# THE FUTURE OF TOURISM RESEARCH IN AUSTRALIA:

## An Ideal Model for an Australian Tourism Research Centre

*By Sustainable Tourism Cooperative Research Centre*

SUSTAINABLE TOURISM CRC

CHAPTER 1

# BACKGROUND

## The Sustainable Tourism Cooperative Research Centre

The Sustainable Tourism Cooperative Research Centre (STCRC) was Australian tourism's strategic and scientific research organisation from late-1997 to mid-2010. Over this time, the STCRC planned, funded and managed research projects covering a wide range of topics related to tourism. Generally, it focused on:

- Sustainable Destinations – managing, developing and marketing tourism in and for destinations;
- Sustainable Enterprises – providing information for tourism-related businesses to be more effective, efficient and competitive; and
- Sustainable Resources – managing tourism in natural and protected areas.

The STCRC:

- Became the largest dedicated tourism research organisation in the world;
- Operated with a budget of $266 million which comprised of Commonwealth funding of $40 million, and contributions from industry and state government partners of $62 million in cash and $164 million in-kind;
- Was supported by 20 industry and state government funding partners and 17 research and education partners;
- Was governed during its 13 years by 50 different Board Directors from industry, government and academia;
- Supported 550 academic researchers from 16 universities;
- Completed 600 tourism research projects and published over 450 technical and industry reports in addition to other tools, kits and information;
- Distributed 2.77 million reports via downloads from its website; and
- Sponsored the successful completion of 150 tourism-related PhD's students.

Prior to 1997, there was no national tourism research capacity or capability. Following the closure of the STCRC in mid-2010, Australian tourism again reverted to a position where it had no strategic and scientific national research organisation and no resources to establish one.

This paper proposes an ideal model for the establishment of a new national tourism research centre, based on the lessons learnt from 13 years of operations of the STCRC.

CHAPTER 2

# RESEARCH AND DEVELOPMENT FUNDING FOR TOURISM

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Ruhanen, L. (2010). *TOURISM RESEARCH IN AUSTRALIA: Public and Private Investment in Tourism Research In Comparison to Other Industries*. CRC for Sustainable Tourism, Gold Coast: Australia.

## Tourism Research in Australia

Public sector investment in tourism Research and Development (R&D) in Australia is low in comparison with other industry sectors such as agriculture, construction, mining and manufacturing. In fact much of the research that is currently undertaken in tourism is classified as market research (Organisation for Economic Cooperation and Development [OECD], 2006) and data collection (Scott, 1999). While service industries such as tourism are knowledge intensive and innovation is important, innovation does not usually stem from R&D (Department of Innovation, Industry, Science and Research [DIISR], 2010b; 2010c).

Further, like other innovation variables, R&D spending is correlated with size, and tourism is dominated by small-to-medium sized enterprises (SMEs). The issue is further compounded given the low R&D intensity of the industries which supply the bulk of tourism's value added such as accommodation, cafes and restaurants. For instance, studies undertaken on innovation in tourism businesses have found that:

- Tourism businesses are not consciously innovative in the way that businesses in the information and communication technology, manufacturing and mining industries are.
- On average, tourism firms have a low level of R&D spending and little formal R&D.
- Many tourist operations are, however, based on a major innovation, and in general the firms are conscious of the need for continuous improvements to their operations – that is, they are incremental innovators.
- Innovation is usually based on customer feedback and generally tends to rely on the skills of existing staff.
- The most important motivations for innovation amongst tourism businesses are cost reduction, demand from customers, meeting competition, interactions with another innovation such as online booking, and a general corporate culture of continuous improvement (OECD, 2006).

## R&D Funding in Australia

**In 2006-07 total expenditure on R&D in Australia was $21 billion.**

R&D is defined by the OECD as *'creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications'.* Types of R&D activity comprise pure basic research, strategic basic research, applied research and experimental development (Australian Bureau of Statistics [ABS], 2006).

In 2006-07 total expenditure on R&D in Australia was $21 billion (ABS, 2008a). Key R&D statistics for Australia include:

- Australia's R&D spending has increased about fourfold over the past three decades.
- R&D in Australia is funded by Commonwealth and State/Territory governments, business, higher education and private non-profit organisations (Table 1).

- The Australian Government is the principal funder of basic research in Australia. Between 2008-09 and 2009-10, the Government's investment in science and innovation increased by almost 25 per cent – from $6.9 billion to $8.6 billion (DIISR, 2010b).
- Most R&D in Australia is performed by universities, Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO) and other public agencies.
- Business spending on R&D continues to increase and accounts for around one in two dollars spent on R&D in Australia (Productivity Commission, 2006).

**Table 1: Gross Expenditure on R&D, by Sector, Australia**

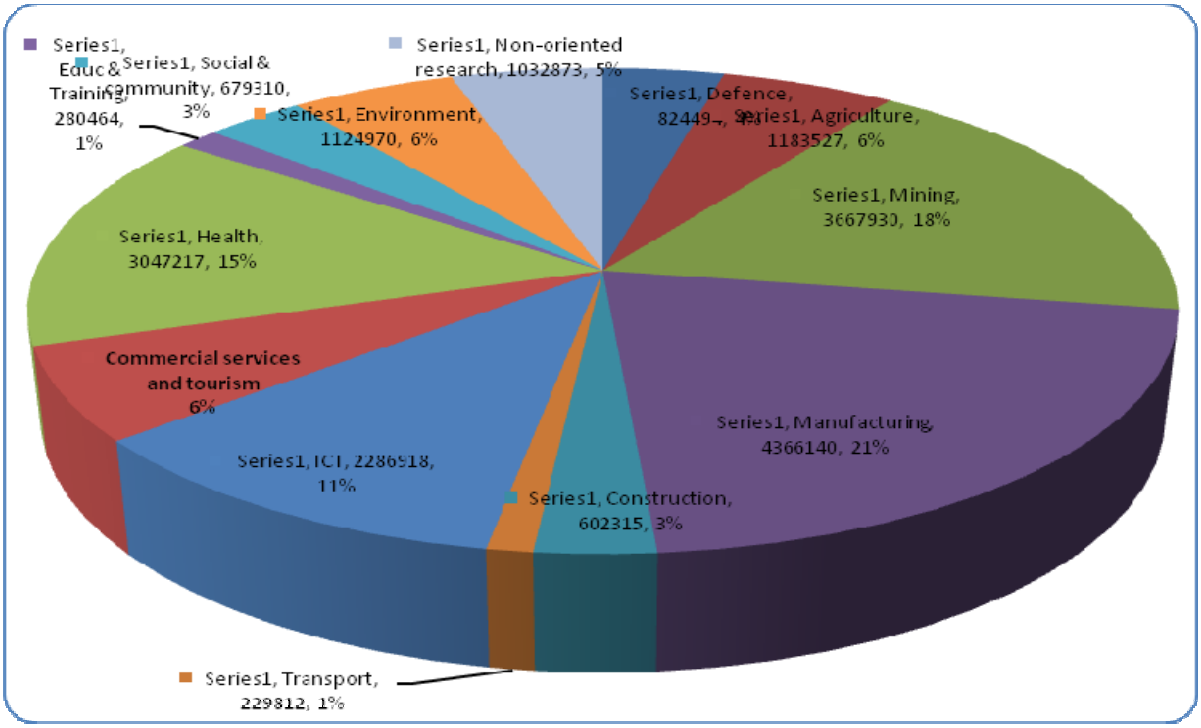
| | ***$m*** | ***Primary fields of research*** |
|---|---|---|
| Business | 12 036 | Manufacturing ($3,888.7m)<br>Property & business services ($1,717.0m)<br>Mining ($1,683.4m) |
| Government | 2 954 | n/a |
| *Commonwealth* | *1 893* | |
| *State/Territory* | *1 061* | |
| Higher Education | 5 404 | Medical and health sciences ($1,082.4m)<br>Engineering and technology ($473.9m)<br>Biological sciences ($451.0m) |
| Private non-profit | 606 | n/a |
| ***TOTAL*** | ***21 000*** | |

