



SUBMISSION ON THE
TOURISM ACTION PLAN ON CLIMATE CHANGE

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Introduction

Environmental assets are the foundation of Australia's tourism sector.

Australia is the only developed country included among the 12 nations of the world classed as 'mega-diverse' in relation to our biodiversity. In fact, over 80 per cent of our plants and animals are endemic.

Australia's Great Barrier Reef, the largest coral reef eco-system in the world, houses over 1500 species of fish and over 400 species of coral alone.

Kakadu National Park, one of the few world heritage sites included for both its outstanding cultural and natural values, contains more than 60 species of mammals, 289 species of birds and 132 reptile species.

Changes in Australia's climate are unavoidable, presenting a significant threat to our biodiversity.

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) projects increased average surface temperatures for Australia by 2020 at:

- 0.1°C and 1.0°C for regions within 400kms of the coast; and
- 0.2°C and 1.3°C for regions further inland.

This is an alarming projection given that the adaptive capacity of our biodiversity is limited beyond 1.0°C.¹ Evidence of observed change in Australia's flora and fauna as well as projected loss of our biodiversity is outlined at Attachment 1.

Typically countries with plentiful natural resources will have a comparative advantage in products using those resources.² The vulnerability of the tourism sector will therefore have significant consequences for the Australian economy.

Over 94 per cent of TTF Members polled in April this year perceived climate change as a threat to their business.

Research by Australia's pre-eminent academics in tourism economics (TTF Members Dwyer, Forsyth and Spurr) demonstrates that a fall in tourism's contribution to economic activity due to climate change will result in a permanent cost to the Australian economy.

Attachment 2 outlines the economic impact of climate change on tourism as well as tourism's contribution to the economy, its regional importance and impacts on other industries.³

¹ CSIRO (2007) also refer IPCC AR4 which found that between 20 to 30 per cent of plant and animal species are likely to be at increased risk of extinction with global warming of only 1.5°C to 2.5°C. The UNWTO (2007 unpublished) note that endemic species however are highly sensitive to change and therefore more vulnerable.

² See Ricardo (1817) on the benefits of specialisation and international trade, and Crouch and Ritchie (2000) on the inherent connection between destination competitiveness and sustainability.

³ TTF Australia commissioned Dwyer, Forsyth and Spurr to provide this analysis.

TTF commends the Council of Australian Governments (COAG) for identifying tourism as one of the potential areas for action in its National Climate Change Adaptation Framework (NCCAF).

According to the Intergovernmental Panel on Climate Change Fourth Assessment Report (IPCC AR4) adaptation is essential in addressing near-term climate change impacts however unmitigated climate change will in the long term exceed the capacity of natural, managed and human systems to adapt.

The science is unequivocal - climate change impacts can be avoided, reduced or delayed by mitigation.

TTF Australia therefore recommends COAG adopt a portfolio of adaptation and mitigation measures to diminish the risks associated with climate change.

There is bi-partisan support for a greenhouse gas emissions (GGEs) target in Australia⁴ but dispute as to its magnitude and timing remains. To date the evidence suggests that the benefits of strong and early action far outweigh the economic costs of inaction (Stern 2007). A report by the Australian Business Roundtable on Climate Change for example, found delaying action to 2022 will result in lower real GDP growth by an average of 0.2 per cent per annum through to 2050.

TTF Australia encourages the Australian Government to set a GGE target. This should be complemented by a package of support to assist tourism's transition to operating under an Emissions Trading Scheme (ETS).

Even if Australia sets a target to limit GGEs, our action alone won't stop global warming.

Australia is ranked 16th in terms of global GGEs and our GGEs growth for the period 1990 to 2000 was in line with the global average (according to the World Resources Institute). National Greenhouse Accounts released in May 2007 stated Australia's GGEs in 2005 were 559 million tonnes, accounting for about 1.5 per cent of the world's total emissions. Australia's main GGEs contributors included Energy (50%), Agriculture (16%) and Transport (14%). Domestic aviation only accounted for 0.8 per cent of Australia's total emissions.

Action by the Australian Government to reduce GGEs is therefore critical both at home and abroad.

TTF Australia also recommends the following areas as key priorities for the Tourism Action Plan on Climate Change:

1. Integrated whole-of-government approach under the National Climate Change Adaptation Framework (NCCAF);
2. Strategies to address critical knowledge gaps; and
3. No regret measures.

⁴ See the Prime Minister's Task Group on Emissions Trading (2007) and Garrett (3 Feb 2007).

Integrated whole-of-government approach

TTF Australia supports the need to 'build understanding and adaptive capacity' as a key priority of the NCCAF.

