the potential to transform the flow of benefits to Aboriginal people living in the remote regions. Aboriginal culture is currently embedded in a number of products, such as tourism and art, and there is scope to widen this. However, there is little or no whole-of-industry integration or information about demand for products, market segmentation and how enterprises can meet those demands. There is also no systematic planning for how other cultural enterprises can be developed and co-promoted. This theme will apply whole-of-value-chain research and market analysis to Aboriginal art and tourism within a sustainable livelihoods framework. Simultaneously, the



approaches will be deployed in the development of enterprises based on land management and culture so as to develop models and approaches that allow Aboriginal people to realise the full economic value of their own culture in a manner that respects its shared ownership and maintenance <sup>(19)</sup>.

## **Research Theme 2.2 – Technology and innovation transforming remote businesses**

Remote businesses can be slow to adopt technological innovations from outside. This theme will use two specific projects as case studies to map and address the economic, business and social issues that both hinder and assist technology adoption and innovation in remote regions:

- **Precision Pastoral Management Tools** – will develop new management tools that integrate precision animal data with precision spatial data to match livestock performance to environmental conditions for more efficient pastoral management. This project is highly innovative on a world scale, as the delivery of regular remote-sensed groundcover products for pastoral managers has never before been attempted. The linkage between pasture and stock performance is totally new and challenging for remote pastoral systems.
- **Plant breeding** – will develop a model for a commercially successful business based on valuable food and medicinal plants, which is acceptable to Aboriginal people and culture, and which can be applied to a wide range of prospective plant species. This project will investigate the propagation of bush tomatoes in a culturally appropriate way as a model for other commercially valuable plant varieties such as Kakadu plums, bush bananas, desert yams and desert truffles. These projects are innovative and transformational as they represent the first attempt at a detailed action-learning agenda for technology-led efficiency in remote regions of Australia.

### **Outputs and utilisation**

The outputs of the Enterprise Development Program will include:

- New management tools for more efficient and precise pastoral enterprise management.
- A model of the development of commercially valuable plants that are acceptable to Aboriginal people and culture that can be applied to a wide range of prospective plant species
- Effective value chain models for Aboriginal art and tourism, harnessing new market opportunities.
- Models of new business opportunities for remote Aboriginal people using cultural assets
- Training and mentoring packages
- At least 11 post-graduate students; 20 Aboriginal people trained as paid field researchers, 5 honours, VET or vacation students.

Utilisation and commercialisation for these outputs will employ all four CRC-REP strategies (described in 'outputs' in the summary). We will create a new MSME engagement platform, known as RemoteBiz™, which will provide highly practical business support, mentoring and business skills development for remote Aboriginal people. The experience of the DKCRC is that remote Australia needs a dedicated and specialised interface, such as RemoteBiz™, to achieve research uptake because of the gap in skill development and industry underdevelopment in remote areas. RemoteBiz™ is an innovative addition to the standard research delivery approaches and will be specifically designed to integrate with and complement the CRC's initiatives. It will form an important part of the overall remote enterprise assistance system. In addition, the outputs will be directly used for consultancies (both domestically and internationally) and by CRC-REP's end-user partners. For example: the Indigenous Land Corporation will support this theme through its various ventures; Enterprise Connect will make available skilled business advisors; DEWHA will support the cultural business aspects of this program; and other partners such as Land Councils, DesArt, mining companies, Robins Foods and North Australian Pastoral Company all provide a mechanism for industry uptake.



## **Research Program 3 – Investing in People**

There are complex challenges in improving pathways for remote Australians through education and training to employment and enterprise development. Current approaches have failed to deliver. The rate of completion of year 12 in remote regions of Australia is only 57% for non- Indigenous and 22% for Indigenous students <sup>(17)</sup>. Completion rates this low severely limit these students' ability to participate in the economy <sup>(21)</sup>. Desert syndrome <sup>(24)</sup> theory underpins this program's hypotheses and methods. Remoteness is a fundamental driver of inappropriate policies by distant policy makers, market failure and job scarcity, inadequate services and difficulty with staff attraction and retention. Soft-systems approaches linked with the Sustainable Livelihoods Framework (SLF, as modified by Moran et al <sup>(18)</sup>) will be used to interpret the complex factors leading to chronic educational and employment disadvantage.

