DESERT KNOWLEDGE CRC

Desert Tourism Scoping Study

Assoc. Prof.
Pascal Tremblay

Report
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CHANGE YOUR WORLD. CHARLES DARWIN UNIVERSITY

Curtin University of Technology

CRC AUSTRALIA

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The Desert Knowledge Cooperative Research Centre (DK-CRC) is an unincorporated joint venture with 27 partners whose mission is to develop and disseminate an understanding of sustainable living in remote desert environments, deliver enduring regional economies and livelihoods based on Desert Knowledge, and create the networks to market this knowledge in other desert lands.

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Abbreviations/Acronyms

CRTR	Centre for Regional Tourism Research
DKA	Desert Knowledge Australia
DK-CRC	Desert Knowledge Cooperative Research Centre
STCRC	Sustainable Tourism CRC
TSCRC	Tropical Savannas CRC
WTO	World Tourism Organization
UN	United Nations
UNEP	United Nations Environment Programme

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Desert Tourism Scoping – Executive Summary

Purpose

The main objective of this report is to suggest research directions for the Desert Knowledge CRC. In order to do this, two basic questions have been investigated:

1. Is 'desert tourism' a topic worthy of research (and has it been researched as such previously)?
2. Does 'desert tourism' constitute a worthy component of 'Desert Knowledge' and if so, how should it be approached?

Methods

The research involved an intensive review of academic literature, a review of discourse provided by government and non-government organisations with an interest in either tourism or desert livelihoods (or both), and a workshop with stakeholders identified as having a particular interest in tourism in Australia's desert regions.

Findings

The phrase 'desert tourism' refers to a diversity of products, experiences and environments. There is no clear single 'desert tourism' market, rather a collection of markets which are characterised by their small scale and complex interactions with natural, social and cultural environments. At the broadest level, there are important differences between tourism which incidentally occurs in desert environments, and tourism where the desert environment is an integral part of the tourism experience. Either form can be seen as offering different livelihood opportunities for desert communities.

The academic literature has very little to say about 'desert tourism', although cases of tourism in desert areas feature in the discourse on sustainable tourism and eco-tourism more generally. While management challenges are seen as similar between desert and other fragile environments, Weaver (2001) identified seven attributes that are strongly associated with desert tourism:

1. Exceptional geological features and climatic conditions
2. Wildflower and other episodic floral displays
3. Ancient, large or unusual vegetation
4. Caravans or other desert trekking
5. Indigenous inhabitants
6. Oases
7. Protected areas.

Desert tourism tends to be focused on a relatively small number of high profile 'icon' attractions, with sporadic and small-scale development outside of these upper tier destinations. The relationships between upper and lower tier destinations are not well understood, but each tier faces management issues related to environmental conservation, market development, business opportunities and equitable distribution of economic benefits.

Outside the academic literature, the World Tourism Organization (2002) hosted a seminar on ecotourism in the desert which resulted in a report on the key issues. The most significant report on tourism in desert environments in Australia was the 2004 Lake Eyre Basin Heritage Tourism report commissioned by the Lake Eyre Basin Coordinating Group.

A Desert Tourism Research Scoping workshop was held in Alice Springs in December 2004. Seven themes were deemed to be of joint relevance and interest to stakeholders and researchers, and an umbrella grouping entitled 'cross-theme generic issues' for the desert tourism environment was added. Together with the literature review and commentary emerging from Desert Knowledge Australia's regional network and the Central Australian Tourism Futures Project resulted in seven themes and an additional umbrella grouping entitled 'cross-theme generic issues':

- Knowledge of markets
- Infrastructure issues
- Property and land access rights
- Tourism impacts
- Community/destinations governance for tourism
- Small business and Indigenous business issues
- Spatial dimensions of tourism coordination and demand
- Cross-theme generic issues (including managing 'sense of place')

While these themes may be useful in informing research, the relative importance of each theme may differ according to the type of desert tourism destination (upper or lower tier) and the markets which might be attracted to those destinations.

Conclusions

Desert Knowledge CRC may enhance its contribution to desert tourism research through strategic alliance with generic tourism research agencies (such as the Sustainable Tourism CRC) and other research organisations with an interest in the relationship between tourism and a set of landscapes (such as the Tropical Savannahs CRC). In considering the specific role of Desert Knowledge CRC, attention should be paid to whether the research has specific value for remote-regional-peripheral destinations and for arid-fragile environments. The gaps in existing tourism research agendas are where these two dimensions intersect. Furthermore, the expertise of the Desert Knowledge CRC is in systems methodologies which consider the connections between tourism developments, other forms of economic development, infrastructure and community livelihoods. The Desert Knowledge CRC is also well positioned to facilitate the engagement of desert stakeholders whose interests may lay outside a narrow definition of tourism, but whose knowledge may be essential to understanding and influencing the systems.

Recommendations

Three initial project briefs are proposed for consideration by the Desert Knowledge CRC. The first is to develop an agenda specifically for researching issues surrounding Indigenous tourism. The second is to examine in detail the tourism system around a specific desert location. Support for the Central Australian Tourism Futures Project may be reviewed in light of this recommendation. The third recommendation is for research targeting a strategic market and its linkages to desert settlements and livelihoods. The flow of tourists to and within the desert (particularly across administrative borders) should be a particular concern. The 4WD self-drive tourism market presents one potential focus for this research.

1. Background

This scoping study investigates two basic questions:

1. Is 'desert tourism' a topic worthy of research (and has it been researched as such previously)?
2. Does 'desert tourism' constitute a worthy component of 'Desert Knowledge' and if so, how should it be approached?

While the main objective of this project is to suggest research directions for the Desert Knowledge CRC, this can also imply choosing themes, approaches, and methodological directions. At the outset of this project, it was unclear whether 'desert tourism' constituted or had been crystallised as an area of investigation, and if so, whether it had been researched in Australia or elsewhere. From a tourism viewpoint, much general research has in the past been organised around destination/environment types (for instance: mountain tourism, small island tourism, coastal tourism, rural tourism, urban tourism, polar tourism, forest tourism) which has led to published books and collections. But at a first glance, 'desert tourism' was conspicuous by its absence in main publishers' collections.

Given the huge stock of tourism literature, the preoccupation with desertification around the world, and the repeated focus on negative impacts of tourists on fragile environments, it seemed odd that no obvious body of research seemed to have focused on 'desert tourism'. This could be due to lack of interest or perceived lack of importance by researchers, by desert communities or by jurisdictions incorporating desert areas (the latter preferring to keep tourists and tourism developers away from those regions).

Otherwise, it could be that tourism issues and challenges in these areas are excessively specific to the places and contexts in which they take place and no major body of knowledge could be formulated to have value for generic desert environments. Or, to the contrary, it could be that the tourism management issues associated with such environments are rarely specific to the desert, leading to a perception that they might as well be addressed in broader tourism contexts irrespective of the specific natural environments in which they are set.

The above concerns lead naturally to the question of whether tourism constitutes a worthy component of 'Desert Knowledge' from a research management viewpoint, and if so, how it should be approached. The latter question obviously depends on the scope of the research agenda of the Desert Knowledge CRC, its objectives, its developing agenda and its organisation. As far as the initial structure of the Desert Knowledge CRC is concerned, this scoping project is associated with Theme 4 'Integrated Systems for Desert Livelihoods' (led in 2003–2004 by Prof. Murray McGregor) which focuses on business systems and investigates a number of business activity clusters deemed critical for the economic, social and cultural development of Australian desert communities – including tourism. It is clear that while tourism fitted the social-economic cluster approach featured in this theme, many issues raised in the scoping of 'desert tourism' interconnect and appear in themes of natural and cultural resources management, regional services and governance.

It is indeed worth noting that Desert Knowledge Australia (DKA) has established an inter-regional video link for the purpose of supporting collaborative activities and industrial clusters by connecting outback regions across the states and the Northern Territory. When queried about a choice of industries or sectors they desired to develop collaboratively, all regional centres included tourism, and most suggested it should be a priority. Preliminary indications were that tourism ought to be a core consideration in researching and developing livelihoods in the desert regions of Australia.

2. Methodology

A useful working hypothesis for the scoping study of tourism in desert regions and communities was that the relevant knowledge required is highly fragmented and scarce. It was expected that nobody or no organisation could claim possession of relevant (and integrated) knowledge or expertise to inform a simple model of desert tourism knowledge which could readily be applied to the Australian 'outback' context. Consequently, it can be assumed that coordination problems between tourism agents holding fragmented and qualitatively different types of knowledge are at the heart of tourism developmental difficulties in arid regions. To address the main objectives of assessing the extent, distribution and availability of tourism-related specialised knowledge (as well as its repositories, communicability and property rights) a wide diversity of stakeholders needs to be approached. This is indeed typical of tourism planning as it often depends upon and directly involves natural, social and cultural resources embedded in specific locations.

The implied approach to scoping, therefore, involved canvassing the views and capabilities of potential researchers, tourism operators and stakeholders involved in institutional planning for tourism services. As is frequently the case with respect to tourism expertise, it was not expected that an overwhelming amount of pre-existing market, technological or even local knowledge relating to tourism in desert regions would be found among researchers in the Desert Knowledge CRC's partner institutions. The relevant and highly fragmented knowledge was therefore gathered in large part from industry stakeholders (business and technological mainly), planning bodies (market knowledge mainly), regional development organisations and various levels of desert communities (local assets – mainly natural and cultural knowledge).

To avoid 'consultation fatigue' from stakeholders and to operate in a time-efficient manner, a three-tier approach/sequence was deemed appropriate, feasible and economical to articulate the views and levels of expertise of different groups. The following groups were considered and approached directly or indirectly:

1. Key researchers in tourism and desert related areas (from CRC partners and other invited organisations) to identify key strategic questions, gaps and relevant research. These would also identify individuals or organisations that ought to participate in subsequent phases.
2. Key tourism industry individuals and planning bodies involved in the broad Australian desert region to evaluate and develop the questions and components identified in (1). These would also identify individuals or organisations that ought to participate in (3).
3. Key desert community and planning individuals and/or organisations to evaluate and shape the desert tourism research agenda and identify existing knowledge gaps, knowledge stores and channels of communications.

The process of developing the issues (discussed below) involved three steps:

1. Desktop survey of literature transformed into a briefing/issues paper
2. Distribution of the issues paper and collection of comments – used to prepare the workshop and finalise the list of invitees/attendees
3. Workshop with a mix of stakeholders to organise issues.

The process of identifying potential participants and gathering interest in a workshop involved reaching a broad variety of potential participants through a simple questionnaire. An initial list of interested participants was formulated locally and expanded as each contact was asked to add to the reference list. Expressions of interest were then sent to all on that list, signalling that a conceptual paper would be developed and circulated by the project leader. Participation in the workshop would depend on interest and availability, as well as on the desired mix of stakeholders relevant to preliminary issues identified.