Several strategies under this priority area have been recommended with decision-makers, sectors and end-users in mind.⁵ Given the vulnerability of tourism and its economic impact, it is important that our sector is given special consideration in the development of these strategies.⁶

TTF Australia recommends the Australian Government, in partnership with State Governments monitor the development of these strategies, ensures tourism is appropriately considered, and in doing so, avoids any potential for duplication in the development of tourism's action plan.⁷

This principle should also apply to the NCCAF's other key priority of 'reducing sectoral and regional vulnerability'. Several sectors, other than tourism, have been identified under this priority area and will be developing their own actions.⁸ Since these sectors indirectly impact tourism, our sector must be involved in their development. Examples of the inter-relationships between tourism and these other sectors are provided at Attachment 3.

TTF Australia therefore recommends the establishment of a formal process of engagement between the Tourism Ministers' Council (TMC) and:

- Natural Resource Management Ministerial Council (NRMMC);
- Australian Health Ministers' Conference; and
- Local Government and Planning Ministers' Council.

Importantly, information should flow backwards and forwards between sectoral plans.

The Australian Government and TTF Australia's Natural Tourism Partnerships (NTP) Action Plan is a good example of how the tourism sector can add value to actions for biodiversity.

TTF Australia's NTP project also highlights that it is possible for different levels and different disciplines of government to come together to achieve a positive and productive outcome.

⁵ These strategies include establishing an Australian centre for climate change adaptation, improving regional climate change and vulnerability information, integrating regional vulnerability assessments and disseminating communication, information and tools.

⁶ For example, analysis of social/economic data and trends (see NCCAF 1.2a), social/economic costs of regional climate change (see NCCAF 1.2b) as well as proposed integrated assessments (see NCCAF 1.3a) should take into account impacts on tourism.

⁷ For example, if a national 'one-stop-shop' website on climate change is established, the TMC should consider its implications for the development of a tourism specific web-site on climate change, as has been suggested.

⁸ Sectors other than tourism identified in the NCCAF include water resources, coastal regions, biodiversity, agriculture, fishing and forestry, human health, settlements, infrastructure and planning and natural disaster management.

Strategies to address critical knowledge gaps

Minister, on 10 July you addressed TTF Australia's Climate Change Summit stating that the focus of tourism's action plan on climate change will be on research to support industry.

Tourism research now more than ever, will be essential for the long run sustainability of the Australian tourism sector.

TTF Australia strongly supports the need for further research into climate change and tourism and recommends further research and development in the following areas:

- Estimating tourism's GGEs;
- Understanding the affect of climate change on visitor preferences, and its impact on Australian tourism;
- Evaluating the impacts of climate change policy on Australian tourism;
- Determining the vulnerability of Australia as a tourist destination and developing adaptation strategies; and
- Identifying best practice mitigation strategies, technologies and offset schemes.

Attachment 4 outlines TTF Australia's suggested areas for further research and development on tourism and climate change. There are however several issues which require immediate action. TTF Australia, along with our industry and university members, is well placed to assist government in delivering outcomes on the following issues:

- Estimating tourism's GGEs.

Tourism related activities were not included in the Kyoto protocol and are therefore not part of Australia's national greenhouse gas inventory.

A first step in developing climate change strategies for the Australian tourism sector must be the estimation of our sector's GGEs.

Without an understanding our own GGEs the tourism sector cannot set targets to reduce those emissions, nor can we strive for world's best practice and position ourselves internationally as being environmentally conscious.

Australia's tourism sector is already 'behind the eight ball'.

New Zealand for example, has positioned itself as '100% Pure' and their research on tourism and climate change is well advanced of ours. Research by Becken (2003) for example found, in relation to energy consumption, tourism contributes about 6 per cent of national CO₂ emissions in New Zealand. Main contributors were road transport (43%), air (42%), accommodation (22%), sea (2%), and rail (1%).

The New Zealand Government's response to this consumption has included an energy efficiency analysis, a three-year funded programme on tourist travel patterns and energy use, energy consumption baseline performance standards and carbon off-setting schemes.

Ballpark estimates by the UNWTO (2007) suggest tourism contributes between 5 and 7 per cent of global GGEs with aviation a key emissions source (especially when non-CO2 emissions are included).

Evidence to date therefore suggests a focus on aviation GGEs is needed to better understand tourism's GGE footprint.

- Analysis of the Australian aviation system's GGEs.

Like tourism, international aviation is currently not considered in the Kyoto protocol and national greenhouse gas inventories. Becken (2002) considers that a country's GGEs could therefore be under-estimated by between 5 and 10 per cent.

There is a knowledge gap in the area of detailed carbon foot printing of the aviation system. In fact, computations on the CO2 emissions of the sector in Australia have been based on generic fuel use data.

DOTARS is now working on developing computational tools aimed at getting a better understanding of the detailed structure of Australia's aviation carbon footprint.