### **Research Theme 3.1 – The interplay between health, wellbeing, education and employment**

The recent Productivity Commission report acknowledges that low education and poor health are linked to low rates of economic participation, particularly in remote Australia. Despite this, the impact of educational attainment on the health and wellbeing of Aboriginal people has received little research attention <sup>(12)</sup>. This theme brings together techniques not deployed in this way before. Communities that differ in their resilience and vulnerability will be compared over time. We expect that communities with higher capital rankings will have better health and wellbeing outcomes.<sup>(18)</sup> The innovative questions relate to which capitals have the greatest influence and how, and what characteristics of education and employment achieve the greatest net gains for health and wellbeing. This approach is strongly inter-related to Themes 3.2 and 3.3. It has the potential to transform the way policy makers, individuals and communities work together as it will provide a clearer and measurable connection between cause and effect.

### **Research Theme 3.2 – Pathways to work and enterprise**

The research will use a soft-systems methodology evolved to deal with situations in which human perceptions, behaviour or actions are the dominating factors and where goals, objectives and even the interpretation of events are all problematic <sup>(5)</sup>. It aims to:

- understand the factors that support transition into sustainable employment
- identify the barriers to effective transition
- compare and contrast the strengths and weaknesses of existing approaches in securing sustainable employment outcomes for Aboriginal people
- document Aboriginal job seekers' perspectives about effective supports for successful employment transitions.

The project will build a picture of the system that supports pathways into work and enterprise, analysing the connections between parts of the system, the behaviours that influence its effectiveness and the areas where specific improvements could be made that enhance the system as a whole. The methodology will draw greater attention to elements of the system that have not received attention before, including standards and conventions in policy and professional practice and the engagement of family and community members in the process.

### **Research Theme 3.3 – Remote education**

This research theme will identify how education systems can be redesigned to better suit the needs of the communities and stakeholders in remote regions by examining demand (what students, carers and the local economy need), supply (what systems need to provide, including better staff recruitment and retention), policy issues and alternative delivery models. The research will test hypotheses based on the Science of Desert Living theory (SDL), and use soft-systems methodology described in the previous research theme. For example, it is postulated that remote educational systems would be more successful if they were constructed around social networks based on sparseness and high mobility and if they respected social and cultural practices of Aboriginal people. The methods will:



- emphasise analysis of critical factors, significant trends and causal influences in the context of the wider system
- focus on creating 'user-led' fields of inquiry through participatory engagement with community and government
- produce strategies building innovatively on successful initiatives from a range of national and international contexts.

### **Outputs and utilisation**

The outputs of the Investing in People program will include:

- An assessment of the interrelationships and interplay between education, employment, health and wellbeing including the effectiveness of targeted interventions.
- Systemic understanding of effective pathways to work and enterprise.
- Education models that identify strategic interventions and strategies to improve the remote education system.
- At least 7 post-graduate students; 20 Aboriginal people trained as paid field researchers, 5 honours, VET or vacation students. The primary utilisation strategies for these outputs will be through direct use by CRC-REP's enduser partners (such as DEEWR, FaHCSIA, State and Territory Governments), facilitated utilisation (both domestically and internationally) via consultancies and dissemination through publishing of papers and results. They will also be shared with professionals in the education, training and employment services sectors and through community and Aboriginal organisations.

## **Response to Selection Criterion 2 – Results**

CRC-REP is mainly a 'public good' CRC with a multidisciplinary research focus on social sciences. The expected impact of 'Closing the Gap' in the remote regions of Australia will be 0.29% higher real GDP (\$2.9 billion based on 2008–09 GDP) and the creation of 22,000 new jobs (results from modelling commissioned from Access Economics<sup>1</sup>). Indigenous Australians from remote regions stand to benefit more from 'Closing the Gap' than do Indigenous Australians in general. However, Australians as a whole forgo substantial economic benefits as long as the Indigenous disadvantage continues.<sup>1</sup> The CRC-REP aims to contribute approximately 20% of the remote regions' 'Closing the Gap' targets by providing locally-relevant, innovative new solutions. The outputs from CRC-REP will be the most comprehensive and largest investigation of the system that supports economic participation in remote regions of Australia. The benefits from CRC-REP's research are presented in detail in the Impact Tool (prepared by CIS Ltd and independently reviewed by Deloitte Consulting – Strategy & Operations section):

- a cost:benefit ratio of 1.71 (this ratio would be 1.94 if the full benefit of the education outcomes were captured as opposed to the first 15 years)
- 2,295 new jobs for Aboriginal people
- Saving approximately \$160 million in welfare payments over 15 years
- An additional \$500 million in economic benefit from higher education levels over the working life of remote students
- Additional profitability in the pastoral industry of \$ 69 million per year
- Increased health and wellbeing, decreased levels of crime and domestic violence
- Lower levels of social and economic disadvantage.