The workshop involved the presentation of papers and/or case studies by many participants and attempted to achieve some common understanding of the scope and issues of tourism research in arid Australia. The issues were further discussed by Prof. Murray McGregor, Joc Schmiechen and Pascal Tremblay in a post-workshop meeting, and some results were presented at the Desert Knowledge CRC-Wide Conference held in Alice Springs (February 2005).

This report includes much of the content of the briefing/issues paper, the outcomes of the workshop and further analysis from the author. Details of the surveys, workshops and critical cited documents are reported in the attached appendices.

3. Preliminary literature review on desert tourism

This section provides a summary of the literature included in the scoping briefing paper to the workshop participants. The more extensive version (including many quotes from original sources) can be found in Appendix 1 (all appendices are available at www.desertknowledgecrc.com.au/publications/research.html). This section undertakes a critical analysis of the usefulness of the limited but dense literature on desert tourism, in particular of the approaches used to select, categorise and prioritise tourism issues in desert environments, from the viewpoint of the Desert Knowledge CRC research agenda. It does so by integrating some comments on the Desert Knowledge CRC perspective, reviewing a few academic sources and examining public sector reports of international and Australian origins.

3.1 Rationale and methodology

The literature survey constituted a first step in providing an overview of tourism-related issues relevant to the Desert Knowledge CRC, by highlighting research priorities for stakeholders of the Desert Knowledge CRC, examining research capacity in relevant areas as well as potential overlaps/synergies with other research bodies or CRCs. The focus was aligned with the Desert Knowledge CRC Theme 4, which looks at business systems and incorporates a number of business activity clusters deemed critical for the economic, social and cultural development of Australian desert communities – including tourism. The intended audience for the survey ranged from academics and researchers to industry and government stakeholders.

The briefing paper itself resulted from a series of discrete and fragmented short surveys based on typical academic tools, including:

- web-based surveys of commercial/government/research sites involving elements of 'tourism' and 'desert' or 'arid'; then using specific locations of interest such as Kalahari, Sahara, Gobi, etc., as well as other terms relevant to Australia
- survey of academic references linked with the same types of terms, broadened to include 'ecotourism', 'regional tourism' and other relevant terminology, including a comprehensive look at tourism-related journals, but also using universal-modern databases with their own search engines
- inspection of websites and documents from international organisations involved in managing tourism/ecotourism and using it for development purposes (for instance World Tourism Organization and related sites)
- survey of resources/references provided by regional governments promoting/developing/featuring deserts or arid zones in Australia and elsewhere, and searching for the presence and conceptualisation of tourism within those sites
- survey of resources found on tourism agency websites, both Commonwealth and state-based in which tourism regions are described, researched, marketed, etc.

While it may involve some attempts at definitions and suggestions (with respect to elements that need to be incorporated in any framework for 'desert tourism' research), the survey is essentially descriptive and entails multiple small contributions rather than an analysis of a well-defined field.

Issues of definition are not purely academic and often point at interesting opportunities to re-evaluate research frameworks and assumptions. It is accepted that defining 'desert tourism' is naturally done by starting to agree on/provide definitions of the 'desert' (as a type of place, environment, society) as there is no such conceptualised or marketed commodity as 'desert tourism' in Australia at the present. One can then attempt to extract attributes of tourist markets, business characteristics, infrastructure, community impacts, opportunities and issues associated with the definition of desert environments (used thereafter to incorporate natural, cultural, social and business aspects). It must be noted that the approach of adopting a technical or scientific definition of the 'desert' can easily lead to oversimplification of what constitutes the 'desert environment' as perceived by tourists. It is worth stating at the outset that tourists themselves are diverse and characterised by highly heterogenous and rapidly changing motives, needs and outlooks – including their ability to identify and relate to desert environments. This is a critical reality even in narrowly defined environments or spaces because 'desert tourist experiences' are embedded in broader perceptions of places, circuits, outback images and destination contexts.

While it is tempting to reflect and discuss averages – for instance, noting that 'the average tourist in the desert is like this or that' or 'the average tourism business in desert regions is smaller, more vulnerable', etc – it is fundamentally important to emphasise that diversity of structures and behaviours characterise tourism systems, and that averages can mask high levels of complexity. It can be stated at the outset that much of the challenge in defining and formulating a research agenda might have to do with the combination of fragile/remote desert environments with complex, diverse and unpredictable tourist dynamics, on scales that make research difficult to undertake and results difficult to generalise.

3.2 Desert tourism definitions

The Desert Knowledge CRC website provides the most relevant definition of what is 'desert knowledge' for the sake of this project:

> *Desert areas are characterised by a low and sparse population spread over large areas of lower productivity land. Desert knowledge is the formal and informal knowledge about how to make a sustainable livelihood in these areas, in the face of relatively expensive transport, limited conventional employment opportunities, and ways of doing things that are imported from other regions and may be inappropriate.*
>
> *Desert Australia can boast a great deal of formal research knowledge (e.g., we have a good international reputation for monitoring and managing arid lands) but also a huge store of informal knowledge (e.g., how do you put a solar energy system into a remote location in such a way that it doesn't fall over in the absence of the maintenance it might receive elsewhere?), including an extraordinary reservoir of Indigenous knowledge.*
>
> *Australian deserts support a high proportion of Indigenous people, who are actively experimenting with new methods of governance, for example. Desert Knowledge Australia arose from a community–government alliance, and seeks a better future for*

inland Australia by developing desert knowledge economies. It actively promotes the use of diverse desert knowledge to improve desert wellbeing in at least 3 ways – by directly improving people's quality of life, by capitalising on opportunities to market our knowledge overseas, and by promoting the region as being worth visiting, whether for tourism or for educational purposes. Knowledge is cheap to transport, given the right communications networks, and there's a real niche for desert knowledge – over a third of the world's surface, inhabited by a billion people, shares relevant features with ours. So Desert Knowledge Australia also aims to contribute to desert wellbeing elsewhere in the world (often dealing with poor and most marginalised regions).

In the context of Theme 4, it also defines 'business systems for desert economies':

Desert economies are characterised by marginal lands for conventional agriculture, and a high proportion of economic activity in the mining, tourism and service industries. The population is relatively small and sparse, resulting in relatively high service delivery costs. Australian deserts are additionally characterised by a high proportion of Indigenous people. These factors raise great opportunities and challenges for service delivery in general and for the development of viable economic systems. They add additional complexities to a system that is already difficult to interpret and predict. Large proportions of this population live in small communities away from the servicing towns.

Desert businesses operate in small local markets, experiencing high transport costs, and, if based on products which ultimately link back to natural resources or the small number of people that provide the human capital, a high level of variability over time. Better coordinated approaches to business development are required if the communities are to survive in a growing global economy. We must seek to enhance areas of natural comparative advantage. In other areas of economic activity, regional strategies are needed to develop comparative advantages based on human capital. These desert business strategies all require long- rather than short-term planning, with well-defined goals.

The above statements define the business context of desert economies and hold many of the critical issues relevant for 'desert tourism'. But when referring to business systems, the focus is not uniquely on individual businesses. It is also concerned with clusters of firms and other organisations aimed at creating 'value' and contributing to local desert economies. This means that the interactions between tourism and other related socio/cultural/economic activities are particularly critical when one looks at livelihoods and the associated constraints described above. In particular, the connections between tourism and other identified clusters – such as bush foods, Indigenous and other arts, environmental management, and Indigenous and other culture preservation – can all be relevant and inseparable. This is relevant in setting research priorities which differentiate the Desert Knowledge CRC's interests in tourism from those of other organisations which are more focused on tourism development as such.

The relationship between the micro (business-level sustainability in arid/remote environments), the meso (the coordination of distinct tourist markets in desert landscapes and environments) and the macro (how tourism sustains regions and helps sustain other industry clusters) is particularly important for the Desert Knowledge CRC as the outcomes of research on those systems are expected to be specific to the desert regions. Research methodologies supporting a broad 'systems' approach are therefore encouraged within the Desert Knowledge CRC:

> *Regions function as complex systems, combining human decision-making and institutional structures with economic and social feedbacks, and founded on an environmental resource base. The research required to tackle these problems needs to take internationally innovative approaches to combining systems analysis with local understanding of system function. This analysis should be strongly and iteratively linked back to the natural resource and service provision research outcomes (Themes 1–3). The goal in any future scenario should be to understand and make explicit the trade-offs between environmental, social/cultural and economic outcomes.*

3.3 International context: Desert tourism issues globally

The search undertaken to provide a framework for tourism research in desert environments has unveiled a number of sources, some linked to international organisations, attempting to establish regulatory frameworks for tourism, and many others concerned with local issues in specific corners of the world. While some universal issues arise when tourism activities (consumption and production) take place in desert environments, this section shows that many of the critical issues are not necessarily unique to desert environments. This section presents the author's own selection and organisation of issues as pertaining to the brief.

It must also be noted that there is much literature on desertification and policies to try to slow the process down. This literature usually encompasses discussions of strategies to enhance or sustain livelihoods for small and relatively poor communities (internationally) and often includes issues linked with tourism, its impacts and the opportunities it provides. Typically, tourism is presented as a promising but dangerous form of development, of which the impacts on desert communities are imperfectly understood. Yet, this often takes place in contexts where the number of alternatives (to tourism) is limited and where tourism is likely to compete for resources with other more traditional forms of economic activity.

Within the academic tourism literature itself, very few references are made to 'deserts' or 'arid environments'. Examples can be found within collections which encompass elements of places classified (for the sake of case studies) as either 'remote', 'peripheral' or 'fragile' environments. These highlight issues linked with the combined remoteness, fragility and highly distinct attributes of such places. At other times, they are classified by government and tourism management agencies under the heading of 'regional tourism' which can be defined in many ways depending on the national context. Usually it amalgamates non-urban – statistically 'peripheral', rural, administratively disconnected – forms of tourism across all types of environments: coastal, island, mountain, tropical and desert, as in Australia.

The literature on ecotourism cannot be easily separated from that of general tourism studies as the term 'ecotourism', like that of 'sustainable tourism', has become the object of mainstream academic attention and debate and is used quite differently in various parts of the world. It happens that this literature is highly concerned with tourists' impacts at local levels. Authors belonging to this group have therefore paid more attention to types of development which fit specific types of environments worthy of special attention, with only a few references to the desert/regional/remote development nexus.

3.3.1 Desert ecotourism in the academic literature

Weaver (2001) offers such an overview, which includes a discussion in which desert, grassland and savannah-type ecosystems are combined in one broad environmental aggregate, but has descriptions specific to each (while other non-woodland environments such as tundra, alpine areas and polar deserts are considered separately). Recognising that these do not constitute discrete categories and that transitional elements are important for any sort of spatial mapping, Weaver argues that the most relevant criterion for delineation of these regions for ecotourism management is the 'resultant vegetation' (2001:251). The definition basis is defensible but simplistic because it assumes that a universal criterion can be used to connect such ecological environments and the opportunities and challenges which come with tourism-related human activities.