Prima facie evidence from the DOTARS model suggests that despite frequencies on the SYD-MEL route being the third largest in the world, emissions are higher for international flights from SYD alone. The findings could debunk current views that take-off and landings are the greater cause of GGEs in favour of aircraft weight.

The development of these computational tools will be crucial in developing tourism and aviation policy decisions and should therefore be supported.

- Determination of an appropriate Radiative Forcing Index.

The Stern Review (2007) found aviation accounts for approximately 1.6 per cent of global CO2 emissions (Stern refers to WRI 2005). However, the total warming impact of aviation's emissions, including non-carbon based emissions, is about 3 per cent (in 2005). The IPCC AR4 refers to this total warming impact as radiative forcing.

The Australian Greenhouse Office is currently considering the inclusion of a Radiative Forcing Index (RFI) in its GGEs calculator.

In Australia alone there are several carbon offset programs offered to consumers by various tourism and transport organisations. Many, if not all of these schemes, including the AGO's Greenhouse Friendly program, do not use an RFI.

It follows that by including an RFI in the AGO's calculator, consumers using that calculator to estimate their GGEs will get a different result compared to other offset schemes.

The consequences of the AGO including an RFI in its calculator will therefore impact consumers' confidence in these other offset schemes and this may have consequences for travel demand.

TTF Australia has recently written to the AGO on the need to engage industry in the development of an RFI. TTF Australia believes the CSIRO would be best placed to develop an RFI issues paper on this important matter.

- Understanding the affect of climate change on visitor preferences, and its impact on Australian tourism.

L.E.K. Consulting estimate that each tourist is responsible for between 3 and 12 tonnes of carbon dioxide when travelling between Australia and our major markets. The costs of abatement will therefore have flow-on affects on air travel demand. Understanding the price sensitivity of air passengers is therefore important.⁹

However, the UNWTO (2007) observes that the 'perception of transport, and in particular air travel, in relation to its carbon footprint is possibly more important than tourists' response to price changes'.

Although aviation only accounts for about 2 per cent of emissions, it accounts for about 90 per cent of the media coverage on global warming (responsibletravel.com).

Consumer perceptions as a result of this media attention on aviation, and particularly long-haul air travel, are changing. A three day protest at London Heathrow Airport for example is planned in August to raise awareness of the need to fly less.¹⁰ The risk of tourists boycotting long haul travel therefore warrants further market based research and the development of immediate 'no regret' type strategies.

TTF Australia and our Membership would be happy to support a joint project with Tourism Australia on this important matter.¹¹

⁹ Typically the price sensitivity of leisure travellers is greater than business travellers. Airlines could therefore allocate greater costs to business rather than leisure travellers in response to mitigation policies for example. However, there is limited capacity for low cost carriers to price discriminate. The Australian Competition Tribunal recently made a determination in this regard in relation to Virgin Blue and its application seeking to declare the airside service at Sydney Airport.

¹⁰ The protest is being led by The Camp for Climate Action.

¹¹ Aviation action on climate change to date is outlined at Attachment 7.

Threats to tourism's research capacity

The NCCAF intends to guide actions on climate change over the next five to seven years. TTF Australia anticipates several developments over that period which threaten the tourism sector's research capacity:

- Sustainable Tourism CRC funding runs out in 2010; and
- The Australian Government will have implemented its Research Quality Framework (RQF).

Under the RQF, Tourism will fall under the 'economics, commerce, management and information management' RQF assessment panel, based on the Australian Bureau of Statistics' Research Fields, Courses and Disciplines (RFCD) classification. This means tourism will be competing against traditional, well established fields.

TTF Australia recently wrote to The Hon Julie Bishop MP Minister for Education Science and Training in support of several tourism industry and university nominations (including TTF Australia's National Manager Dr Mark Dimech) to the Australian Government's RQF assessment panels. This representation will be critical in ensuring tourism research is appropriately assessed and funded in the future.

TTF Australia has partnered with our universities on several research grant applications at federal and state levels.

TTF Australia and the Queensland University of Technology for example, have been successful in winning over \$880K through an Australian Research Council (ARC) linkage grant on airport development in 2006.

Historically, TTF Australia has supported the establishment of a Tourism and Transport Research Centre. TTF's industry partners have committed to investing over \$200K over four years in support of the Centre, not including contributions from our university membership.

Our university Members include the leading Australian tourism departments on climate change, economics and social science.

TTF Australia is therefore well placed to work with the Australian Government, the Department of Industry, Tourism and Resources (ITR) and state and local government agencies in delivering tourism and climate change research.¹²

TTF Australia therefore recommends consideration of alternative research funding streams and mechanisms to support tourism's research capacity.