Source: ABS (2008a; 2008b)

**'Commercial Services and Tourism' attracted over $1.2 billion in R&D funding; approximately 6% of the total $21 billion of R&D investment in Australia in 2006-07.**

Figure 1 shows the breakdown of total R&D investment across major industry sectors by SEO (socio-economic objective) code. 'Commercial Services and Tourism' attracted over $1.2 billion in R&D funding; approximately 6% of the total $21 billion of R&D investment in Australia in 2006-07.

**Figure 1: R&D Investment by SEO, 2006-07**




Source: ABS (2008a)

Comparing 'Commercial Services and Tourism' with sectors such as agriculture, construction, manufacturing and mining, it can be seen that manufacturing and mining attract considerably more R&D funding (Figure 1); the majority of which is derived from business R&D funding (Table 1). Agriculture, however, receives the largest proportion of its funding from State/Territory governments (Table 2).

**Table 2: R&D Investment by Selected Industry, 2006-07**

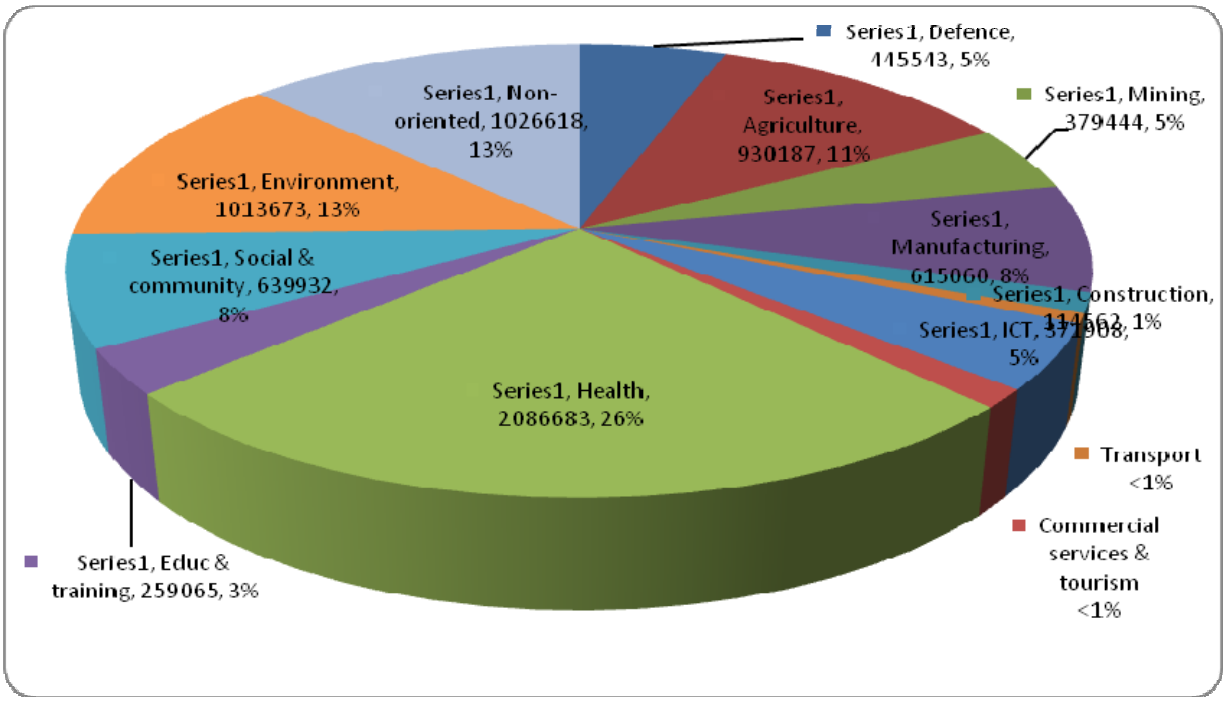
| *Industry sector* | *Business $ '000* | *C'Wealth gov't $ '000* | *State/ territory gov't $ '000* | *Higher Education $ '000* | *Private non-profit $ '000* | *Total $ '000* |
|---|---|---|---|---|---|---|
| Agriculture | 253,340 | 204,530 | 438,793 | 286,864 | 0 | 1,183,527 |
| Construction | 487,753 | 29,908 | 4,012 | 80,642 | 0 | 602,315 |
| Manufacturing | 3,744,805 | 273,942 | 10,920 | 330,198 | 6,275 | 4,366,140 |
| Mining | 3,288,314 | 162,760 | 10,533 | 206,150 | 173 | 3,667,930 |
| Commercial Services & Tourism | 1,181,210 | 8,023 | 525 | 98,900 | 0 | 1,288,658 |

Source: ABS (2008a)

If public sector R&D funding (Commonwealth and State/Territory governments and Higher Education) is analysed, the investment in 'Commercial Services and Tourism' reduces considerably to less than 1% (Figure 2). Public sector R&D funding in Australia is largely directed to:

- Health 26%
- Environment 13%
- Agriculture 11%

**Figure 2: Public Sector R&D Investment by SEO*, 2006-07**




Source: ABS (2008a)

*Combined Commonwealth and State/Territory Governments and Higher Education Funding data

Note: Higher Education data does not include direct staff inputs or other staff supporting, but not directly performing, R&D.

**Tourism receives approximately 0.25% of R&D funding in Australia.**

Although such data provide useful insights into R&D investment, particularly in the absence of any definitive statistics, the broad nature of the 'Commercial Services and Tourism' category does not give an accurate reflection of tourism investment. Indeed, it is highly likely that figures are skewed towards other sectors within this category as previous attempts to estimate R&D investments in tourism have concluded that tourism receives between 0.2% and 0.4% of R&D funding in Australia (Bushell, Prosser, Faulkner & Jafari, 2001; OECD, 2006).