Weaver does note that his delineation does not take into account ecotourism attractions with no direct relationship to the biome in which they occur, and he gives the Australian example of the Undara lava tubes found in northern Queensland which are popular geological attractions. The lava tubes just happen to be located within a savannah-type ecosystem (Sofield and Getz, 1997) where the object of attraction is not closely linked with the ecological environment, nor hampered by it. This hints at the need to differentiate tourist market segments with an interest in desert environments from those for whom that interest is incidental. Management and planning requirements for both markets are likely to be different. Given the existence of a number of iconic attractors located in Australian desert regions, it is likely that supporting desert livelihoods through tourism will involve attempting to open up new tourist experiences. Strategies will range from educating tourists about the different opportunities associated with such environments (which they might not traditionally have considered in their tourist opportunity destination sets) to maximising the new socio-economic benefits from their brief presence, depending on the demographics and trip-experience attributes associated with various travellers. These will clearly depend on the overall trip characteristics of various market segments.

In contrast, Weaver's representation of desert ecotourism focuses directly on geomorphological features and forms which are closely connected with conditions of extreme aridity – which, he argues, are the ones which ought to be represented under the category of 'desert'. While this is a sensible strategy for the purposes of categorising and examining many core desert ecotourism issues (associated with certain types of businesses and activities), the suggested criterion is too restrictive for this

brief and report. The management of desert tourism as understood by the Desert Knowledge CRC is broader and must include an interest in the relationships between a number of components in the broad context of desert ecosystems:

- remote/fragmented attractions
- self-drive tourists (who combine and have an interest in many outback environments, including arid areas)
- mass tourist attractions
- icons (which drive many major tourists flow)
- the built/services components of the region (which play a small role in explaining interest in the region in the first place but constitute important services poles and explain actual pathways of tourists)
- the specific attributes and relationships between livelihoods, businesses and resources with Australian desert environments
- the relationships between existing institutional design in desert environments, natural resources management issues and the governance of tourism and its socio-cultural impacts

Some of the key issues for tourism management in desert Australia are made especially difficult by the juxtaposition of many fuzzy elements – such as heritage and landscape values, modern tourism infrastructures and fragile natural and cultural environments –from both the marketing and planning viewpoints. This becomes obvious when reviewing the Australian literature in which discussions of destination images (e.g., the 'desert', 'arid zones', the 'outback') are intertwined with supply-side and planning concerns.

Weaver (2001:251–2) on the other hand defines deserts by focusing on attributes such as:

- their public image as non-vegetated landscapes dominated by sand dunes
- the existence of ecotourism opportunities through perceptions of 'largely unaltered by direct human intervention' characteristics
- other opportunities associated with a 'visibility factor', wherein wildlife is more likely to be sighted in a sparsely vegetated landscape due to the availability of a broad viewing range and the lack of cover for larger animals – mitigated by two facts:
    - that such environments are perceived as lifeless and dangerous as well as beset by extremely high temperatures and extremely low precipitations – literally 'abandoned' by life.
    - while endowed with potentially high visibility factors, the number of larger animals that can be seen in most deserts is restricted by low inherent carrying capacities. The fauna that are present tend to be stereotyped, especially by images of unpleasant and dangerous life forms.

The wildlife-viewing issue can play a greater role than first assumed in explaining the attractiveness of desert locations to specific market segments. It must also be noted that the 'unpleasant' stereotypes held about many desert animal inhabitants does not necessarily have to remain a deterrent, as the 'likeability' of wildlife species is often not the most important attribute to influence attractiveness or even fascination with the presence of specific types of wildlife and their relationships with such environments (Tremblay 2002). Another issue, one not mentioned by Weaver, is that many wild animals in desert environments are nocturnal, and this, twinned with the low climatic resilience, patience and ability of tourist-viewers to 'relate to them' beyond the superficial, makes marketing the desert difficult.

When examining the attractiveness of deserts and presenting desert ecotourism as a set of products, the authors identify a sufficiently universal set of attributes (Weaver 2001:253–255):

1. Exceptional **geological features** and climatic conditions: these include the Grand Canyon (Arizona, USA), the ancient sand dunes of the Skeleton Coast (Namib desert, Namibia) and Uluru (Ayers Rock) in central Australia.
2. **Wildflower and other episodic floral displays:** examples include the desert regions of Western Australia, Cape Province (South Africa) and other areas where heavy rainfalls induce an ephemeral blossoming of desert flora.
3. Ancient, large or **unusual vegetation:** examples include the 2000-year-old Welwitschia plants of the Namib desert, the giant saguaro cacti of the southwestern USA, and Palm Valley in central Australia.
4. **Caravans or other desert trekking:** eg the Tuareg camel trek offered during the early 1990s in Algeria's Sahara desert by a private adventure travel company (Daniel, 1993).
5. **Indigenous inhabitants:** given that traditional Indigenous cultures are often inextricably linked to their surroundings, they may constitute an 'ecotourism' attraction in their own right, or at least in terms of their interaction with their surroundings. This of course is a debatable point. Examples include the above-mentioned Tuareg trek, and activity affiliated with Australia's Aborigines (as for example at Uluru), and the Bushmen of the Kalahari desert (Hitchcock, 1997).
6. **Oases:** there are a growing number of ecotourism sites that are affiliated with luxury resorts situated in an oasis environment. One of the best instances is the AI-Maha resort in the United Arab Emirates, which includes a 16km^2 nature reserve stocked with reintroduced Arabian oryx and sand gazelle.
7. **Protected areas:** desert ecotourism is to a very large extent associated with formally protected areas (see below).

All of the above apply relatively well to Australia and an audit of present interests of desert visitors would for sure include major icons (i.e., Uluru), unusual landscapes and vegetation (i.e., Palm Valley), tours involving camel safaris or Indigenous cultural tracks, etc. Weaver suggests that the above potential product attributes pose different challenges for planning, marketing and product development in that some are more predictable than others. For instance he observes that the first is 'entirely predictable

(i.e., the geological attraction is guaranteed to be there), and the second largely unpredictable (the appearance and quality of the wildflower display depends upon the occurrence and type of precipitation)'. He classifies the remaining three factors as 'more indirect given that they incorporate ecotourism as a supplement to adventure, cultural and luxury resort tourism, respectively'.

Weaver acknowledges that one of the most important drivers of desert ecotourism is the mix of private and public protected areas which surround most key locations and the facilities which accompany them (interpretive centres, tracks, roads, infrastructure). An important point he makes is that not all visitors to these locations are 'ecotourists' in the sense of being specifically attracted by natural and cultural values nor concerned with their own impacts. The management of diverse and sometimes incompatible tourist flows (ranging from independent parties using private all-terrain vehicles to luxury infrastructure-intensive organised tourists) in fragile and poorly resourced environments is a common theme in desert ecotourism concerns.

A directly related observation is that much of desert ecotourism in countries such as Australia and the United States takes place in a small number of high-profile, well established, resourced and marketed desert locations (such as Uluṟu–Kata Tjuṯa National Park). This contrasts with areas which are identified (and often protected) as secondary desert destinations, attracting smaller numbers of mainly domestic or regional tourists, and those which are less well known, are under-resourced and where many uses and interests other than tourism might prevail. Many countries dominated by desert environments tend not to designate such environments as worthy of protection for conservation or tourism purposes. In general, resources (access, transport networks, hospitality services and other support) are also limited in such lower-tier locations.

The notion of upper-tier and lower-tier desert destinations is useful to distinguish and organise further discussions of impacts and their management (Weaver 2001:255–6).

Top tier destinations suffer universally from the following issues:

- deterioration of the resource base in and around protected areas with strong attractiveness
- threats associated with indiscriminate and encroaching use of all-terrain vehicles contributing to the point above
- resource scarcity and under-funding associated with low priority often given to desert areas
- conflicts emerging from unregulated consumptive activities (such as game hunting) which can occur outside but near protected desert areas.

When addressing management implications, Weaver combines issues for the desert, grasslands and savannas environments. The extent to which specific locations remain relatively unaltered constitutes the major distinguishing factor in his approach which focuses on natural environment impacts for ecotourists (Weaver 2001:261–2):

- site-hardening
- access to water
- fire management
- maintenance of corridors for migratory species
- pest species management
- co-habitation of consumptive and non-consumptive wildlife uses

Outside the entries quoted above, little else can be found in the tourism literature which is specific to deserts as environments. Many academic collections relate to the political economy of tourism, focus on a country or region, and discuss planning challenges in relevant contexts. Authors such as Reichel and Uriely (2002) provide useful insights into the human and socio-cultural dimensions of desert tourism planning by discussing tourism developments in 'a desert frontier town'. They propose a conceptual strategic approach to tourism development in remote, isolated areas in the desert in south Israel. They present a case study which suggests a 'two-tier development process be implemented, where central planning provides the basis for entrepreneurial profit-making activities' (p.195). Overall, the discussion supports a mixed 'post-modern approach to remote desert locations that combines the authentic with the man-made, stimulated, or contrived, as well as the central planning approach with the individual entrepreneur' (p.196). Their main argument is that the best way to sell arid environments as tourism places to support desert livelihoods is to carefully plan for forms of nature-orientated tourism development which stays away from the 'green' version and focuses instead on 'desert sustainability'.

The authors take the example of Las Vegas as a successful desert location which has invested entirely in mass tourism based on contrived attractions. They suggest that the periphery of the Israeli Negev desert would instead benefit from a post-modern alternative focusing on small-scale entrepreneurial 'rural desert tourism', often supported financially by the state. They argue that both extreme forms of development (totally contrived/artificial and purely ecotourism) failed to support livelihoods in that specific desert environment, and that both must be included (but tightly managed and planned) so as to complement each other in the tourist experience.

While the issues raised by Reichel and Uriely are not specific to desert environments, they are typical to the extent that such environments are often characterised by a systemic tension. This tension occurs between the need to occupy mainstream markets (and develop simulated attractions and man-made artefacts for tourists) and the need to cater for high-yield (but also often high-cost) segments through specialised entrepreneurs with differing views of infrastructure development, marketing and planning adequate for such areas.

3.3.2 World Tourism Organization (WTO) Reports

While very few published academic references could be found on the subject of 'desert tourism', a number of government and non-government organisation websites were found which held regional or international outlooks on the topic. Many

predate the academic references already discussed above. The WTO and various United Nations (UN) entities such as the UN Environment Programme (UNEP) are involved in various collaborative projects (including their contributions to the World Ecotourism Summit of 2002). These are of particular interest because they highlight specific planning and management difficulties linked with tourism in the desert. Some are related to broader programs focusing on combating desertification in which tourism is sometime presented as a potential (but rarely the main) culprit, or potential saviour (again, rarely the main).