¹² TTF's Membership embraces the 200 most prestigious corporations and institutions in the Australian transport, property, tourism and infrastructure sectors as well as the major universities and tourism and hospitality schools in Australia, including University of Queensland, University of New South Wales, University of Technology Sydney, La Trobe University, Queensland University of Technology, Griffith University and partnerships with Monash University and Victoria University. TTF Australia also has representation on Monash University Tourism Advisory Board.

No regret measures

TTF Australia recommends that the tourism action plan on climate change include no regret measures.¹³ No regret measures undertaken by TTF Australia to date are provided at Attachment 5.

TTF Australia considers, first and foremost, measures to preserve Australia's ecological diversity to be a top priority for the tourism action plan. Attachment 6 provides a case in support of preserving our ecological diversity and the need to expand the National Reserve System.

No regret measures to preserve ecological diversity include:

- Increasing Australian Government funding to the National Reserve System (NRS) by \$250 million over 5 years, to reach the 80% target, in the next round of National Heritage Trust funding.
- State and Territory Governments to provide \$125 million over 5 years to the NRS to match the Federal Government contribution on a 2:1 basis.
- Targeting this expansion of protected areas through the NRS to connect existing parks and protected areas, create migration corridors for wildlife to adapt to climate change.
- Undertaking re-growth of native vegetation, as a secure carbon offset, on land permanently protected in the NRS.
- Increasing funding to Protected Areas Management Agencies (PAMAs) to both acquire and manage our National Reserve System through:
 - funding a feasibility study into the development of an Australian Tourism Climate Change Scheme which would direct voluntary contributions from visitors and industry to PAMAs for native vegetation re-growth carbon offsets and acquisition of new protected areas for climate change adaptation;
 - increased direct budget funding from Federal and State Governments to PAMAs to manage the expanded NRS;
 - greater application of park visitor use fees which must be fully hypothecated to PAMAs; and
 - use of private sector funding, and subsequent revenue streams to PAMAs, to cover the cost of park visitor management and infrastructure through Natural Tourism Partnerships.

¹³ No regret measures to climate change are consistent with a precautionary principal type approach (i.e. where there are threats or serious irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation, see Commonwealth of Australia 1992).

Other no regret measures include:

Education of tourists and tourism operators

- Develop an education campaign promoting environmentally responsible business practices for both domestic and international tourists as well as operators.
- Raise awareness and educate tourists on 'responsible tourism'.¹⁴
- Develop a best practice guide on 'responsible tourism' for businesses across all sectors.

Marketing

- Develop and implement a marketing strategy for Australia, positioning the country as environmentally conscious and highlight Australia's nature based experiences.
- Build and sustain co-operative alliances with local and international industry associations, environmental groups and scientific and educational institutions, to develop better communication and joint initiatives.¹⁵
- Develop a tourism and aviation strategy on climate change. The National Tourism and Aviation Advisory Committee (NTAAC) co-chaired by DITR and DOTARS, and of which TTF Australia is a Member, could assist the TMC in delivering this.
- Develop a unified brand for the proposed 'Australian Tourism Climate Change Scheme' to be used in the marketing of Australia as a tourism destination.¹⁶

Other

- Develop incentives for the Australian tourism sector to improve GGE performance.
- 'Green loans' to facilitate investment in technology to help tourism and transport sectors reduce and adapt to climate change.
- Provide dispensation for tourism organisations currently outside an Emissions Trading Scheme to be included.¹⁷
- Increase dissemination of information on practical measures for emissions reduction and mitigation strategies.
- Develop regulated accreditation for carbon offset schemes.

¹⁴ Responsible tourism takes into consideration triple bottom line issues including environment, social/cultural and economic.

¹⁵ Through representation on the UNTWO, TTF has significant capacity to coordinate this.

¹⁶ Ensure the proposed scheme is targeted at inbound tourists enabling them to a) calculate the offsets necessary for a carbon neutral holiday in Australia; and b) pay into a government fund, on a voluntary basis, to offset the carbon cost of their holiday.

¹⁷ For example, establishing strategic alliances across hotel chains.