More recent data, specific to tourism, can be derived from statistics on Australia's National Competitive Grant schemes. For instance, over the period 2002 to 2008 tourism related research received 0.08% of all Australian Research Council (ARC) funding (Table 3). Of the 13,947 projects funded during this period only 33 were in the field of tourism equating to 0.002% of all projects (ARC, 2010). Based on these previous estimates and more recent ARC data it can be estimated that tourism receives approximately 0.25% of R&D funding in Australia.

**Table 3: Australian Research Council Funding, 2002-08**

| ***Industry sector*** | ***$*** | ***% of total funding*** |
|---|---|---|
| Agriculture | 151,703,000 | 4.5% |
| Construction | 106,714,000 | 3.2% |
| Manufacturing | 434,737,000 | 12.9% |
| Mining | 106,080,000 | 3.1% |
| Commercial Services | 42,613,000 | 1.3% |
| Tourism | 2,677,000 | 0.08% |
| ***Total ARC Funding*** | ***3,369,509,000*** | ***25.1%*** |

Source: ARC (2010)

**Agriculture received 44 times more public funding than tourism even though GDP contribution is relatively comparable.**

It has long been acknowledged that R&D investments in tourism are disproportionate to tourism's contribution to Gross Domestic Product (GDP) in Australia. For instance, Bushell et al. (2001, p.323) note that, *"The economic significance of the [tourism] industry is now comparable with agriculture, mining, manufacturing, and transport communications, expenditure on tourism R&D by both government and industry has been minuscule in comparison with these other industries".*

Public sector expenditure on R&D for 2006-07 was $8.4 billion of which tourism is estimated to have received 0.25% despite the fact that tourism contributes 4.4% to GDP. Agriculture, however, contributed 3% to GDP and attracted over 11% of public sector R&D funding (Table 4).

**Table 4: Industry Contribution to GDP and Government R&D Investment**

| *Industry sector* | *Contribution to GDP (%)* | *R&D Investment (%)* |
|---|---|---|
| Agriculture | 3% | 11.1% |
| Construction | 8% | 1.4% |
| Manufacturing | 10% | 7.4% |
| Mining | 8% | 4.5% |
| Tourism | 4.4% | 0.25% |

Source: ABS (2009; 2009a; 2008)

**The lack of funding for tourism R&D is an international issue.**

The lack of R&D funding for tourism, particularly via competitive research grant schemes, appears to be a common situation in other countries also. For instance, in the United Kingdom public funding for tourism is distributed via Research Council's – the Economic and Social Research Council – is most applicable to tourism. As has been the case in Australia, tourism has attracted very few of the Council's funded projects. Similarly the Canadian Social Sciences and Humanities Research Council also funds a limited amount of academic based tourism-related research, however tourism has not ranked highly in rating schemes, so the number and size of the projects funded is quite limited.

New Zealand's Foundation of Research Science and Technology funded approximately 1.1 million in tourism research in 2004-05. Indeed, New Zealand has similar levels of R&D investment in tourism as Australia. For instance, 'Commercial Services and Tourism' received 2% of total R&D spending (of which tourism is only a proportion of) in spite of the fact that the tourism sector contributed 3.8% to GDP in 2009 (Statistics New Zealand, 2009; 2009a). However, primary industries R&D represented 19% of all spending and manufacturing received 17% (Statistics New Zealand, 2009).

Some notable exceptions include the European Union who, through its framework programs, provides funding for research and tourism has received a number of large grants. For instance, some €50 million has been provided to fund a 'think tank' and applied research in Spain via the Spanish Chambers of Commerce. The Spanish government also provides an estimated €5 million in funding for SEGITTUR, an innovation and tourism research organisation, to develop new capacity and processes in technology. Additionally a number of the autonomous regions in

Spain have research centres in tourism which are publicly funded. Again, much of this research tends to centre on ICT capabilities.

In terms of research undertaken by National Tourism Organisations (NTOs) this tends to focus predominantly on market research. In the United Kingdom VisitBritain funds very little research and where research funding is available it tends to be in the form of small consultancies. This is also the case with the Canadian Tourism Commission which predominantly undertakes market and industry research. Thailand and Japan's NTOs are also largely focused on conducting market research. In China there is a national tourism research agency, the China Tourism Academy, within the China National Tourism Administration. However, again this is not a research organisation but instead acts as a government 'think tank' for tourism. In contrast, the Hong Kong Tourism Board has undertaken projects on forecasting and a tourism satisfaction index but such research is reportedly ad hoc with the organisation still predominantly focused on market based research.

## TOURISM R&D: Potential Funding and Governance Models

**There are some 16 Commonwealth funded schemes and 13 Cooperative Research Centres for agricultural research.**

The lack of public sector funding for tourism R&D can, in part, be attributed to the absence of tourism specific research schemes. Yet, other comparable sectors (in terms of importance to the Australian economy) are well represented in Australia's National Competitive Grant schemes. For instance, agriculture has some 16 Commonwealth funded schemes covering a variety of aspects from meat and livestock to forestry and food production. Additionally there are 13 Cooperative Research Centres (CRCs) in agriculture and a further three non-Commonwealth funding schemes available to researchers (Appendix A).

Agricultural and other primary industry research has traditionally been well funded in Australia, even though its share of GDP is declining. Continued levels of funding for agriculture are justified on the basis that: *To maintain demand for Australia's primary industry exports continuing investment in R&D and innovation is important to ensure the ongoing growth and improvement in the productivity, profitability, competitiveness and sustainability of Australia's agriculture, fisheries, forestry and food industries (Department of Agriculture, Fisheries and Forestry [DAFF], 2010).* Further:

- The large number of small producers could not gain an economic return from individual investment in R&D and farm products are largely uniform and non-rival in nature;
- There are significant intra- and inter-industry spillovers and regional and rural benefits that accrue from publicly supported R&D; and
- R&D funding for agriculture addresses important national development and sustainability objectives, such as biosecurity and natural resource management.

Globally, public sector investment in agricultural R&D is justified on the basis that:

- Without government involvement, too little agricultural R&D would take place. Underinvestment by the private sector arises from both the nature of agriculture (typically individual businesses are too small to undertake effective R&D) and the nature of R&D (often individual investors cannot capture all the benefits of their inventions) (Padrey & Alston, 1995).

- Agricultural research and technological improvements are prerequisites for generating income for farmers and the rural work force which in turn will help to alleviate poverty (James, 1996).

**The government-industry partnership model provides more than $470 million in annual R&D expenditure.**

Funding for agricultural R&D in Australia is largely directed through research and development corporations (RDCs) and industry-owned companies which cover most of the agricultural industries. RDCs are a partnership between the government and industry to share the funding and strategic direction setting for primary industry R&D, investment in R&D and the subsequent adoption of R&D outputs.