As some of these websites are highly intricate and sometimes repetitive, components were selected by the author on the basis of usefulness and parts have been reproduced from these websites for the sake of producing the *Desert Tourism Scoping Brief* found in Appendix 1, section 3.2. It must be noted that much of the focus in the WTO material is connected with North Africa or the Middle East and the fragments reported below reflect two facts important in the context of those regions:

- 'desertification' is an ongoing process which raises issues that multiple government bodies are struggling with. Extensive bureaucracies have been set up to address such sets of concerns.
- the bodies which have been set up to deal with desertification usually have the task to directly address poverty and disparities in economic development (especially dramatic in North Africa but also true in parts of Australia).

These facts impact on the nature of issues and strategies suggested in the literature reported below. Numerous and lengthy statements about the potential of tourism to alleviate poverty in North Africa can be found. Their tone often indicates that places which may be ill-equipped to truly benefit from tourism build such expectations because they desperately need 'hope' rather than because opportunities abound. As the Desert Knowledge CRC aims to create knowledge that might be exportable in the long run, such local contexts must be considered cautiously.

A number of papers were presented at an Algiers Preparatory Seminar for the International Year of Ecotourism in 2002 (January 2002) which was one of a series of Regional Preparatory Events leading up to the World Summit. Reports from the various Preparatory Meetings were also presented at the World Summit but are not available on the web. The large amount of preparatory work provides an extensive source of materials.

In particular, the final report of that seminar (*Sustainable Development of Ecotourism in Desert Areas – Preparatory Seminar for the International Year of Ecotourism in 2002* – Algiers (Algeria), 21–23 January 2002) has been extensively used and is reported below. The seminar was organised along the following three themes:

Theme 1: Planning and regulation of ecotourism in desert areas. The challenge of sustainability.

Theme 2: Product development, marketing and promotion of ecotourism; fostering sustainable products and consumers.
Theme 3: Monitoring the costs and benefits of ecotourism to ensure they are equitably distributed amongst all players.

The word 'sustainability' permeates the discussion and the recommendations found in the report (a detailed account is provided in Appendix 1, section 3.2). Some of the main messages include the fact that regional and livelihoods sustainability (incorporating alternative uses and livelihoods) provides the umbrella within which tourism development must take place, rather than the other way around. This being acknowledged, the perils of attempting to manage tourism without an informed strategy about how to integrate with broader, global tourism networks must also be highlighted.

As is typical of such bodies, planning is the general approach endorsed although it is recognised that:

- Planning issues often encounter difficulties when involving cross national borders (or cross administrative regions).
- The regions considered have different and varying degrees of control on the main stakeholders (local populations, guides, foreign tour operators and tourism staff, tourists themselves, etc.). In particular, demand-side knowledge resources are critical but rarely controlled or accessible in the appropriate manner by destinations.

The final report summarises findings found in a number of previous reports and case studies already presented, and identifies the following aspects as critical:

a) The importance of all types of participation by **local communities** in the development of ecotourism
b) The role of national and **local governments** in ecotourism management
c) The need for **joint action** by the different players in the **development of products** and of ecotourism destinations
d) The impact of ecotourism activities on society, the economy and the environment as a key factor for **sustainability**.

The aggregated content of the WTO workshops provides a quite useful and comprehensive set of universal issues and questions reflecting the general 'state-of-the-art' thinking in the area of desert tourism from an international perspective.

But there are a number of angles missing, which would be considered as important strategic gaps in the context of Australian desert tourism (but also relevant anywhere for that matter) which have to do with the narrow emphasis on ecotourism in the conferences summarised above. The following distinctions ought to be made:

- There is a lack of attention (in the literature above) given to the relationship between more urban environments (including semi-urban and services towns) which play a key role because tourists end up spending large proportions of time and money in those locations, depending on the type of trip they are involved in. There is a definite need to better understand:
    - How various types of tourists perceive the relevant regions ('outback', deserts, circuits, specific icons, etc., and how these are linked)
    - What is the relationship between icon attractions, service centres and the corridors that link them
    - What role various types of gateways play in tourism planning from a spatial perspective.
- There seems to be a lack of attention given to tourism marketing issues in general, and to their relationship to product development and infrastructure in particular. Many difficulties and conflicts lie in ensuring inter-country (or inter-regional) coordination of brands, the management of destination perceptions and the imperfect compatibility of images created to market desert places to tourists. It would be hazardous to attempt collaborative management of environmental impact controls, infrastructure developments and cultural interpretations (all emphasised by the working parties informing the WTO) without coordinating to some extent destination marketing and the scope and positioning of products.

While the summary of issues above reflects a typical WTO planning approach to tourism, it must be noted that very few of their sources provided insights into the nature of the demand for 'desert experiences' – beyond noting (like Weaver above) that some destinations seem to suffer from too much tourism (for their assumed carrying capacity) while others endure insufficient and unreliable demand. For instance, some seminar presentations argued that desert tourism is unavoidably going to grow, as it fits some of the requirements of new wave tourist needs which they argue is based on symbolic values such as novelty, risk, limited comfort, emptiness and space, silence, primitiveness and return to basics. The list of attractors found in WTO documents largely parallels those suggested by Weaver and the marketing needs they sometimes refer to usually focus on the basic information needs of any destination.

It is worth noting therefore that while most presentations at the WTO seminar referred to the contributions of tourism/ecotourism to desert communities and economies, there was in reality little which is specific to desert areas planning in what was mentioned (while the generic tourism planning literature is huge). Many of the recommendations could apply to most destinations. For instance:

(a) direct benefits in the form of alternative revenues and jobs, and indirect benefits such as the development of infrastructure and health and education services for the communities that live in the areas adjacent to ecotourism sites
(b) the diversification of tourism products in certain countries and relieving congestion in more conventional tourism areas, such as coastal regions

(c) giving tourists the opportunity to appreciate and enhance their knowledge of unique environments and cultures
(d) providing an economically feasible instrument for conserving protected desert areas.

It is also worth noting that the areas of concern to ecotourism industry participants are strongly focused on site damage and environmental vulnerability. Presentations from European tour operators (operating in North Africa) in particular warned about serious issues of waste management that arose in the 1990s due to the unpredicted rise in interest and popularity of desert ecotourism in those regions of North Africa and the Middle East which are politically favourable to tourism. From the limited evidence provided in the presentations, much of these came from small pioneering operations that have seen mass-organised (and some amount of self-drive tourism) invade the locations they historically visited and create both congestion and environmental degradation.

According to industry, the latter new markets display less care (possibly due to lack of information and greater propensity to demand infrastructure and services which are more costly and not suited for those environments) and do not invest in the appropriate types of social, material and human resources needed to sustain the attraction base. While agreeing on the problems, concerned small operators remain ambiguous about solutions as they are equally worried about the possibility that governments and regulators might overreact – in particular that they might take control of access to the potentially deteriorating locations and force small operators out altogether.

3.3.3 Desert Tourism Planning in Australia

An important case study in planning for tourism in arid and desert environments has taken place in Australia in the recent past. It is useful to note its broad stakeholder consultation and relevance to Australian arid zones (Lake Eyre Basin Coordinating Group 2004). The latter report is highly relevant because of the natural, social and cultural environments in which it is embodied, the overall scope of issues related to tourism and the fact that its consultation took place across multiple jurisdictions (Appendix 1, section 3.3 provides details extracted directly from that report).

The report provides a relatively rich amount of information about tourism market growth in the Basin, usually attempting to differentiate ‘desert tourists’ from mainstream statistics. What is particularly noticeable is that much diversity in terms of demographics, trip attributes and motivations exists, despite the relatively small size of that market. The key factors which have a significant effect on the tourism visitation pattern include seasonality, unpredictable climatic events, fuel price, unpredictable political/health events, changes in infrastructure and access, direct promotion, branding of the ‘outback’, fashions and changes in lifestyle decisions (for instance acquisition of 4WDs by coastal-suburban Australians).

The main issues raised by the groups of stakeholders are analysed in detail in the report and only mentioned here, for the sake of comparability with the workshop list of issues:

- access on pastoral lands
- negative environmental impacts
- pressure on and under-resourcing of protected areas (National Parks)
- public perceptions about the outback (marketing of the last great frontier, negative views of unoccupied space, competition between jurisdictions).

Access to places of interest on pastoral lands received the greatest weighting, ranking as a high priority across all groups. Environmental impacts of tourism and the resourcing of national parks were not far behind. The remaining issues were generally evenly spread amongst the groups with the following priority order:

- user impacts on core business, infrastructure and lifestyle
- lack of synergy between outback promotion and available facilities
- lack of cohesive signage and appropriate interpretation
- operator standards and qualities
- legislative differences and cross-jurisdictional issues (lack of consistent approach to rules, fees, infrastructure, services)
- deterioration of the built historic heritage
- preserving the sense of place and ensuring authenticity
- lack of knowledge and education about tourism by local stakeholders, and an ignorance of how to use the outback by the travellers
- lack of information about the Aboriginal story and lack of uptake by Aboriginal interests in cultural tourism opportunities
- user-pay principles and high costs of some fees (camping, Desert Pass)
- poor viability of small tourism enterprises
- product and infrastructure deficiencies.

As a specific category of stakeholder, local governments provide an important framework for service delivery, economic development, infrastructure development and maintenance. An important and distinct point made in that report (and not found elsewhere) is that while they increasingly realise the value of tourism and play a role in its development and funding, there is an unequal presence of such entities across the region. In the most remote regions, they cannot be taken for granted as reliable governance mechanisms, either because of their absence or because of conflicts across jurisdictions.

The report eventually identifies eight key areas which constitute the backbone of its structure (discussed in more details in Appendix 1, section 3.3):

- access on pastoral lands
- environmental impacts – managing tourism and natural and cultural heritage places
- protected areas and tourism

- developing the product
- planning and coordination
- historic heritage and tourism
- Indigenous heritage and tourism
- supporting people and products.

The lengthy discussion and examples found in each of those sections of the report testifies to the diversity of issues and the complexity involved in trying to organise them (see Appendix 1, section 3.3).

An alternative overview of relevant researchable desert tourism issues is provided by the Desert Knowledge Australia (DKA) regional network (see Appendix 1, section 3.4). At least five desert Australian regional centres (Mount Isa, Broken Hill, Port Augusta–Coober Pedy, Kalgoorlie and Alice Springs) have been discussing cooperation for the sake of developing capacity and enhancing business opportunities in a number of areas, including tourism. In the early phase of the network, each region has provided a situation analysis and overview of the tourism-related issues relevant to them. The basic thematic categories of issues for those regions included:

- Product complementarity across regions, including opportunities for greater planning of product range
- Infrastructure issues: need for more strategic cross-jurisdictional infrastructure planning – both basic and tourism-specific infrastructure – including scope of accommodation variety and quality
- Tourism marketing: synergies and issues of collaboration with respect to promotion/distribution of desert products (e.g., publications, websites); with respect to new product development: branding, fast turnaround and shortage of marketable products
- Planning and addressing barriers to tourism: access to heritage sites and areas of natural beauty, control of quality in products and infrastructures, industry standards, community tourism awareness, liability insurance costs in remote regions.