## ***Results from Research Program 1 – Regional Economies***

This research program will be largely used directly by CRC-REP end-user partners in mining, MSMEs, governments and communities. These will put in place the structural and governance changes that will turn the mobility of the workforce from a disadvantage to an advantage, increase the spillover benefits of investment by mining companies for the long-term prosperity of remote Australia, and establish regional strategic plans to respond to global climate and energy changes. The impacts of the regional economies program will include:

- delivery of more efficient and effective services to communities through better population data
- better appraisal of the impact of policy change
- 2,118 new jobs for Aboriginal people
- saving of \$110 million in welfare payments
- save the Australian mining industry up to \$49 million
- infrastructure investment decisions that lead to lower greenhouse gas emissions, more comfortable and healthy living conditions and more prosperous and sustainable settlements.

## ***Results from Research Program 2 – Enterprise Development***

The outputs of this research program will be largely utilised directly by the MSMEs and communities, and will be disseminated through the CRCs own RemoteBiz™ platform. This program will provide the first detailed understanding of value chains, markets and the use of traditional knowledge to ensure that remote regions of Australia can capture more economic value. It will: 1) develop an understanding of how to adopt leading-edge technology in an unforgiving high risk and harsh environment, 2) address the business sustainability/viability issues in bush foods through advanced technology and the domestication of Australian native fruits, 3) understand remote supply chains for goods and services (Aboriginal art and tourism), and 4) provide models for Aboriginal people to gain financially from their traditional knowledge in an appropriate way. The results of the enterprise development program will include:

- benefit of \$292 million over 15 years to the Australia pastoral industry
- \$44.8 million in extra revenue from bush tomatoes over 15 years
- \$126.6 million in extra revenue for Aboriginal artists over 15 years
- 177 new jobs for Aboriginal people; saving \$50 million in welfare payments
- providing Aboriginal people with the control over and the opportunity to benefit from their intellectual property
- establishing models for the identification and commercialisation of plant-based products (bush foods, therapeutic and biomedical, some of which were uncovered in the DKCRC)
- models for innovation in remote regions of Australia.

## ***Results from Research Program 3 – Investing in People***

The current education system has failed people living in remote Australia: only 57% of non- Indigenous remote students and 22% of Indigenous remote students achieve year 12. The research from this program will be used by government departments and agencies, communities and businesses working in remote education and training. It will provide these end users with a transformational 'whole-of-



system' view of the education, training and pathways system. The results of the investing in people program will include:

- Saving of \$95.6 million in recruitment cost for State and Territory education departments
- \$348.1 million in added income benefit from completing year 12 over 15 years
- Approximately \$500 million in added income benefit over the working life of students completing year 12.

### **Education and training**

Like the DKCRC, CRC-REP will leave an enduring legacy of human capital that will be able to research, teach and train in the area of remote economic participation for decades to come. The CRC-REP will train at least 25 postgraduate students (PhD and MSc) and host at least 15 undergraduate, vocational and vacation placements. It will ensure at least 70 Aboriginal field researchers are trained and paid during its research lifetime. It will facilitate the creation of new businesses by building the skills of potential entrepreneurs through the RemoteBiz™ platform in partnership with successful Aboriginal entrepreneurs (e.g. Iga Warta, Titjikala and Ilkurlka). It will take an integrated approach to the development of all staff to ensure increased capacity in remote areas after the CRC wind-up.

## **Response to Selection Criterion 3 – Resources**

CRC-REP will operate in a unique and specialised environment that requires extensive experience for success. It will focus on research in an intercultural world requiring sophisticated communication approaches, strong partnering and unique intellectual property solutions. It will:

- tackle complex-system problems that are not easily resolved outside the CRC model
- operate in vast landscapes that present major logistic challenges and substantial costs
- work with people from diverse backgrounds and across cultural barriers.

Transforming remote communities and businesses requires cross-disciplinary teams that span research, community development, business incubation, practical demonstration, vocational training and policy making. The CRC-REP (and its predecessor, the DKCRC) has had the time to consult deeply with disadvantaged people living in remote regions of Australia and to understand the research topics, approaches and relationships needed for success in this environment. The research will be conducted in genuine partnership, with relationships based on trust.