Summary of TTF Australia recommendations

- COAG adopt a portfolio of adaptation and mitigation measures to diminish the risks associated with climate change.
- TMC to recommend the Australian Government set a GGE target, complemented by a package of support to assist tourism's transition to operating under an ETS.
- Action by the Australian Government to reduce GGEs both at home and abroad.
- TMC monitor the development of NCCAF strategies, ensuring tourism is appropriately considered, and in doing so, avoid any potential for duplication in the development of tourism's action plan.
- Establish a formal process of engagement between the TMC and:
 - Natural Resource Management Ministerial Council;
 - Australian Health Ministers' Conference; and
 - Local Government and Planning Ministers' Council.
- Note the Australian Government and TTF Australia's Natural Tourism Partnerships Action Plan as a good example of how the tourism sector can add value to actions for biodiversity.
- Further research and development in:
 - Estimating tourism's GGEs;
 - Understanding the affect of climate change on visitor preferences, and its impact on Australian tourism;
 - Evaluating the impacts of climate change policy on Australian tourism;
 - Determining the vulnerability of Australia as a tourist destination and developing adaptation strategies; and
 - Identifying best practice mitigation strategies and technologies.
- Action immediate work, in partnership with TTF Australia, into estimating tourism's GGEs, analysis of the Australian aviation system's GGEs, determination of an appropriate RFI, and visitor preferences (including market based research and the development of associated strategies with Tourism Australia).
- TMC to consider alternative research funding streams and mechanisms to support tourism's research capacity.
- Note TTF Australia is well placed to work with the Australian Government, the Department of Industry, Tourism and Resources (DITR) and state and local government agencies in delivering tourism and climate change research.
- Include no regret measures into the tourism action plan on climate change in the areas of ecological diversity, education of tourists and tourism operators, marketing, and a range of other measures covering incentives, ETS, information dissemination and regulated accreditation.

ATTACHMENT 1

Examples of observed changes – Australia¹⁸

Vegetation

- Increased woody biomass, partial link to increased CO₂.
- Encroachment by Snow Gum into subalpine grasslands at higher elevations.
- Increased forest coverage and expansion of rain forest, at expense of eucalypt forest and grasslands, linked to rainfall changes.
- Landward transgression of mangroves (possibly related to sea level rise and altered rainfall patterns).
- Shifts in flowering dates of Australian plants (over 22 years, 24 species mean advancement of 13.6 days, remaining species mean flowering 20.8 days later).
- Changes in plant communities (e.g. native creeping herb out competing and overgrowing dominant plant species, cushion plant - Heard Island, Australia's sub-Antarctic).

Birds

- Range shifts. Arid and semiarid species moving towards more temperate regions; poleward shifts; southern range expansions.
- Reduced reproductive success
 - Blue-breasted Fairy Wren related to reduced rainfall in southwest WA.
 - Wedge-tailed shearwaters (GBR) associated with high Sea surface temperatures.
- Southern, high-latitude, cool-water seabirds extending breeding seasons.
- Changes in arrival and departure dates of birds in semi-arid regions (WA), in southwest WA, and south-eastern Australia – overall trend toward earlier arrivals and departures. Also changes in timing of breeding.
- Population increases in black-browed albatross and king penguin (Heard Island).

¹⁸ Australian Government - Bureau of Meteorology, 5 June 2007

Mammals

- Poleward range shifts in Grey-headed and Black Flying Foxes.
- Increased penetration of feral mammals into alpine and subalpine areas. Prolonged winter presence of browsing macropods – attributed to reduced snow cover.
- Population increase in fur seals – Heard Island.
- Rats moving into upland herb fields and breeding more often – Macquarie Island.

Potential impacts - ecosystems¹⁹

- Significant loss of biodiversity is projected to occur by 2020 in some ecologically-rich sites, including the Great Barrier Reef and Queensland Wet Tropics.
 - By 2020, bleaching and damage to the Great Barrier Reef equivalent to that in 1998 and 2002 every 2 years.
 - Annual bleaching by 2030-2050.
- Other sites at risk include Kakadu wetlands, south-west Australia, alpine areas and sub-Antarctic islands.
 - By 2050, 80% loss of freshwater wetlands in Kakadu for a 30 cm sea level rise.

¹⁹ CSIRO - National Tourism and Transport Climate Change Summit, 10 July 2007

ATTACHMENT 2

Tourism's contribution to the Australian economy

Tourism injects over \$80 bn per annum in additional consumption into the Australian economy. This contributes \$38 bn, or 4%, of Australia's 2005-06 Gross Domestic Product (ABS 2007).

The tourism industry generated \$20.5 bn in export earnings in 2005-06 through sales of goods and services to international visitors or 10.5% of Australia's total commodity exports. This places tourism as second only to coal (ABS 2007). The federal government Tourism Forecasting Committee forecasts for the decade 2006 to 2016 are for inbound visitor arrivals to grow at 5 per cent annum generating an increase in the economic value of inbound tourism of \$13 bn. TRA projections are that the total contribution of tourism (domestic plus inbound) to the Australian economy will exceed \$100 bn in real terms by 2016. (TRA).

Tourism adds critical diversification to Australia's balance of payments. When commodity prices fall this places pressure on the exchange rate making Australia more attractive to international visitors and boosting A\$ revenues from inbound tourism. It thus has a strong counter cyclical effect to swings in Australia's mineral exports.

Australia's tourism industry contributes more gross value added to the economy than all of Agriculture, forestry and fishing (ABS 2007).

The tourism industry generated 465,000 jobs in 2005-06 or 4.6% of all Australian jobs (ABS 2007).