The government-industry partnership model that supports the RDCs has been operating successfully for over 20 years and now provides more than $470 million in annual R&D expenditure. The model is based on legislated or industry funding agreements where the Australian Government collects industry levies for the purpose of R&D and/or marketing. Further, to expand Australia's rural R&D efforts, the Australian Government matches expenditure on R&D up to 0.5% of industry Gross Value of Production (DAFF, 2010).

Coal production levies have seen coal producers commit to pay 5 cents per tonne to fund the Australian Coal Association Research Program (ACARP). Australian Coal Research Ltd was established by the industry to manage all aspects of the program (ACARP, 2010).

**Opportunities exist to derive research funding for tourism via existing tourism related taxes and levies.**

A report by KPMG (2009) identified different methods by which the government can raise funds for tourism research:

- Place a levy on tourism industry operators
- Raising taxes to spread the cost over all individuals
- Government and industry co-contributions

Specifically, opportunities exist to derive research funding for tourism via existing tourism related taxes and levies. For instance, an STCRC study (Forsyth, et al., 2007) estimates that tourism generated approximately $8.1 billion in net federal and state revenue in 2003-04, including the GST and other taxes on production, but excluding the Passenger Movement Charge (PMC).

The Tourism Transport Forum (TTF, 2010) notes that, *"There has been an increasing trend in Australia to levy taxes and charges on international visitors as revenue raising measures. Increases in the PMC and visa fees in the 2008-09 and 2009-10 Commonwealth Budgets have resulted in an additional $240.5 million tax burden in 2009-10 alone".*

The PMC (currently $47) was introduced to recover the public good costs of border protection such as customs and quarantine and in 2002-03 the PMC generated $291 million in revenue. TTF (2010) argues that the revenue raised via the PMC far exceeds the costs of these measures although the Productivity Commission (2005) reports that in the 2002-03 period such costs were not recovered via the PMC.

The Australian Tourism Export Council (2007) has advocated the use of the PMC to fund, among other things, research and innovation in tourism.

In terms of GST revenue, it is estimated that in 2003-04 over $4,490 million in GST was generated from tourism (Forsyth et al., 2007).

A recent study of tourism yield and public sector expenditure in New Zealand notes that, taking into account all central government expenditure associated with tourism (marketing, policy advice, regional initiatives, access to nature, heritage and cultural resource; and indirect costs of roading, search and rescue, bio-protection etc.), the central administration still retained $429 million over and above the GST take of $481 million and other direct levies (Simmons et al., 2007). A similar situation is more than likely evident in Australia.

Using available estimates of tourism related taxes and fees, devoting even 1% of these towards tourism R&D could create a significant funding pool:

- PMC = $2.9 million
- GST = $44.9 million

**Various governance structures exist in other industries that actively support R&D activities.**

*Industry Innovation Councils*: members are appointed by The Minister for Innovation, Industry, Science and Research and comprise of leaders in industry, unions and professional organisations, science and research agencies and the government (DIISR, 2010a). Councils exist in the following industry sectors:

- Automotive Industry Innovation Council
- Built Environment Industry Innovation Council
- Future Manufacturing Industry Innovation Council
- Information Technology Industry Innovation Council
- Pulp and Paper Industry Innovation Council
- Space Industry Innovation Council
- Steel Industry Innovation Council
- Textile, Clothing and Footwear Industry Innovation Council (DAFF, 2010)

*Rural R&D Priorities*: established in 1994, the priorities balance new and ongoing R&D investment needs for the primary production sector, and to ensure R&D objectives of the Australian Government are met. They also allow for a national understanding of current critical R&D investment needs and to better target agricultural, fisheries, forestry and food industry R&D efforts. Priorities were developed in consultation with state and territory governments, industry, research funders and providers. This is based on the assumption that a common understanding of rural research priorities will better position Australia's agricultural, fisheries, forestry and food industries to embrace innovations and adopt new technologies, to respond to market changes, to open up new markets and maintain a competitive edge in the face of economic and climatic challenges (DAFF, 2010).

*Rural R&D Council*: established to target better, and improve the effectiveness of, the government's rural research, development and extension investments. The council was appointed by the Minister for Agriculture, Fisheries and Forestry in February 2009, as the government's independent strategic advisory body on rural research and development. Through the Primary Industries Ministerial Council, the Australian Government works with the state and territory governments to develop a national approach for future research and development in Australia (DAFF, 2010).

*The Primary Industries Standing Committee R&D Sub-Committee*: is made up of representatives from the respective Commonwealth, state and territory departments responsible for primary industries, research and development corporations, CSIRO and universities (DAFF, 2010).

## Conclusions

The Productivity Commission (2005) estimates that total assistance provided to tourism is in the region of $900 million to $1.1 billion, on average, for the years from 2000-01 to 2002-03; equivalent to 1.1% to 1.4% of the tourism industry's Gross Value Added. The estimates suggest that tourism receives relatively less assistance from the Australian Government than do manufacturing and primary production industries on average, but relatively more assistance than other service activities for which estimates are available (such as construction, wholesale and retail trade, and personal services).

It is estimated that tourism contributes 4.4% to GDP and receives approximately 0.25% of R&D funding in Australia.

Estimates of public sector R&D investment in tourism show that tourism receives considerably less funding than primary industries and sectors such as manufacturing and construction. The most dramatic differences are evident between tourism and agriculture given the relatively similar contributions of the sectors to Australia's GDP. For agriculture, R&D is facilitated by an established and elaborate framework of basic, strategic and applied research organisations and numerous competitive grant schemes.

Tourism has now lost its only dedicated strategic and applied research organisation, the STCRC, despite the fact that a key recommendation of the National Tourism Strategy Steering Committee's *Jackson Report* (Jackson, 2009) is the establishment of new supply-side research capability for the tourism industry to complement existing demand side research delivered through agencies such as Tourism Australia. The National Long-Term Tourism Strategy (Department of Resources, Energy and Tourism [RET], 2009) identifies a need for a R&D agenda that will inform industry and government. Specific actions include:

- Establish a new governance structure for R&D to drive a national tourism research agenda, and advance high quality research that informs industry and policy development.
- Produce an annual state of the industry report, providing a quantitative and qualitative assessment of current industry performance, challenges and trends. The future research agenda will incorporate work on issues affecting tourism including investment, productivity, labour and skills, and taxation.
- Tourism Australia to lead industry communications, including an annual industry outlook conference and disseminate R&D information.

This will be monitored through a 'Research and Development Advisory Board' to be chaired by the Commonwealth (RET, 2009a).