The Tourism Futures program applied to Alice Springs (CSIRO) has encompassed a valuable stakeholder-based identification of issues for the NT central Australia region with an emphasis on the connections and tradeoffs between issues – thereby providing a platform for a unified planning approach. This project (with more details found in Appendix 1, section 3.5) highlights the following set of issues but does not order them because they are modelled as systemically inter-related:

- Lack of Indigenous involvement in tourism industry
- Competition between Uluṟu and Alice Springs (lack of collaborative alliances)
- Volatile perceptions of Alice Springs in terms of infrastructure and anti-social behaviour
- Changes in market mix and implications for service providers
- Need for focused branding while expanding product range
- Volatility in local/community population, retention and staff capacity issues
- Training availability

- Land zoning, release and native titles
- Emergence and loss of small operators
- Limited awareness within community of tourism economics
- Transport constraints: flight capacity and road infrastructure.

Reflecting on the organisation of issues presented in the various reports considered above, it appears that a fundamental dilemma for tourism planning is that it is not possible to provide a simple pathway between issues. In fact, it emerges from the cases discussed above that desert environments (from a tourism viewpoint) often encompass high levels of tourism market diversity (relative to their marketing infrastructure), high tourism supply complexity (relative to their resource base) and that this is combined with a generalised lack of scale economies in infrastructure and training provision.

4. The desert tourism research scoping workshop

A Desert Tourism Research Scoping workshop was held at Charles Darwin University in Alice Springs in December 2004. While many research issues identified in the above literature survey recurred, several groupings emerged as particularly important at the workshop itself which reflected more closely the Desert Knowledge CRC agenda. The following table is deemed an even-handed representation of the issues raised at the workshop. The groupings were organised and evaluated at a post-workshop session and are presented in no particular order:

Table 1: Key issues: desert tourism research scoping workshop

KEY ISSUES	POINTS OF DISCUSSION MENTIONED AT WORKSHOP
Better understanding of visitor needs, experiences and issues (in an integrated desert-outback way)	• Including micro-visitation data • Usefulness of touring drives • Excessive pressures in a few locations • Operating standards, coordinated marketing • Desert brands, marketing
Investigating National Parks with desert environments as linked components within tourism experience systems	• Research how iconic locations determine main tourist flows • Need to establish economic contributions through tourism so as to make case for re-investments and resourcing • Identification of hot spots – playing key roles in experiences and under visitor pressures
Research on multiple land uses in desert environments	• Assess tourism as land use for communities engaged in many competing activities • Systems to assess infrastructure tourists use and complementarity with other uses
Research on building a sense of place which includes smart use of technology to protect heritage	• Desert architecture? • Desert-appropriate infrastructures • Desert brands; marketing
Research into the sustainability of Indigenous tourism in desert environments	• Understanding Indigenous tourism product failures • Research costs and benefits of product • Development coordination, Indigenous community tourism evaluations, training, etc.
Drive market as fundamental component	• Gap in drive market–specific understanding of travel behaviour • Role of caravanning • Role of 4-wheel drive vehicles • Need to model impacts of baby boomers, 4WD vehicle boom, caravan boom, fuel prices, etc.; attitudes towards other paying tourism services • Seasonality
The role of local governments	• Belief they play a key role (when they exist), but misunderstand tourism, especially the unavoidable need to establish connections with other places and think beyond the local • Tendency to believe that supply drives demand, insufficient understanding of the marketing approach • Human resources within local governments volatile and requiring constant education and training upgrade • Have limited ability to support business performance in the context of tourism
Poor performance of small/ medium tourism enterprises	• Perceived easy entry • Often based on local knowledge, with limited business skills and tourism marketing skills • Under-capitalised, especially in not budgeting for future marketing re-investments, including cooperative marketing, new technologies.

The list of topics included above sometimes refers to issues more specific to central Australia than previous literature outlined in the survey. But it displays the same amount of variety, and spills over three types of organising principles:

- Issues linked with demand or marketing of tourism in desert context
- Issues linked with tourism industry infrastructure (services and attractions)
- Issues linked with critical resources use by tourism (land, culture, natural environments).

The workshop, through the voices of the tourism industry, community and research representatives, did not suggest that some of the issues had a greater status than others, nor that some logically embodied others as the relative importance of these sets is both market-specific and place-specific. On the other hand, there was no clear partition between the groups of stakeholders (industry, government and researchers) over the issues, most participants agreeing on the merits of these categories.

5. Tourism research directions for desert Australia

This section synthesises the findings from the literature survey, and identifies research areas to be explored in the future. While it is possible to identify topical priorities, an important component of the recommendations has to do with research approaches, collaborative opportunities and useful methodological outlooks rather than the presentation of a specific sequence of areas of investigation. Connections between themes (research-wise and livelihood-wise) make such a simplistic prioritisation impossible. The strategy chosen is therefore to focus on available resources and research synergies within the Desert Knowledge CRC as well as establishing bridges with other research bodies.

5.1 Post-workshop synthesis

The first step in synthesising the information gathered in the workshop and in the survey of literature was a brainstorming exercise undertaken by members of the project. The table below re-maps the workshop outcomes into typical tourism research issues as identified in the literature survey. These categories establish a clear correspondence to existing tourism research areas, and allow for an assessment (further below) of the relative/comparative advantage of various research contexts to address the issues, with a view to decide which tourism themes can be appropriately researched by the Desert Knowledge CRC. While boundaries between themes are often blurred and many issues belong to more than one theme, the resulting array of issues identified jointly by stakeholders and researchers at the workshop resulted in seven themes and an additional umbrella grouping entitled 'cross-theme generic issues'.

Table 2: Desert tourism research themes and issues

THEMES	ISSUES
Knowledge of markets	• Market size, growth trajectories • Consumer tastes/preferences • Branding (outback vs. desert) • Demographics trends within market • Changes associated with vehicle types (move from sedans to 4X4)
Infrastructure issues	• General: roads/telecommunications/water etc; benefit/costs to wider community • Tourism specific: mechanisms available to regulate flows, provision of access • Investment in generic business skills
Property and land access rights	• Access to land, multiple land uses and lack of tourism-specific rights, impacts on investment incentives, ability to use land as leverage for financial investments, etc. • Protected areas funding and management
Tourism impacts	• Social: openness of governments to tourism (local/state), local communities, governance • Economic flows: public vs. private, funding of protected areas, multipliers • Cultural: of Indigenous & non-Indigenous individuals and groups • Natural Resource Management: physical damage, sustainability of practices • Financial: business sustainability • Socio-economic: economic sustainability may not exist in conventional economic models; synergies, agglomeration economies, externalities on funding for community services

Community/destinations governance for tourism	• Demographics, presence of services and towns/councils/structures • Small communities and resources limitations: management systems, marketing skills • Identification of values and attitudes towards tourism: sense of opportunity and entrepreneurship • What if there is no community? Remoteness as lack of coordination/governance structures rather than access issue • How is 'sense of place' regulated and sustained by community and used for tourism? Visual components, cultural components, market segment homogeneity, interpretation.
Small business and Indigenous business issues	• Business failures: Lessons learned from exiting and past business experiences: Case studies, guidelines • Data, forecasting, skills training, volatility, inertia, limited trust within sector
Spatial dimensions of tourism coordination and demand	• Need to understand flow lines built off micro-demand analysis, mapping of tourist movements in the outback, impacts of self-drive • How can infrastructure be used to monitor flows and provide incentives? gateways, entry and exit mapping • How to boost inter-state flows and opportunities, overcome cross-jurisdiction limitations, synergies, facilitate geographical connections
Cross-themes generic issues	• Sense of place management • Visual degradation: landscapes, communities, commercialisation, townships • Environmental management: investments in tourism-specific waste management and energy-efficient technology applications • Technical and governance solutions to manage tourist flows: in contexts of tourists excess and scarcity

It is important to note that there would be alternative ways to organise the groupings of issues above. For instance, the issues could be organised along the following structures:

- by main stakeholder groups' interests: for instance, by dividing the issues which are affecting (or controlled by) various tourism stakeholder groups, non-tourism industry, community, and so on.
- by dividing along pure supply and demand economic concerns; with marketing concerns on one side and planning concerns on the other
- according to traditional political responsibilities; by dividing between government levels, community and private sector
- following some of the more traditional top-down tourism planning principles
- following geographical division of issues (e.g., belonging to tourist-generating areas, to visited areas, to areas which control or impact on travel movements)

In contemporary tourism studies, it is common practice to assess issues by grouping them once the planning scale has been decided. The main strategy chosen to organise the above issues into themes was to emulate what is already commonly found in the tourism literature for the sake of establishing similarities and differences and eventually setting research comparative advantage principles. Hence, the following themes encompass many issues not specific to desert environments:

- tourism markets and demand
- tourism impacts
- tourism and protected areas
- tourism small business issues
- tourism and community governance
- tourism infrastructure delivery.

In other words, despite the specificity and acuteness of desert environment attributes (extreme climate, remoteness, isolation, access, low population density), the breadth and diversity of tourism issues remains as great as expected in an overview of mainstream environments.

The spatial dimension is critical to the perspective of desert tourism, especially with respect to the distribution of human settlements, infrastructure and land access/use. Although the list of issues above is deemed a fair representation of the breadth of issues relevant for desert tourism in Australia, there seems to be unequal ordering of priorities between desert regions with various degrees of access and exposure to tourism. For instance, the literature review showed that for 'top tier' visited desert regions (which have achieved notoriety with tourist markets), some of the main issues were:

1. the concentration of high visitor levels within certain portions of some public protected areas
2. the indiscriminate use of all-terrain (4WD) vehicles,

both of which impact on environmental sustainability and the quality of visitor experiences.
In contrast, the less visited desert regions are more affected by issues such as:

1. lack of proper management mechanisms of dispersed attractions (owing to funding limitations on maintaining natural, cultural and heritage resources),
2. difficulties in maintaining tourism supporting business sustainability and difficulties in managing diverse consumer needs/wants/seasonality on very small operational scales within a given destination
3. lack of marketing coordination and identity issues (heritage, branding, etc.)

This has implications for the research agenda for the Desert Knowledge CRC. It suggests that:

- It is not possible to prioritise the research themes above, without specifying first the type of sub-region of interest for research (degree of remoteness and linkages with the rest of the tourism and non-tourism economies).
- It is indeed important to take on board the spatial dimension when setting up a research methodology for investigating tourism in the desert.

It might suggest that the issues could also be organised by types of desert environments, differentiating between highly visited desert places (reaching infrastructure scale economies) and those with very scarce resources. This might become a useful analytical tool to better understand inter-connections between the 'places' that play a role in desert tourism.

From the viewpoint of setting research priorities for tourism in Australian desert environments, and in particular in the context of the Desert Knowledge CRC, it is not suggested to proceed by categorising themes according to pre-existing tourism intensity and presence. On the contrary, it is more useful to take a perspective which incorporates the spatial and political relationships between differing desert environments to explore how they affect the livelihoods of various stakeholders. In particular, it is useful to investigate the dynamic changes between different desert tourism locations with a view to understanding the social, economic, cultural and business connections between these different tourism spaces, and examining the benefits and costs of tourism to differently positioned desert communities.