Tourism's regional contribution

Substantial as these national figures appear, they greatly understate the importance of tourism to many regional areas of Australia. Tourism is responsible for almost 7% of Australia's total regional employment (Australian Government 2004). It generates almost 13% of total employment in the Northern Territory and over 8% of employment in Tasmania (STCRC 2007).

Tourism underpins employment growth in many regions of Australia, many of which would otherwise be in decline. It accounts for between 16 and 20% of total employment in Queensland regions such as the Sunshine Coast, the Gold Coast and Tropical North Queensland (Queensland Treasury 2002). For individual regions such as Peterman in the Northern Territory and Snowy River in New South Wales this rises 46% and 42% respectively and to 55% of total jobs for Lord Howe Island (TTF).

Typically these regions are likely to prove highly vulnerable to climate change induced impacts.

Impacts on other industries

Many Australian industries derive a significant proportion of their economic activity from tourism. When visitors come to a destination they purchase not only their specifically tourism related goods and services there, but also most of their daily living requirements. Tourism demand is thus spread across almost the entire economy. Examples include Accommodation services (94.7%), Long distance passenger transportation (84.0%), Takeaway and restaurant meals (27.1%), Alcoholic and other beverages (11.9%), Fuel (petrol and diesel) (13.7%), and Recreational, cultural and sport services (11.3%). But tourism induced demand spreads even more widely than this throughout the manufacturing, financial services, communications and services sectors of the economy. 15% of tourism expenditure is injected directly into the Retail sector of the economy (ABS 2007).

Tourism is a major contributor to small business in Australia. It comprises over 350,000 enterprises, ninety per cent of which employ fewer than 20 staff.

Climate change and tourism's economic impact

Climate change will directly impact on the Australian tourism industry, making many of its attractions less viable, and climate change mitigation policies, such as carbon taxes and emissions trading schemes will negatively impact on tourism, making the Australian tourism product more costly and less internationally competitive. Higher air fares are likely to reduce inbound more than outbound travel, particularly if Australia's destination competitors do not apply similar policies.

All in all, there could be a significant change in the balance between inbound and outbound tourism, with inbound expenditure falling relative to outbound. This would mean a fall in the net contribution of international tourism to the economy.

Over time, if tourism contracts, other sectors in the economy will expand to at least partially replace it. However, this will be negative for the economy, as recent research has documented how tourism is positive for the economy. Research by the Centre for Tourism Economics and Policy Research of the Sustainable Tourism CRC has estimated the impact on the economy of changes in tourism expenditure.

These modeling simulations are conservative, and allow for negative as well as positive effects on the economy from extra tourism expenditure. When tourism expenditure increases, it stimulates some industries but also crowds out other industries, such as competing export industries.

However, even when the negative impacts of tourism expenditure are taken into account, the positive impact of tourism on the economy is significant.

Some examples of simulations using the model can illustrate the point:

- An additional 10% in inbound international tourism in 2000-01 was estimated to increase tourism expenditure by \$1710m, and after taking into account crowding out effects on other export industries, the net impact on GDP was an increase in \$718m (Dwyer, Forsyth, Spurr and Ho, 2003).
- Studies of the tourism yield from particular markets show a similar picture. Thus an additional visitor from Hong Kong would increase inbound tourism expenditure by \$4325 and add \$637 to GDP, while an extra visitor from Malaysia would add \$3282 to expenditure and \$560 to GDP (Dwyer, Forsyth and Ho, 2004).
- Negative shocks like SARS impact on the economy through tourism. The short crisis created by SARS reduced inbound tourism expenditure by \$977m and this resulted in a fall in GDP of \$109m, after positive effects on other industries through the reduced exchange rate were factored in (Dwyer, Forsyth, Spurr and Ho, 2006).

ATTACHMENT 3

Inter-relationships between tourism and actions of other vulnerable sectors in the NCCAF

Extreme events

Extreme events for example, pose a threat to tourism infrastructure and investment. According to a survey conducted by the Carbon Disclosure Project (CDP)²⁰ potential risks for the banking sector include the impacts of climate change on key sectors such as agriculture and tourism. Improved building standards imply the cost of insurance should decrease, as insurers risk-based premiums are inversely correlated to company risk profiles. The tourism sector therefore has a significant interest in the analysis and review of codes, standards and guides to increase resilience to climate change proposed under the settlement, infrastructure and planning areas of action (see NCCAF 2.7) as well as actions proposed under natural disaster management (see NCCAF 2.8).²¹

Coastal regions

Given the concentration of tourism activities and infrastructure on Australia's coastal zones the National assessment of Australia's coastal vulnerability by the Natural Resource Management Ministerial Council (NRMMC) proposed in the NCCAF should incorporate the tourism sector (see NCCAF 2.2a).²²

Biodiversity

The tourism sector has a significant interest in all areas of action proposed for biodiversity (NCCAF 2.3a-e) and as discussed, the Natural Tourism Partnerships Action Plan can also make a positive contribution.