Unfortunately such initiatives, in their present form, are likely to do little to drive the R&D gap in the tourism industries. Certainly lessons can be learnt from agriculture which has many similarities to tourism in terms of the large number of small operators. Arguably the investments in agriculture have led to significant returns:

- $11 return on every research dollar spent; and
- 2.8% average productivity growth as a result of R&D over the past 30 years (Fargher, 2010; Council of Rural Research and Development Corporations [CRRDC], 2010)

Redirecting even 1% of the tourism related taxes and levies towards tourism R&D could create a significant funding pool which would be far in excess of current Commonwealth investment in this area. Such actions are imperative as arguably continued low levels of funding will jeopardise innovation and the competitiveness of the tourism sector – a fact that is well recognised and accordingly addressed in other industry sectors such as agriculture.

CHAPTER 3

# MODELS AND STRUCTURES

## The CRC Model

The STCRC was established under the Commonwealth government's CRC Program. This program supports collaborative partnerships of industry, government and academia to develop new knowledge through scientific research to improve innovation within industries and to deliver economic, social and environmental benefits to Australia.

Prior to the Commonwealth approving the establishment of a CRC, there must be a commitment by a group of partners to contribute funding each year for the life of a CRC (up to 10 years) and to support the work of the CRC for its full life. These partners can come from industry, government or academia and they form the collaborative structure (partnership) of the CRC. Partner contributions are in cash and/or in-kind. In-kind contributions can be the value of time and effort provided by academic researchers to undertake research for the CRC, the value of industry time and effort on CRC activities, including diffusion of outputs etc. Some of these values are calculated by specified formulae provided by the Commonwealth whilst others are calculated at estimated rates based on known and actual costs.

If an application is approved, the Commonwealth commits to provide cash funding to match or supplement partner cash and in-kind contribution commitments. Partner contributions must exceed Commonwealth funding.

A CRC application must specify a research and education program and activities for the life of the CRC. This is required to be a committed program to achieve estimated outputs and outcomes for Australia. There is little room for flexibility or for changes to the program and activities during the life of the CRC. The funding provided by the Commonwealth and the partners must be applied only to the specified program activities.

The Commonwealth sets certain conditions for the structure and operations of a CRC. These conditions are not negotiable. At the time of the closure of the STCRC, there were approximately 45 other CRCs in operation in agriculture, manufacturing, health/ medical, pharmaceutical, technology and in other industries, and for public good outcomes such as water, Aboriginal health, and spatial information.

The Intellectual Property (IP) created from CRC research usually belongs to the CRC. The partners agree on terms and conditions of use of IP. Each CRC is required to commercialise its IP, to develop patents where possible and to deliver benefits to Australia through commercialisation and extension activities. Notwithstanding this focus there remained a varying degree of focus on public good outcomes which are broadly applicable to the scientific needs of the tourism sector.

The CRC association website (http://www.crca.asn.au/about-crcs) notes that the present definition of a CRC is:

> *"A company formed through a collaboration of businesses and researchers. This includes private sector organisations (both large and small enterprises), industry associations, universities and government research agencies such as the Commonwealth Scientific and Industrial Research Organisation (CSIRO), and other end users. This team of collaborators undertakes research and development leading to utilitarian outcomes for public good that have positive social and economic impacts."*

The CRC guidelines for applications can be found on the Commonwealth CRC Program website - www.crc.gov.au.

## Strengths of the CRC Model

There are many strengths of the CRC model, as experienced by the STCRC. They include:

- A collaborative partnership approach – within sectors and between industry sectors, researchers and government;
- A shared vision of future goals and needs;
- Leadership for the collaborative activities;
- Unity of purpose by all partners and stakeholders;
- A focus on enhancing longer-term scientific and technological research and innovation to Australia's sustainable economic, social development;
- Transference of research outputs into commercial and other economic, social and environmental benefits for Australia;
- Enhancing the knowledge, experience and value of graduate researchers; and
- Governance of the CRC by a Board, with the majority of members representing industry and an independent Chairman.

The STCRC experience confirmed the value of these strengths. They should be retained and embedded in any new national tourism research organisation.

Prior to the establishment of the STCRC:

- There were no collaborative mechanisms for tourism research and only one organisation (the Australian Tourism Industry Association – ATIA) endeavoured to unite the various sectors that make up the tourism 'industry'. There were few if any, collaborations between industry and academia, and poor collaborations between industry and the various levels of government, for tourism research;
- There was no shared vision on research needs and benefits for Australian tourism; no unity of purpose; and therefore no leadership in this area; and
- Tourism operators and organisations did not consider longer-term scientific and technological R&D. The tourism 'industry' had a very short-term focus which was mostly related to marketing.

The STCRC proved that strong collaboration could provide benefits to industry and to the broader Australian community through the development of new knowledge and the commercialisation and extension of this knowledge to end-users. The STCRC provided leadership, unity and purpose to tourism research for the good of the 'industry'. However the CRC model was not ideal and there are good opportunities for improvements to this model.

## Weaknesses of the STCRC and CRC Models

The STCRC experience showed that there were inherent weaknesses in the STCRC and the CRC models. Some of these weaknesses applied to the CRC model generally whilst others were more in relation to the application of the CRC model for tourism and the manner in which the STCRC operated.

### In Kind Contributions

In-kind contributions created confusion in a number of areas. Placing an accurate and relevant value on in-kind contributions, especially those provided by university research partners, proved to be difficult and sometimes a matter where views differed.

The delivery of research services and outputs via in-kind research contributions also impacted on the timeliness of completion of projects. Despite contracted deadlines with universities for the work that their researchers undertook (on an in-kind basis) the STCRC experience was that most projects were not delivered on time, with many significantly over time in completion. It was apparent that researchers and their institutions, often over-estimated their abilities to contribute agreed time commitments to STCRC research projects, taking into account all of their other academic commitments.

### Return on Investment to Research Partners

University partners, when negotiating to become a partner in a CRC, normally required an ROI of at least 3:1 from their investment - i.e. they required research and/or education funding from the Centre equal to at least three times the amount of their estimated contributions. The need to provide an acceptable ROI to university partners can create situations where decisions are made based on delivering an acceptable ROI rather than on quality and skill requirements for specific projects or activities.

### Academic Drivers and Recognition for Research Projects

Following calls from the CRC for proposals to execute the approved research program, proposals received from universities were initiated by individual researchers who were, in many cases, wanting to improve their publishing record, rather than wanting to deliver an industry-relevant outcome. This was understandable as publication in academic journals was the main measure used by the Commonwealth and universities to measure academic success. CRC publications did not count in this regard, even though the STCRC research technical reports were peer-reviewed prior to publication. Industry-relevant research outcomes also did not count towards academic advancement.

There was an inconsistency in the policies of the Commonwealth, where on one hand it measured the success of academic researchers by way of publication in academic journals and on the other, required industry-relevant outputs/outcomes from CRC research and the use of academic researchers to achieve these outputs/outcomes. This tension became increasingly apparent over time with the development of ERA (Excellence in Research for Australia) which seeks to allocate research dollars to universities based on a set of criteria which is heavily weighted to international peer reviewed journal publications. Applied, industry oriented research that has high impact are potentially ignored in this approach.