For instance, modelling the relationship between few iconic locations attracting huge numbers of tourists most of the year (Uluru being a prime example), service towns providing basic infrastructure and more remote settlements visited by few (at particular times or seasons) is critical to understand the impact of tourism on livelihoods of people living in desert environments. Elsewhere in the world, there are even more extreme examples of developments where the disconnection between the natural and tourist environments is even more extreme (e.g., Las Vegas). It is unclear how many tourists might be experiencing anything like 'desert tourism' and so it is important to keep in mind that many tourists and many tourism operators do not conceptualise their experiences and operations in terms of 'the desert'.

In fact, the workshop has identified the unequal existence of 'communities' of interest capable of governing tourism flows as one of the main differentiating attributes of desert environments. Without such a unit of analysis (i.e., a community with a voice and an ability to shape and manage tourism), much of the existing literature on resources governance in the context of tourism can become irrelevant. If the ability to process, engage and implement some forms of local policy (regulation, economic, zoning, investment in interpretation, protection, capacity building, developing attractions and other opportunities, etc.) varies greatly among desert regions, it becomes critical to understand what alternative mechanisms can be used to beneficially coordinate tourism among such unequal regions.

The considerations above suggest that different research questions are best investigated on different scales. It also leads to consideration of what factors might affect the desirability of adopting a micro-local viewpoint (on specific tourism issues) or embracing a macro-regional perspective. The suitable scale to research specific tourism governance issues in the desert will depend on:

- whether there are legitimate communities providing customary governance mechanisms for resource allocation issues (as discussed above)
- the existence of recognised tourist regions, corridors, routes or packaged products playing the roles of spatial connection points or channels linking tourist flows and connecting back to community livelihoods
- whether there is excessive market segment diversity relative to usually small local marketing capabilities, creating problems in dealing with and adapting to tourist market volatility
- the amount of competition between communities or regions due to product similarity or the amount of collaboration due to product complementarity.

The choice of tourism-related research projects for the Desert Knowledge CRC needs to carefully assess the match between geographical scale and the themes of interest – and this will vary between themes. This is important both because of the internal dynamics of various research areas (e.g., within the realm of negative tourism impacts, the difference between waste management issues (necessarily local), and impacts on global desertification) and the scale of appropriate governance as some control mechanisms must apply at the community, region, 'imagined destination' or national levels.

The challenge for the tourism research agenda within the Desert Knowledge CRC is that it must consider simultaneously those issues best looked at from a micro-local viewpoint and those appropriately examined from a macro-regional perspective. The suitable spatial scale for different themes will therefore depend on:

- the range of governance mechanisms associated with a given theme and their spatial scale of applicability (as argued above)
- existing spatial connections linked with tourism products or marketing (well established tourist flows, regions, corridors, routes or packaged products, etc.)
- the existence of well-defined market segments (whose interest might apply at different scales – whether natural environment–based or cultural) as well as tourism industry resident expertise to predict and adapt to the volatility of tourist segments
- the mix of competition and collaboration between communities or regions due to similarity or complementarity in investments
- the natural scale to address specific impacts, ranging from local to global.

Given the above, it might seem less surprising that the mix of issues linked with the management, marketing and planning of the vast tourism desert regions has never been articulated or integrated. This scoping research advocates a pluralistic approach to tourism-related research and suggests that it is not fitting to recommend a unified research platform to address such critical but heterogenous topics as:

- dealing with direct pressure on tourist sites
- controls over drivers of tourism in arid environments to ensure the match between types of tourists and development philosophy
- strategies to deal with seasonality and the connection with building business capacity in desert areas
- cross-regional approach to marketing and planning desert tourism development and investing in a desert tourism label
- lack of cohesion across regions.

The two most immediate recommendations stemming from the above consideration of desert tourism research diversity and possible ways to organise relevant issues and themes around it are:

- First, it is constructive to maintain a research agenda that mixes the scale of investigations, by paying special attention to the connections between identified desert tourism research themes and suitable spatial scale.
- Second, examining the division of knowledge, and mapping existing knowledge-creating capacities is suggested when choosing the research priorities of the Desert Knowledge CRC.

It is not expected that the diverse stakeholder base involved in desert tourism would be in a position to meaningfully agree on the most important questions and rank them. The strategy advanced is to assess the specificity of the issues and suggest how the Desert Knowledge CRC ought to position itself with the realm of research possibilities.

5.2 The division of knowledge relating to desert tourism

For the sake of developing an effective research agenda for the Desert Knowledge CRC, it is valuable to provide a basic framework identifying where pre-existing knowledge sources might be found. The framework should be readily applicable and aim to identify potential partners that might have produced relevant research. Many research issues and areas identified in the previous section as critical to 'desert tourism' were not discussed at length because they are not necessarily specific or distinct. Much generic knowledge exists in the academic realm or can be gathered from within other organisations such as the Sustainable Tourism CRC.

For the sake of positioning tourism research within the Desert Knowledge CRC, it is fitting to focus on the following dimensions and their interactions with pre-existing tourism research. It is useful to assess the extent to which the critical issues or themes for 'desert tourism' are unique to desert environments (whether natural, social and cultural) and whether the challenges they impose on tourism businesses and communities are distinctive. The Desert Knowledge CRC must seek to establish a competitive advantage by deliberately positioning itself so as to exploit complementarities with generic tourism research and be in a position to identify specific desert dimensions which provide unique research contexts. A framework must be suggested to allow a basic mapping of research possibilities, which reflects a division of knowledge based on the likely sources of that knowledge. In doing so, two dimensions seem particularly relevant to assess issues for desert tourism:

1. The remote-regional-peripheral tourism dimension; which usually incorporates patterns of demand and supply which are distinct from mainstream tourism in highly populated regions
2. The arid-fragile natural (and small-isolated community) environments.

The first dimension refers to aspects which are sometimes discussed in the literature concerned with peripheral or regional tourism (as understood in Australia). In general, this is characterised by specific demand and supply attributes linked with attributes typical of 'regional tourism':

- Demand: high seasonality, brand and image difficulties, fragmentation of needs and of motivators
- Supply: access issues, dependence on major tourism centres, marketing channels and distributors, capacity issues, Indigenous culture and land ownership/management issues, small business resources limitations, deteriorating infrastructure.

The second dimension relates more closely to the arid environment and has some distinct demand and supply characteristics:

- Demand: perceptions by potential visitors of limited flora and fauna attractiveness; perceptions of poor or limited social and cultural attractions, and of lack of diversity in natural and cultural environments in general (e.g., sand dunes as clichés)
- Supply: water conservation issues, energy costs associated with air conditioning and infrastructure needed to deal with heat and cold, dispersion of attractions and distances between attractions, fragility of natural environments in general, and visibility of negative impacts.

It is not suggested that the two dimensions are strictly independent (as some of the supply issues inter-connect, e.g., between the natural, small-isolated community and peripheral dimensions. Specific attributes of desert environments calling for desert-embedded research often involve the natural environment dimensions (e.g., biome, vegetation, landscape) which naturally connect with both consumption issues (image of place, marketing, etc) and production dimensions (types of infrastructure needs specific to the desert). In a sense, the arid environment is a partial cause for remoteness and the impacts of tourism on both are convergent. This is true for multiple social and cultural attributes of specific places, e.g., the presence of Indigenous communities often gives tourism in desert environments a distinct identity, and these communities are ultimately shaped by the two dimensions above. Yet these broad aspects are not necessarily unique to deserts and their specificity and significance for the Desert Knowledge CRC research agenda must be evaluated on a case-by-case basis.

The framework is not designed to hypothesise and test the connections between the themes, but rather to evaluate their centrality to Desert Knowledge CRC objectives. The general recommendation is that issues that truly belong to both dimensions ought to be priorities for the Desert Knowledge CRC and the secondary principle is that the comparative advantage of the Desert Knowledge CRC in researching them be established. Trying to organise the relevant issues along a simple two-dimensional framework in which they are categorised by the extent of their distinctiveness leads to a simple square matrix and suggests areas of research specialisation:

Figure 1: Desert Tourism Research Priorities

Desert Tourism Research Priorities			
		Regional–remote issues	
		Yes	No
Arid–desert	Yes	Q1 +++	Q2 +/++
	No	Q3 ++/+	Q4

This representation suggests that issues which feature in Quadrant 1 (+++) probably ought to be considered as priority for tourism research within the Desert Knowledge CRC, both for their environmental specificity and for their relevance to the reality of desert livelihoods. They are probably the issues which cannot simply be explored by extending similar research themes from dissimilar environments. They are also most likely to be complementary to other non-tourism research within the Desert Knowledge CRC.

For issues which sit in Quadrants 2 and 3, there is a greater need to carefully assess whether the necessary desert environment knowledge or the regional-peripheral-remote tourism knowledge already exists. In some cases, joint or complementing research might be considered (for instance by supporting desert case studies for research on generic remote tourism issues). Ideally, issues ought to be evaluated separately in terms of the dimensions discussed, but a tentative theme-based organisation can be suggested to further the Desert Knowledge CRC research agenda. In Table 3 below,

the likely positioning of each theme in the matrix is discussed, with some themes featuring issues bunched up and located in relatively clear areas while others are issue-specific and span across the matrix.

Table 3: Positioning of research themes

THEME	POSITIONING OF RESEARCH EXPERTISE	QUADRANT
Knowledge of markets	Insights might exist at local level, but knowledge required to research this is fairly generic	Q4
Infrastructure issues	Some issues are specific to remote-peripheral; a few are specific to arid environments	Q3 + Q1
Property and land access rights	Issues specific to remote-regional; types of alternative land uses can be specific to arid environments	Q3
Tourism impacts	Across the board, from local-specific to global-generic	Q1+Q2+ Q3+Q4
Community/destinations governance for tourism	Across the board, in general, the desert featuring the most extreme cases of isolation and resources limitations	Mainly Q3
Small business and Indigenous business issues	Many issues are specific to remote-peripheral	Q3
Spatial dimensions of tourism coordination and demand	Issues type specific to remote-regional; knowledge base specific to desert	Q1+Q3
Cross-themes generic issues	Generic issues combined with desert-specific attributes	Q2

5.3 Methodological directions for tourism research in Desert Knowledge CRC

Reasserting the overlapping nature of the issues and themes listed above, and recognising that other groups or organisations might be better placed to address the development of relevant knowledge areas, this scoping document suggests a methodological approach to desert tourism research rather than identify themes *per se*. Jointly, the following guidelines remain the most significant considerations for developing a desert tourism research agenda:

- Relevance of main themes as per arid zone specificity and remote/regional tourism specificity (as in section above)
- Identification of existing research that answers similar/identical questions in different organisations or institutions (in particular Sustainable Tourism CRC [STCRC] and Tropical Savannas CRC [TSCRC])
- Potential to attract quality researchers/efforts to work with the Desert Knowledge CRC, in relevant locations and with relevant support and engagement from stakeholders
- Fit with Desert Knowledge CRC objectives (focus on desert livelihoods in particular)
- Fit with other (non-tourism) areas of research and methodological outlooks
- Potential for application, uptake, value-adding (and availability of potential indicators to measure/evaluate it)

The rest of this section examines a number of methodological approaches which match the general requirements to address the diversity and complexity of issues identified by stakeholders, as well as the general orientation of the Desert Knowledge CRC. The next section will provide a suggested set of preliminary research directions for the sake of addressing tourism issues within the Desert Knowledge CRC.