### Specifically referenced or informing the writing

1. Access Economics Pty Ltd. 2009. Economic impact of closing the Indigenous gap in remote and very remote Australia. Report for Desert Knowledge CRC.
2. Australian Government 2009, *Closing the gap on Indigenous disadvantage: The challenge for Australia*, Australian Government Publishers, Canberra.
3. Australian Government 2009, *Powering Idea: An innovation Agenda for the 21<sup>st</sup> Century*, Australian Government Publishers, Canberra.
4. Bell J 2007. Security via decentralised energy: Energy security, climate change and decentralized energy. World Alliance for Distributed Energy, Available at [http://www.localpower.org/documents/report\\_security.pdf](http://www.localpower.org/documents/report_security.pdf)
5. Checkland, P. 1999. *Soft Systems Methodology: A 30-Year Retrospective*, John Wiley and Sons, Chichester, England.
6. Cleary J, Grey-Gardner R and Josif P. 2009. Hands Across the Desert: Linking desert Aboriginal Australians to each other and to the bush foods industry. Report to Department of Agriculture, Fisheries and Forestry by Desert Knowledge Cooperative Research Centre, DKCRC, Alice Springs.
7. Council of Australian Governments 2008, *National Partnership Agreement on Indigenous Economic Participation*, Australian Government Publisher, Canberra.
8. Cummins, RA, Eckersley, R. Pallant, J. Van Vugt, J, & Misajon, R. 2003. *Developing a national index of subjective wellbeing: The Australian Unity Wellbeing Index*. *Social Indicators Research*, 64: 159-190.
9. Davies J, et al. 2008. 'Applying the sustainable livelihoods approach in Australian desert Aboriginal development.' *The Rangeland Journal* 30: 55–65.
10. Davies J and Holcombe S. 2009. Desert knowledge: Integrating knowledge and development in arid and semi-arid drylands. *GeoJournal* 74(5): DOI 10.1007/s10708-009-9279-4. Published online 21 March.
11. Diez-Roux AV 2000, *Multilevel analysis in public health research*, *Annual Review of Public Health*, 21: 171–192.
12. Dunbar, T, and Scrimgeour, M, 2007. *Is Informed Consent enough? Keeping research on track: An overview of the NHMRC resource document to guide Aboriginal and Torres Strait Islander Peoples about health research ethics*, Ethics Centre of South Australia and David Unaipon College of Indigenous Education and Research Lecture.
13. Evans L, Scott H, et al. 2009. Effective intellectual property protection of traditional knowledge of plants and their uses: an example from Australia. *GeoJournal* 74(5). DOI: 10.1007/s10708-008-9229-6. Published online 24 December 2008. <http://www.springerlink.com/content/466u4025k0411240/fulltext.pdf>.
14. House of Representatives Standing Committee on Aboriginal and Torres Strait Islander Affairs' 2008, *Open for Business: Developing Indigenous enterprises in Australia*, Department of the House of Representatives, Printing and Publishing Office, Canberra.
15. Martin, D. and Taylor, J. 1996, *Ethnographic perspectives on the enumeration of Aboriginal people in remote Australia*, *Journal of the Australian Population Association*, vol. 13: 17–33.
16. McAllister RRJ, et al. 2008. 'Social networks in arid Australia: a review of concepts and evidence.' *The Rangeland Journal* 30: 167–176.
17. MCEETYA (Ministerial Council on Education, Employment, Training and Youth Affairs) 2008 *National Report: Achievement in Reading, Writing, Language Conventions and Numeracy 2008*, MCEETYA, Canberra.
18. Moran M, et al 2007, *The Transformation of Assets for Sustainable Livelihoods in a Remote Aboriginal Settlement*, DKCRC Research Report 28, Desert Knowledge CRC, Alice Springs.
19. National Long-Term Tourism Strategy Steering Committee 2009, *The Jackson Report on behalf of the Steering Committee Informing the National Long-Term Tourism Strategy*, Australian Government Publishers, Canberra.
20. Pawu-Kurlpurlurnu WJ, Holmes M and Box L. 2008. Ngurra-kurlu: A way of working with Warlpiri people, DKCRC Report 41. Desert Knowledge CRC, Alice Springs.
21. Productivity Commission 2009. *Overcoming Indigenous Disadvantage: Key Indicators 2009*. Productivity Commission, Canberra.



This version of the application omits commercial-in-confidence details

22. Reynolds JF, Stafford Smith DM, et al. 2007. 'Global Desertification: Building a science for dryland development.' *Science* 316: 847–851.
23. Stafford Smith M. 2008. 'The 'desert syndrome' – causally-linked factors that characterise outback Australia.' *The Rangeland Journal* 30: 3–14.
24. Stafford Smith M and McAllister RRJ. 2008. 'Managing arid zone natural resources in Australia for spatial and temporal variability – an approach from first principles.' *The Rangeland Journal* 30: 15–27.
25. Stafford Smith M, Moran M, et al. 2008. 'The 'viability' and resilience of communities and settlements in desert Australia.' *The Rangeland Journal* 30(1): 123–135.



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