### Management of IP

STCRC research project contracts were signed by university partners that were 'providing' the researchers for projects. The contracts were not signed by the researchers themselves and it was often the case that researchers did not feel they were bound by the conditions of the contract. Such conditions included the need to maintain confidentiality relating to research findings to protect any opportunities for commercialisation from the research, and management and ownership of project IP.

It was apparent in many cases that researchers had a greater interest in promoting their individual and collective achievements than being bound by contract confidentiality agreements; resulting in the public release of research findings prior to the completion of projects and without the knowledge and authority of the STCRC (which had ownership of IP under project contracts).

It was also apparent that some universities had little or no ability to manage and enforce the delivery of contracted services by their researchers. Many universities did not have normal commercial employment contract conditions with their staff, or other measures in place, to control ownership of IP from research undertaken by staff, particularly where contracts had been entered into in relation to the ownership of IP.

### Shares

The STCRC operated as a propriety company limited by shares. The company structure proved to be appropriate however the issuance of shares caused problems. It is understood that the initial thinking for adopting shares as the basis of ownership, was that commercialisation profits would in time enable the CRC to be self-funding and to continue operations beyond the life of the CRC program. The partners would then have shared ownership of a viable business.

One dollar shares were issued for each dollar of cash contributions and one-cent shares were issued for each one dollar of in-kind contributions made by partners. A total of 20,485,000 core (cash) shares and 1,406,450 in-kind shares were issued.

Some partners being state government agencies were not permitted to own shares. These partners still committed and paid annual cash and in-kind contributions however, not being shareholders, had no formal role in the running of the company including the election of directors.

There was limited evidence of accurate record keeping of in-kind contributions by academic and industry partners which sometimes resulted in unrealistic and improbable estimates of in-kind contributions, provided at the end of each year. Shares were issued on these estimates.

The problems included the volume of shares, difficulties with state government agencies holding shares and then having to relinquish them and issuing shares for in-kind services where the value of the in-kind contributions was questionable. The STCRC devoted significant time and effort in order to clarify and verify the value of in-kind contributions from partners so that auditors could be satisfied as to the reasonableness of these contributions, however it was time and effort that could have been better spent on other activities.

At the end of the STCRC's life, the commercialisation subsidiary company was sold, the sale proceeds were distributed to shareholders based on the number of core (cash) shares (held by each shareholder, and the company was voluntarily deregistered.

### Proposed Solutions

To solve the problems outlined above, it is proposed that the following be considered in the establishment of a new national tourism research centre:

- In-kind contributions should not be considered at all in calculating partner contributions to a research centre. To improve project management, timeliness and overall outputs, in-kind services of academic researchers should be replaced by paying researchers/universities for their time and effort;
- Universities should not be owners/partners of a research centre. A research centre should contract the most appropriate academic researchers from any university for projects, and to pay for the researchers' time, to ensure the timely delivery of contracted outputs. To ensure 'excellence' and national best teams a research centre should promote research opportunities to all universities and pick the best researchers /teams for each project without having regard to any ROI issues in relation to university partners;
- In conjunction with academic researchers use the services of private research and consultancy services where these are more appropriate in research completion and sector diffusion;
- Ensure that both universities and research staff are realistically able to deliver on the contracted services. This would include a statement from universities that they would release researchers from other commitments to enable them to devote the agreed time to the contracted research. Requiring researchers to also sign contracts in addition to universities would also overcome any deficiencies in university policies in regard to IP ownership;
- Structure progress payments so that funding is linked to the successful delivery of milestones – i.e. smaller up-front payments and larger final payments made upon completion of the project on time and to the agreed quality; and
- If it is proposed to operate a future research centre as a company limited by shares, then shares should not be issued for in-kind contributions and a more simplified formula for total shares issued to each partner should be adopted.

### Managing a Research Centre

The CRC model normally results in a number of key research and education management positions being filled by academics – usually on an in-kind or secondment basis. Professors and Associate Professors from partner universities are often Directors of Research or leaders of individual research programs (encompassing a range of individual projects). The STCRC started with this model. However, experience demonstrated that the skills and experience of academics are not necessarily applicable or ideal for effective management of these programs.

Part-time secondments from universities don't always translate into the necessary levels of application required for effective management practices. In its last three years, the STCRC moved to a more corporate model with key management positions filled by full-time staff – a number with strong industry management experience. This proved to be much more effective in managing projects, particularly in relation to timeliness, budgets, and in achieving the desired outputs/outcomes.

### Funding a Tourism Research Centre

The STCRC and CRC models provide for industry, government and academic partners to contribute committed annual funding to the Centre's operations. This is in addition to the Commonwealth CRC Program funding. This funding formula may work well where the benefits of the CRC research can be captured by individual funding partners and the benefits accruing from the application of the new research knowledge created translates into either economic, social or environmental benefits for the partners.

However in tourism, the only organisations with the capacity to contribute funding and the potential to capture some of the benefits proved to be state government tourism and national park agencies and industry associations. Most of the industry associations had insufficient funds to contribute to general strategic research for their sector whilst some that had the resources did not or could not, gain support from their members to participate. The nature of tourism research is such that much of the benefits are public good and it is not possible for CRC partner enterprises to capture and apply benefits to become more competitive and/or profitable than non-CRC-partner enterprises. In these circumstances private SMEs and larger corporations will not contribute to strategic research where the outcomes can benefit a multitude of enterprises that do not contribute. This is further explained in chapters 2 and 4 of this paper.

The STCRC experience has demonstrated that the market failure caused by the lack of industry funding for research can only be overcome by an ongoing funding commitment from the Commonwealth. Ideally, this should be from the Commonwealth department with responsibilities for tourism. The STCRC experience in re-bid applications to the Commonwealth for a further five years of operations left its Board with reservations on how tourism was viewed by a department with a strong focus on traditional R&D driven innovation and hard sciences. The contribution of tourism to the Australian economy is now well documented and explained further in chapter 2 of this paper. It more than justifies a Commonwealth funding commitment sufficient to fund an effective national tourism research centre to drive innovation in ways that are more appropriate to tourism and SMEs.

Private enterprise and/or state and local government funding could be committed to special research projects where the benefits would accrue to these partners. This 'partnership' research could be undertaken on a contract basis, in addition to the general research program undertaken by a national centre.

CHAPTER 4

# A NEW NATIONAL TOURISM RESEARCH CENTRE

In the chapter 2, the justification for continued levels of funding for agriculture R&D is outlined. Similar justification can be applied to tourism:

- The large number of tourism-related SMEs could not gain an economic return from individual investment in R&D;
- There are significant intra- and inter-industry spillovers and regional and rural benefits that accrue from publicly supported tourism R&D; and
- R&D funding for tourism addresses important national research priorities, such as strengthening Australia's social and economic fabric; sustainable use of Australia's biosecurity (and natural resource management); responding to climate change and variability; and promoting an innovation culture and economy.