The set of guidelines listed above suggests that the underlying principle which should be followed to structure a tourism research agenda within the Desert Knowledge CRC is to emphasise connections between tourism research themes as well as between tourism and other areas of activity within the CRC research agenda. It is recommended that the Desert Knowledge CRC follows a systemic approach with a focus on:

- research topics which involve uncovering the relationships between tourism and desert livelihoods
- research topics which involve examining the relationship between tourism as a resource user and alternative, competing or complementary industries or values
- methodologies which bring to the fore the systemic connections between the issues and themes which were listed in the previous section.

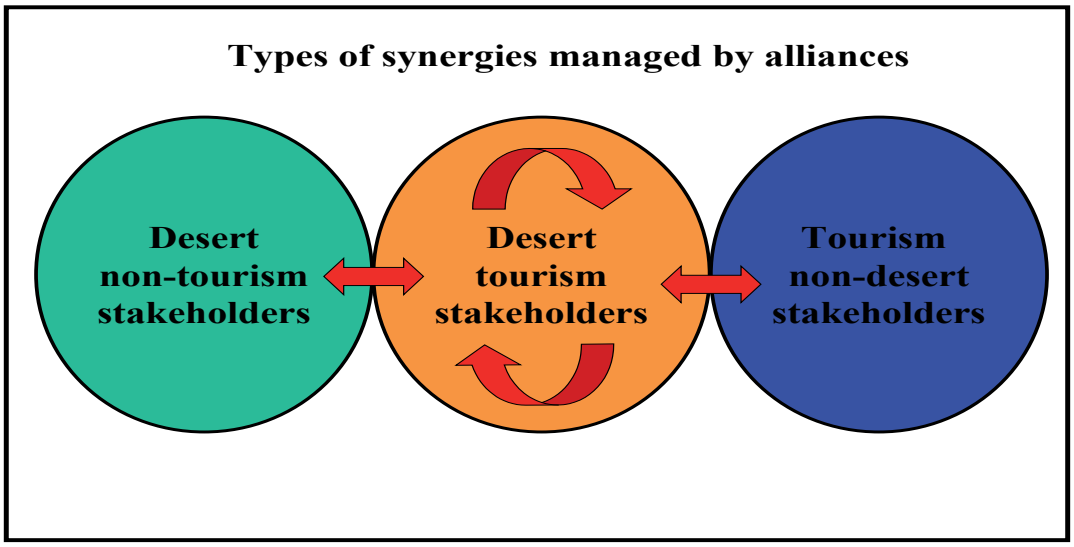
Suggestions that a systemic approach to tourism might be beneficial for certain types of tourism research abound in the tourism literature (Carlsen 1998; Jafari 1988; King 1987; Krippendorf 1986; Lainé 1981; Leiper 1990, 1993; Sessa 1988; Walker & Greiner 1999) but they remain abstract exercises in general. Few applications exist which address highly specific research questions or locations, or market-specific considerations. A set of approaches embracing systems principles seems particularly useful for the objectives of uncovering the linkages between tourism-related components in desert environments. These combine elements from the value chain approach (Buckley 1987; Porter 1995) and from the industrial clusters/regional networks approaches to coordination (Axelsson & Easton 1992; Butler & Hansen 1991; Camagni 1991, 1993; Easton & Araujo1986; Fornahl & Brenner 2003).

These theoretical approaches based on the formation and dynamics of linkages between organisations and stakeholders can contribute towards developing shared understandings of the tourism system and the analysis of knowledge needs, flows, stores and investments in that system. The concept of regional clusters has flourished in the last decade and made its way into mainstream theories of development, and it is not within the scope of this report to address it in any detail. It is worth pointing out that business clusters are often suggested to constitute a useful approach in dealing with development in situations combining some of the following:

- Lack of agglomeration economies (where human resources, capital and technology is fragmented and/or scarce)
- Fragile environments (where social and economic decisions are likely to have irreversible consequences on the resource base)
- Limited entrepreneurial capacity (with small capacity to absorb innovative activities and risky ventures)
- Where a large proportion of local knowledge is tacit (e.g., it is not possible to simply combine generic management recipes with knowledge of place, culture, environments and landscapes)

The usefulness of industrial networks or cluster approaches to model collaboration and investments stems from the need to manage linkages of various types. For desert tourism in particular, strategic relationships between stakeholders within the tourism system (within and outside desert environments) as well as those between tourism stakeholders and non-tourism ones need to be considered.

Figure 2: Types of synergies managed by alliances



In the case of tourism, synergies justifying inter-organisational coordination include:

Synergies within the tourism sector and across regions

- Either from a consumption viewpoint, where producing and using marketing knowledge is the rationale for cooperation. For instance, linking subregions can affect perceptions of products and lead to synergies and foster marketing initiatives such as joint product development and re-branding of destinations, as well as quality management programs.
- Many of the issues identified in the scoping exercise had to do with understanding tourists' behaviour in desert environments, the difficulties of branding 'desert' for tourism purposes in Australia, and the need to coordinate the marketing of desert tourism across jurisdictions, including the product development aspects.
- either from a production viewpoint where the basis for collaboration is cost-sharing on infrastructure, spatial product clustering/planning and management of joint distribution channels, info-structure, implementation of sustainable planning and cooperative capacity-building strategies.
- Issues such as infrastructure development, coordinated access planning, support for human resources, training, protection of the resource base from negative tourism impacts are all featured because of regional resource scarcity and because mismanagement in one region imposes negative externalities on other desert tourism regions.

Synergies between strategic sectors in the broader region

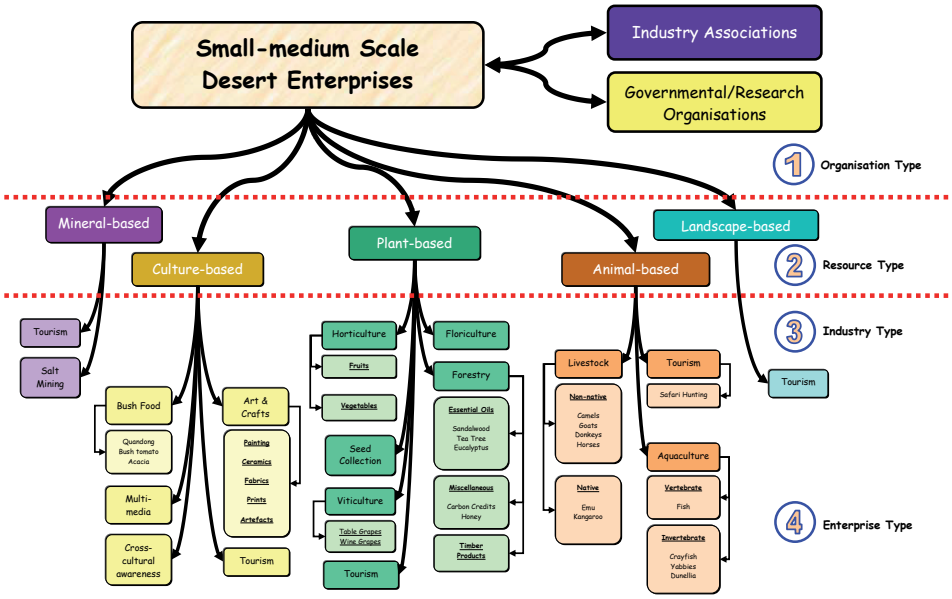
- There are demand-side and marketing synergies involved when numerous business enterprises are united in efforts to promote a region, irrespective of their industries. It is often the case that industrial activities become 'tourism attractions' in their own right (e.g., camel farms, emu farms, mines, heritage sites, art centres) and it is likely that tourism development supports marketing for small firms in general.
- Experiential forms of tourism are by definition connected with other self-development purposes such as with educational tourism and other forms of cultural consumption – arts and crafts, performing arts, regional hospitality and bush food, Indigenous culture – all of which are highly embedded in the place visited.
- From a supply-side perspective, it has long been established that tourism is commonly used as a strategy to retain human resources in remote regions. When activities are highly seasonal or volatile, tourism activities complementary to other industries contribute to the sustainability of investments in specialised skills, infrastructure, technology and conventional capital.
- Much regional tourism entrepreneurship originates from primary industry and complementary service providers offering hospitality or tour services during quiet times (of the primary activity), or when demand for tourist-related activities reaches sustainable levels. In some regions, strategies to retain staff involve dual activity arrangements.

The principles listed above fit the purposes of the DKA Regional Network where efforts towards collaboration within sectors have dominated the agenda up to now, but the intent to add value through multiple alliances is clearly on the horizon. The figure below sets out to identify the diversity of domains in which small to medium enterprises in desert Australia operate and the types of resources on which they rely. It demonstrates that tourism business possibilities are omnipresent, with possible applications and opportunities being associated with all the types of resources listed.

The cluster approach can be broadly applied to markets, to types of business, to product types etc. Its adaptability makes it useful as it is possible to define spatial clusters (for political reasons), consumer-based clusters (referring to critical tourist attributes, for instance self-drive market), or in a resources context (for instance 'Indigenous tourism' in desert environments). It is also more appropriate for modelling tourism than the traditional value chain, which assumes a linear relationship between producers and consumers (or final users) where technology and competing suppliers transfer packaged knowledge downstream. The main reason to reject the conventional value chain (usually associated with manufacturing industries) is that the tourism sector depends on and makes use of numerous resources it does not control. For instance, the sustainability of tourism businesses and organisations depends enormously on natural assets, landscapes and cultural resources that these organisations play little role in developing, protecting or controlling.

Figure 3: Enterprise types organisational chart

Figure 1: Enterprise Framework



(Produced by Mr Mitchell Jones, Research Project Officer, CSIRO Centre for Arid Zone Research. Colours added for this report)

To conclude, the Desert Knowledge CRC is well positioned to undertake research on topics and in contexts that allow it to consider the connections between tourism developments, other forms of economic development, infrastructure and community livelihoods. While this statement is fairly wide-ranging, it is instructive if understood as indicating that appropriate methodologies for desert tourism research need to explicitly consider systemic linkages between issues, involve a consideration of the specific stakeholder types operating in desert environments and can provide joint micro- and macro-insights into governance and coordination mechanisms which will benefit desert communities.