Forestry

The proposed assessment of climate change and its social and economic impact on forests and forestry should incorporate impacts for the tourism sector (NCCAF 2.4e).

Human health

The development and implementation of a National Action Plan on Climate Change and Health should consider the tourism sector and implications for mass gatherings (see NCCAF 2.5a).

The development and implementation of an action plan to assess and develop strategies to address the impact of climate change on sporting and recreational activities by the Sport and Recreation Ministers' Council should also consider the tourism sector (NCCAF2.5d).

²⁰ CDP is a coalition of 284 signatory global investors with more than \$41 trillion in assets. The CDP advises on risks and opportunities for more than 2000 companies globally, including the world's largest publicly-owned companies (FT500, ASX 100 and NZ50). According to CDP awareness of the risks and opportunities posed by climate change has risen dramatically among investors and companies they own.

²¹ More broadly, the tourism sector has a significant interest in all actions proposed for settlements, infrastructure and planning particularly as it affects transport infrastructure such as airports, roads, rail and ports (see NCCAF 2.7a-e).

²² This review will include an assessment of the vulnerability of infrastructure, settlements and environments of significance and should include tourism.

ATTACHMENT 4

Tourism and climate change research and development

Estimating tourism's greenhouse gas emissions

- Model the GGE profile of the tourism sector.
- Model the tourism GGE profile of different tourist types and varying tourist numbers.
- Undertake tourism and travel sector and tourist type specific bottom up analysis to understand detailed emission profiles and potentials for reducing GGE emissions.
- Model future GGE profiles assuming business as usual and scenarios for mitigation.

Understanding the affect of climate change on visitor preferences, and its impact on Australian tourism

- Determine visitor behavioural response to variations in climate, potential climate change induced personal risk factors, and environmental, social and ethical perceptions at destinations.
- Understand how travel intentions are influenced by changes in climate, including perceived associated ethical issues such as flying to long haul destinations.
- Establish the potential change in business tourism demand resulting from business response to climate change.
- Model tourist dispersion to assist predictions of visitor behaviour changes to destinations, including shifts in destinations and changes between inbound and outbound travel.

Evaluating the impacts of climate change policy on Australian tourism

- Estimate the probable impacts on tourism from a range of possible policies to mitigate GGE production and adapt to global warming.
- Use economic modelling to forecast the economic impacts of potential GGE mitigation and global warming adaptation.

Determining the vulnerability of Australia as a tourist destination and developing adaptation strategies

- Develop a Tourism Comfort Index (TCI) to examine potential shifts in destination desirability.
- Identify those tourist destinations in Australia that are approaching their limit of climatic suitability for tourism and analyse future climatic conditions and risks for tourism.
- Undertake 5 integrated case studies on tourism destination adaptation to global warming scenarios. These studies will include Tropical North Queensland, Gold Coast, Australian Alps, Margaret River, and Gippsland Region.
- Build on the “Natural Tourism Partnerships Initiative” and examine strategies for adaptation of management of protected areas resulting from predicted climate change.

Mitigation strategies and technologies

- Map current practice in energy use and GGE production and provide benchmarks for GGE efficiency.
- Identify policy and program gaps and new initiatives that would assist the tourism sector in mitigating GGE.

ATTACHMENT 5

TTF Australia action to date – no regret measures

- Secured \$30K in funding from the NSW Sustainable Tourism CRC node for a scoping study on climate change and tourism (2006).
- Presented at the Federal Opposition's National Climate Change Summit in March 2007.
- Launched the Natural Tourism Partnerships Initiative (NTPI), July 2007.
- Held the National Tourism and Transport Climate Change Summit in Sydney in July 2007.
- Established the TTF Australia Climate Change Roundtable, with membership across tourism, transport and aviation. The Roundtable will develop industry-led strategies for climate change adaptation, develop and advocate effective policy frameworks and business practices, and provide a unified approach to climate change from our sectors.
- Presented at the STCRC Climate Change Workshop in Melbourne in July 2007.
- Tabled climate change as a key issue for the National Tourism Aviation Advisory Committee (NTAAC). TTF will present a discussion paper at the next NTAAC meeting in October 2007.
- Engaged the Australian Greenhouse Office on the issue of radiative forcing, July 2007.
- Raised awareness through print and electronic media, including an interview on ABC Radio National with Geraldine Doogue and Dr Mark Dimech, TTF Australia National Manager, alongside Brett Godfrey, CEO - Virgin Blue (TTF Australia Member) and Kerry Lorimer, Editor - Code Green, (Lonely Planet).
- Member of the National Australian Built Environment Rating System (NABERS) Hotel Technical Advisory Group represented by TTF National Manager, Mr Peter Staveley.