As has also been outlined for agriculture, public sector investment in tourism R&D can be justified on the basis that:

- Without government involvement, too little tourism R&D would take place. Underinvestment by the private sector arises from both the nature of tourism where individual businesses are too small to undertake effective R&D and where individual investors cannot capture all the benefits of research knowledge. Much of the R&D required is for destinations where the benefits can apply to all SMEs and community members; and
- Tourism research delivering technological, economic, social and environmental benefits is a prerequisite for increasing competitiveness of tourism destinations and enterprises, much of which is in regional Australia and generating income for regional work forces and stimulating regional economies.

Tourism Research Australia (2010; 2010a) estimates that 44% of all tourism expenditure is expended in regional Australia. This amounted to $25,997 million in 2009.

Because of the nature of tourism, there is a need for a collective response, supported by government, to ensure the provision of independent research centre for the tourism sector (outlined in Appendix B).

Tourism is a disparate, fragmented, multi-sectoral, public and private sector activity. There are a wide variety of private and public sector entities involved with provision of visitor services, products, and promotion; alongside regulation and support functions that operate across all planning levels.

Yet while research is needed by all, market forces alone fail to provide the independence and range of research required across a full research platform from short to long term timeframes, and from basic to applied foci. As such, the provision of tourism research, like promotional and marketing activities, represent a market failure, which can only be solved by market intervention to ensure socially desirable levels of provision and to realise tourism's potential. Collective action mechanisms which bring together multiple stakeholders alongside government funding, are a common market intervention to overcome such a suite of market failures.

As has been noted earlier, the Jackson Report (Jackson, 2009) recommended the development of an evidence base to record tourism's contributions across economic, environmental and social dimensions. This is supported in the 2009 National Long-Term Tourism Strategy released by the Tourism Division within the Department of Resources, Energy and Tourism (RET).

A long range vision and a robust research platform which can inform and enable this vision are required to bring together the best strategic minds from industry, government and academia to inform debate about Australia's tourism and its future scope and operations.

Increasingly, as tourism has grown in size and impact, and as it connects extensively with the global market place, there is a requirement for an on-going, independent body of work to identify and highlight emerging and long term trends, and in so doing assist in 'future proofing' the industry.

With the failure to secure Commonwealth funding to extend the previous functions of the STCRC there is an ongoing need to build on the remains of the core functions, networks and collaborative platform that were developed over the life of the STCRC.

An independent research entity is therefore now required to develop knowledge to inform policy, resource allocations and practice.

Key principles which underscore the model described below are:

- **Independence** – Achieved via governance structure that provides independence of research while providing accountability in the use of public funds. Independence is a key requirement in securing academic support and involvement and in establishing public confidence in the quality and integrity of the knowledge generated;
- **Integration** – Achieved via active and extensive networks of industry, government and academic representatives, working to an agreed plan and with a common purpose;
- **Timeliness of delivery via fully funded contracted research**;
- **Industry driven** – Achieved via state and regional networks of industry leaders, with participation from government representatives and experienced academic researchers; and
- **Long term strategic focus** – Achieved via a set of parameters supporting a three year rolling research program and annual business plans, while allowing scope for attention to short term critical issues.

***Based on the STCRC experience, a new national tourism research centre should not be a CRC. It should retain all of the identified strengths of the CRC model (as explained in chapter 3), but avoid the weaknesses. There is an opportunity to develop a new model and structure, based on the distinctive nature of tourism and tourism-related enterprises and government agencies. Appendix B of this paper provides more detail as to some of the features which should be included in a new national tourism research body.***

## Chapter 5
# SUMMARY

The STCRC fulfilled the role of strategic and scientific research provider for Australian tourism for 13 years from 1997 to 2010.

During this period, it became the largest dedicated tourism research organisation in the world and provided leadership and strategic vision for tourism research and development through the successful collaboration of many industry sectors related to tourism with academia and government.

Following the wind-up of the STCRC, it is appropriate and timely to re-examine the need for a new national tourism body and to review the lessons learnt from the STCRC experience.

Funding for tourism research and development in Australia is woefully inadequate, particularly when compared to other industries and tourism's contribution to GDP and employment. With an inability to levy producers, there is significant market failure in this area if government does not step in to provide a funding platform. Government's funding support is well justified by the economic, social and environmental benefits that flow to regional and urban communities throughout the country from tourism activities, and to the national economy.

Tourism enterprises innovate and develop differently from other traditional industries such as manufacturing, agriculture and health. A national tourism research organisation needs to be specific to the needs of tourism, to be structured accordingly, and to contribute directly to the drivers that will increase productivity and competitiveness in tourism enterprises and destinations.

This paper analyses the generic CRC model and the STCRC operational experience and proposes a model and structure for a new national tourism research centre.

On past experience, it is unlikely that the Commonwealth will take the initiative to establish a new research centre of its own volition. It will therefore be up to the various industry sectors and state and local government agencies to lobby for this important initiative and to ensure that a new research centre delivers the benefits that could and should be expected for tourism and Australia overall.

APPENDIX A

# AUSTRALIAN RESEARCH FUNDING SCHEMES IN AGRICULTURE - 2010

| *COMMONWEALTH SCHEMES* | *COOPERATIVE RESEARCH CENTRES* | *NON-COMMONWEALTH SCHEMES* |
|---|---|---|
| ***Agriculture*** | | |
| • Australian Centre for International Agricultural Research<br>• Australian Egg Corporation Limited<br>• Australian Pork Limited<br>• Cotton Research and Development Corporation<br>• CSIRO National Research Flagships – Food Futures<br>• CSIRO National Research Flagships – Sustainable Agriculture<br>• Dairy Australia<br>• Department of Agriculture, Fisheries and Forestry<br>• Fisheries Research and Development Corporation<br>• Forest and Wood Products Australia Ltd<br>• Grains Research and Development Corporation<br>• Grape and Wine Research and Development Corporation<br>• Horticulture Australia Limited<br>• Meat and Livestock Australia<br>• MLA Livestock Production Research and Development Program<br>• Sugar Research and Development Corporation | • Australian Seafood CRC<br>• CRC for Sheep Industry Innovation<br>• Cotton Catchment Communities CRC<br>• CRC for Innovative Dairy Products<br>• CRC for Beef Genetic Technologies<br>• CRC for Sugar Industry Innovation through Biotechnology<br>• Molecular Plant Breeding CRC<br>• CRC for National Plant Biosecurity<br>• CRC for Forestry<br>• CRC for the Australian Poultry Industries<br>• Future Farm Industries CRC<br>• CRC for Innovative Grain Food Products<br>• CRC for an Internationally Competitive Pork Industry | • Australian Solar Institute Ltd<br>• Dairy Innovation Australia Limited<br>• Geoffrey Gardiner Dairy Foundation |
| ***Manufacturing*** | | |
| • CSIRO National Research Flagships – Future Manufacturing | • CRC for Advanced Manufacturing Technology<br>• CRC for Advanced Composite Structures<br>• CAST CRC<br>• CRC for Polymers<br>• Advanced Manufacturing CRC | |
| ***Construction*** | | |
| | • CRC for Construction Innovation | |
| ***Mining*** | | |
| • CSIRO National Research Flagships – Light Metals<br>• CSIRO National Research Flagships – Minerals Down Under | • Parker CRC for Integrated Hydrometallurgy Solutions<br>• CRC for Sustainable Resource Processing<br>• CRC Mining | • Australian Coal Association Research Program |