5.4 The way forward: three initial tourism project briefs for the Desert Knowledge CRC

In Australia, research capacity in the area of tourism has grown considerably in the last decade due to various types of investments in the academic sector in tourism education and research programs. This has included continuous government-funded research mainly focused on marketing (such as the former Bureau of Tourism Research, now Tourism Research Australia) and in particular the driving influence of the umbrella research capacity created in the form of the STCRC. The latter has evolved a vast research program driven by a range of stakeholders with the clear intention of developing sustainable tourism practices and developments in Australia. It has evolved a structure that develops natural resources–based, business needs–based and destination-based research programs. Much knowledge and research capacity inherent to this network is available at www.crctourism.com.au. The STCRC has set its priorities towards national goals and a large proportion of research projects involve multiple states, collaborative research themes and ultimately focus on creating generic tourism knowledge supporting Australia's competitiveness and sustaining its performance as a destination.

The Centre for Regional Tourism Research (CRTR) is a joint venture between the STCRC and Southern Cross Univeristy, and has had a focus on tourism in non-urban environments. It is concerned with the growth of tourism industries which would contribute to sustainable communities in regional Australia, and is therefore engaged with a range of research issues with relevance to the Desert Knowledge CRC, even if not specific to desert environments. Much of the activity funded by the STCRC which involves exploring regional tourism issues, modelling tourism at the regional level or designing tourism-related tools for regional communities has been channelled through the CRTR.

The Tropical Savannas CRC (TSCRC – www.savanna.cdu.edu.au) also defines itself in terms of a geo-ecological area and aims at ensuring that the vast area of Australian Tropical Savannas is healthy and managed to provide long-term benefits (economic, aesthetic, social and cultural) to those who use them and to sustain the biodiversity and habitat endemic to them. The TSCRC has been housing two projects that examine the impacts of tourism on communities in the tropical savannas. These projects are part of the Regional Planning and Management Theme and they are called (1) *Community Benefits from Tourism*, and (2) *Two Laws and Savanna Lands*. This second project examines how the influx of visitors in northern regions affects the already complex relationship between Indigenous and non-Indigenous communities in small remote communities.

In general, the organisations and networks mentioned above evolve around loose coalitions of researchers and stakeholders, many of whom operate in multiple CRCs and organisations. It is important for the Desert Knowledge CRC to balance the capabilities found in those networks, directly acquire some of it for core projects and develop a distinct research agenda which focuses on linkages between tourism and other critical desert social and economic drivers.

Given the discussion above, it is suggested that the Desert Knowledge CRC invest in three initial research programs which reflect the systemic approach to desert regions. Together, these projects combine the fragmented themes identified in the scoping and the methodologies suggested to support a perspective distinctive in addressing the needs of the Desert Knowledge CRC.

A first strategic investment is to be made in researching Indigenous tourism with a perspective on desert issues. This theme is critical to the overall agenda of the Desert Knowledge CRC and is located in Quadrant 3, in the sense that it plays a dominant role in the Australian desert environment, but can appear in analogous forms in different contexts. The issues facing Indigenous entrepreneurs such as the implications of developing Indigenous cultural products, and addressing tourism involvement or development in Indigenous communities, remain critical to desert livelihoods but are not specific to the desert. The strategy encouraged here is to develop a research agenda for Indigenous tourism in collaboration with other organisations (the STCRC, the Northern Territory Tourist Commission and the TSCRC are appropriate partners). Through various case studies, this research program itself should be in a position to uncover the extent to which natural and cultural environments in the desert pose particular problems capable of justifying further specific investments. Such investments would include researching the linkages between tourism developments in various locations and the livelihoods of Indigenous people in affected regions. By joining forces with the partners listed, it would ensure that desert environment case studies feature

in main national research efforts linked with Indigenous tourism. By nature, this area of investigation is highly systemic (as its focus is on the interface between two social and economic systems) and requires a high level of cooperation with stakeholders involved in that interface.

It is suggested that a second tourism research investment for the Desert Knowledge CRC takes the form of an explicit examination of systemic relationships between tourism drivers for a regional desert destination. The continuation of the Central Australian Tourism Futures project provides such an opportunity as it aims to identify the underlying patterns and interrelationships that shape tourism around Alice Springs and includes economic, social or environmental factors. It seeks specifically to use a systems approach to understand how the tourism industry contributes to the broader regional system to develop options and strategies for increasing the benefits of tourism and promoting regional development and to enhance regional capacity to respond to, and plan for change in a desert destination. As key drivers and themes have already been identified in the preliminary phases of this project (see Appendix 1, section 3.5), the next logical phase is to explore how a tourism information system can be integrated to feed in the required data. This project answers some of the suggestions that it is critical to understand the linkages between services towns (such as Alice Springs) established within desert regions and their hinterland.

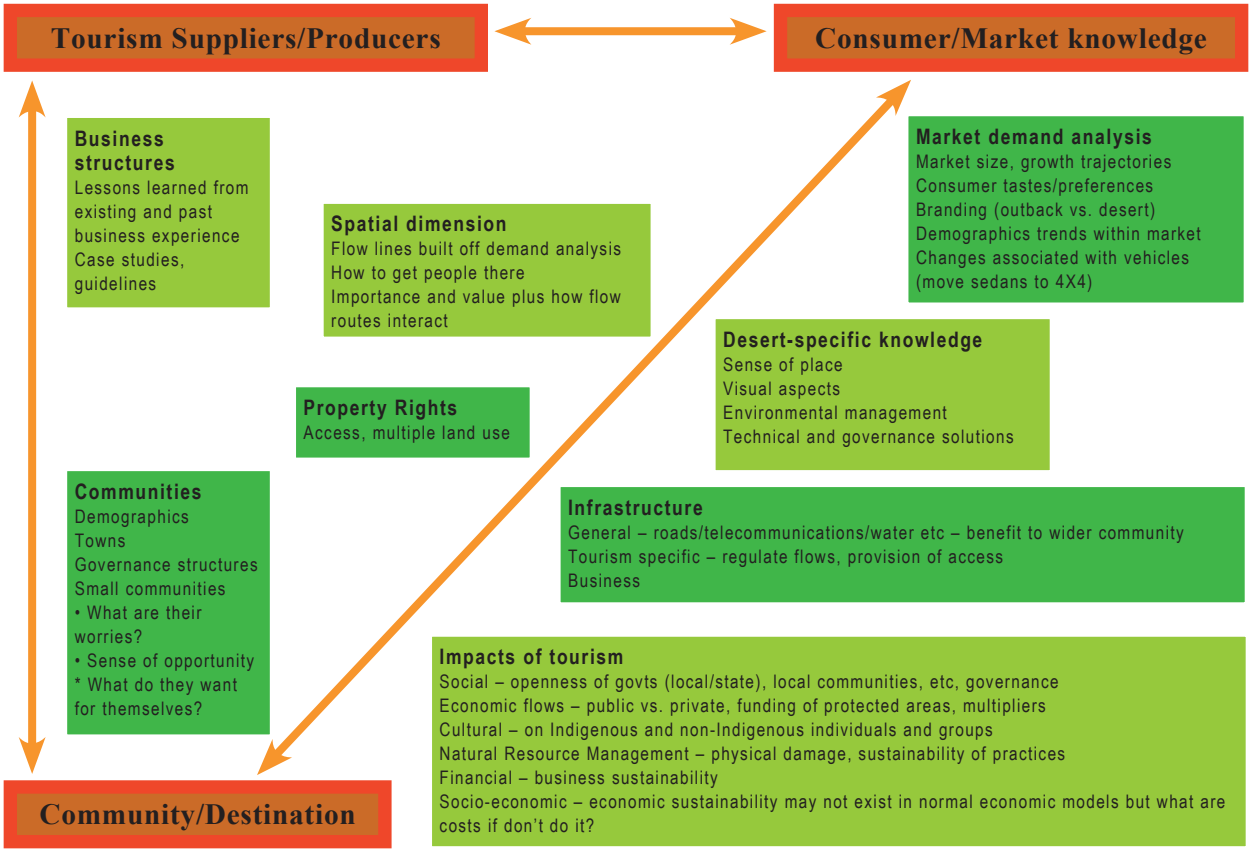
It is suggested that a third research program be developed more directly around the themes identified in the literature survey and at the workshop. The strategy is to examine the linkages associated with a strategic market (or activity) identified as critical to tourism development in the outback with a view to model inter-regional (preferably cross-state boundaries) flows. The analysis of the 4-wheel-self-drive tourism market offers research opportunities that integrate many of the key aspects of desert tourism. This theme can develop around a market-activity nexus and provides a distinct and manageable perspective for the examination of inter-regional and cross-jurisdictional aspects of desert tourism developments. A number of methodological approaches can be adopted and integrated for the sake of modelling the determinants of travel flows, as well as their connections with a range of infrastructure developments, communities and mechanisms capable of governing those movements. Ideally, this project can combine a wide variety of the issues raised at the workshop.

As the 4WD and self-drive markets interact with most themes raised at the workshop and summarised in section 4, it is possible to suggest a research framework in the form of a ‘value chain hybrid’ applicable to the desert tourism regional system. Most core activities and issues identified in the workshop can be related to one (or more) of three stereotypical sets of stakeholders:

- consumer-users
- producers (private and public sector based)
- communities (of various scales and with distinct resource endowments)

The last of these sets is what differentiates this approach from the conventional value chain and shifts the outlook within the realm of systems. As is apparent in Figure 4 (below), the full scope of tourism issues can be considered and made to overlap when researching this market. The research program itself should determine the extent to which various sub-themes and connections ought to be given priority.

Figure 4: Case Study – 4WDrive Tourism Issues in the Desert



In summary, this scoping exercise (including survey literature and workshop) has exposed the great diversity and complexity of issues relevant to structure a research program on desert tourism, and the difficulties involved in trying to set arbitrary boundaries to the relevant research. This is in accord with much of what is known in the realm of tourism modelling. As no natural ordering or structure emerges to organise its supporting research needs (beyond the existing priorities of the Desert Knowledge CRC and the existence of some research capabilities in other organisations), three broad research programs are suggested to drive research efforts. They all encompass system-related viewpoints and methodologies allowing exploration of the ways tourism development can benefit and challenge desert livelihoods. They also provide a distinctive research agenda in line with the core objectives of the Desert Knowledge CRC. The Desert Knowledge CRC is well positioned to facilitate the engagement of desert stakeholders whose interests may lay outside a narrow definition of tourism, but whose knowledge may be essential to understanding and influencing the systems.

Table 4: Proposed research programs

Research program	Uniting dimension	Cross-linkages explored
Indigenous Tourism	Indigenous people, communities and businesses as participants in the tourism sector	Linkages across geographical areas, and research themes outside tourism
Central Australian Tourism Futures	Regional centre (defined geographically and as a destination)	Linkages across impact/investment spheres as well as with complementary industries
4WD Self Drive tourism in the Desert outback	Self-drive 4WD as market/activity	Linkages across regions and with regions of origins of visitors

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