Source: compiled from data on the National Competitive Grants Register (DIISR, 2010; CRC, 2008)

APPENDIX B

# PROPOSED MODEL FOR A NEW NATIONAL TOURISM RESEARCH CENTRE

| | |
|---|---|
| *1. Name* | |
| *2. Entity* | A propriety company – limited by shares |
| *3. Ownership* | A combination of key stakeholders |
| *4. Board* | Skills and experienced based and elected |
| *5. Mission/Objectives* | • Driven by identified industry needs<br>• Independence and excellence in research<br>• Ability to operate without political interference<br>• A focus on timeliness and relevance |
| *6. Funding* | Commonwealth Government: Base Funding<br>States and Private Sector: Partnership Projects |
| *7. Partners* | Industry associations as lead agents to inform and lead the research to secure distribution channels for research outputs and tools |
| *8. Resources* | CEO, Director of Research<br>2 General Managers and 5 support staff,<br>Economist, 2 Modellers<br>Total = 12<br>Office = 280 $m^2$ (approx) |
| *9. Functions (Activities)* | • Strategic research, communications and extension<br>• Research - 3 year rolling program developed in consultation with key stakeholders (in accordance with an agreed process)<br>• An annual work plan<br>• Strategic research = 80% of base funding<br>• Tactical/Partnership research = 20% of base funding with additional partnership funds required for each project<br>• Research undertaken (contracted on a project basis – fully funded /buy out) by best nationally sourced academic teams and/or consultants |

## Comments

### 1. Name

The entity needs to have a name which accurately reflects its role and purpose and differentiates it from other research bodies.

### 2. Entity

A company structure is proposed to ensure proper governance and accountability and decision making in the interests of Australian tourism 'shareholders' (stakeholders). An independent body would provide operational efficiency and effectiveness and enable research to be undertaken to the highest standards without fear or favour.

A service or other accountability agreement could address the accountability requirements of the Commonwealth government as the principle funding provider, with agreed processes for the development and submission of a 3 year rolling research program and annual work plans, and approval and reporting procedures to the Commonwealth against these programs and plans.

### 3. Ownership

It is recommended that any new body is not a Commonwealth Government Agency.

The company ownership would ideally be a combination of key industry stakeholders on behalf of Australian tourism. An option is to invite a number of the main industry sectoral associations and other national tourism industry bodies to pay an initial sum to become owners of the company.

For operational effectiveness, it is proposed that the ownership should comprise a relatively small number of organisations, all with a national focus.

The interests of national, state and local governments can be accommodated through formal 'built-in' consultation mechanisms and through a platform of partnership research projects.

### 4. Board

It is proposed that the Board of the company number approximately nine and comprise both elected and appointed directors. An effective model would be for seven directors to be elected with those directors having the ability to appoint a further two directors to address specific skill gaps on the Board. The ideal skill mix would include a combination of industry, academia and government.

For the initial term, directors would need to be appointed. The company could then call for nominations for election (to agreed criteria, which could be written by owners of the company) for half the Board on a bi-annual basis, with a maximum term for any director of four years without standing for further election (for example).

A constitution would be developed which would direct these and other activities of the new research centre.

### 5. Mission/Objectives

The new research centre should be focused on strategic research for Australian tourism. A set of parameters should be established supporting a three year rolling research program and annual business plan, while allowing scope for attention to short term critical issues.

The initial focus of the new centre would include research to:

- inform and guide policy development;
- inform the development and uptake of better business practices;
- support destination decision making;
- adapt and mitigate climate change/variability impacts; and
- model impacts of future tourism scenarios.

It should have a clearly defined strategic role as part of the overall Australian tourism research framework, within the National Long-Term Tourism Strategy (RET, 2009).

Integration with other research across the framework will be achieved via regular individual meetings, and participation in a national tourism research committee (or similar) to share plans and activities for all tourism research and to foster a collaborative approach by all research providers.

### 6. Funding

It is proposed that the new research centre **not** have a membership/partnership structure with annual fees from members/partners. Experience has shown that this structure does not work effectively.

Tourism's contribution to the Australian economy needs to be recognised and a decision taken to use Commonwealth funds to prevent a market failure and to underpin scientific and strategic research to improve innovation and competitiveness for tourism enterprises and to deliver increased economic, social and environmental benefits to urban and regional communities around Australia.

The Commonwealth would provide a base level of funding sufficient to operate the centre and to undertake the agreed research program (together with any other funds from company owners). It is estimated that the minimum Commonwealth funding should be $6 million per year, with supplementary funding from state governments and industry for partnership projects. The Commonwealth funding could be provided from and tied to, tourism-related taxes and levies.

### 7. Partners

It is proposed that industry associations and state industry councils be invited to become partners in the new research centre and that their involvement would include:

- providing guidance into the development of the research plans and program design;
- distributing research findings to their members/stakeholders through communications, workshops and training; and
- distributing tools that have been developed from research to their members/stakeholders and encourage, and where possible facilitate, up-take.

Industry partners would commit to support the centre, to have input into centre activities and to promote and distribute centre knowledge, reports and tools.

State and regional networks similar to those established by STCRC should be maintained as consultative frameworks for research planning and diffusion of research outputs.

The new centre would collaborate with both national and international industry and academic bodies as necessary to achieve world-class research outcomes for Australia.

### 8. Resources

The new centre should operate from commercial office premises. Provision of premises by a university or other body on an in-kind or 'reduced cost' basis could be considered where any expected ROI on the provision of the premises did not impact on the ability of the Centre to undertake its work without compromise.

It is proposed that it would have a management team of CEO, Director of Research, and up to two additional management positions responsible for partnerships, communications and extension, and corporate services. It is estimated that a staff of up to eight, including an economist and two economic modellers, would be sufficient to operate the centre.

It is proposed that an economic research, analysis and modelling capacity, similar to that developed by the STCRC, would be incorporated into the new centre and be able to provide economic services to individual projects and to provide regular economic reports to industry and government.

**Note:** This paper deals primarily with the new research centre having a primary role of research, including diffusion activities. There is the potential to develop a more substantial new product development role to be included in any new research centre. This has previously been discussed by industry groups. The addition of this role would provide a true R&D capacity (including attracting development grant funds) – a 'one-stop-shop' concept for Australian tourism. It is suggested however, that if there is support for this additional role, that it be considered more comprehensively once a new research centre is operational and has established itself.

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