ATTACHMENT 6

Ecological diversity and nature-based tourism climate change measures

Australia's international competitiveness as a tourism destination is highly dependent on our unique natural landscapes and biodiversity. TTF considers measures to preserve Australia's ecological diversity to be a top priority for the Tourism Action Plan on Climate Change.

'Nature in Australia' is a key tourism experience in our international marketing of Brand Australia. In 2006 domestic and international nature-based tourists spent approximately \$23 billion during their travels in Australia. Of the 5.15 million international visitors to Australia in 2006, 3.4 million (66%) participated in nature-based tourism²³.

Australia's National Reserve System of National Parks, Marine Parks and other protected areas is a primary asset base for the branding, marketing and tourism product of the Australian tourism sector. National and State Parks attract more international visits per annum than: pubs & clubs, casinos, amusement & theme parks, wineries, performing arts or festivals & fairs. In 2006 National Parks and State Parks attracted 2.4 million international tourists (spending \$7.7 billion in their travels in Australia) and 10.5 million domestic tourists (spending \$6 billion)²⁴.

In a recent study of the international competitiveness of 124 tourism destination countries Australia ranked 13th overall. In natural tourism Australia had a competitive advantage (ranked 9th) on World Heritage listed sites such as the Great Barrier Reef and the Blue Mountains. However, Australia had a competitive disadvantage (ranked only 31st) on our national protected area system, well behind competitors such as New Zealand (9th) and the United States (10th)²⁵. Australia has a strong record in protecting our 'iconic' areas, but not our overall natural estate or biodiversity which is the foundation of our appeal as a nature-based tourism destination.

The negative impact of climate change on our eco-systems poses a significant risk to consumer perceptions of Australia, the subsequent effectiveness our tourism marketing and hence the quantum and economic value of tourism to Australia. More fundamentally, climate change poses a real risk to the value and very existence of our natural tourism product.

²³ TTF Australia, Natural Tourism Partnerships Action Plan: Creating effective public-private partnerships for natural tourism and conservation in Australian Parks, July 2007.

²⁴ Tourism Research Australia, International Visitor Survey (IVS) and National Visitor Survey (NVS), online data, 14 June 2007.

²⁵ World Economic Forum, The Travel & Tourism Competitiveness Report 2007, Geneva 2007

Preserving ecological diversity – expanding the National Reserve System

Reserving land and marine areas as national parks and protected areas in our National Reserve System (NRS) is one of the most cost effective methods of preserving ecological diversity from the threat of climate change.

TTF supports the current Federal, State and Territory Government's target of increasing the comprehensiveness of protected area coverage to 80% of Australia's ecological diversity by 2015 through the NRS²⁶. This expansion of protected areas should be targeted at connecting existing National Parks and protected areas to create migration corridors for our unique wildlife to adapt to climate change.

Expanding protected area coverage through the National Reserve System is also an effective climate change mitigation measure. Reserving land in protected areas eliminates the GGEs that would otherwise occur from alternate land use such as forestry and agriculture. Land repair through the re-growth of native vegetation, also provides a carbon trap permanently secured in the NRS.

To achieve the 80% ecological diversity target will require \$400 million in government funding for the NRS²⁷. With funding on a 2:1 basis from the Federal and State/Territory Governments, this requires a funding commitment from the Australian Government of \$50 million a year over 5 years.

The April 2007 Senate Committee Report, *Conserving Australia*, also supports additional funding for the NRS at Recommendation 17:

"12.103 The committee recommends that in the upcoming NHT3 funding round the Commonwealth significantly increase the funding allocation directed to the NRS Programme."

²⁶ National Resource Management Ministerial Council, *Directions for the National Reserve System*, 2004.

²⁷ Possingham, H et al, *Setting Biodiversity Targets*, 2002. (Expert submission to the Prime Minister's Science, Engineering and Innovation Council.)

ATTACHMENT 7

Aviation and climate change actions

- Aviation has come a long way - today's aircraft are 70% more fuel efficient than 40 years ago.
- Under the Advisory Council for Aerospace Research in Europe (ACARE), industry aims to halve CO2 emissions by 2020 through engine and airframe design as well as air traffic management.
- Rolls Royce is a key partner of ACARE and invests over \$1.6B per annum in research and development aimed at improving environmental performance.
- The IPCC estimates a 12 per cent inefficiency in air traffic management. The Hon. Mark Vaile Deputy Prime Minister and Minister for Transport and Regional Services announced earlier this year initiatives being implemented by Air Services Australia (such as flex tracks which uses wind to improve aircraft fuel efficiency).
- Airlines like Virgin Blue have introduced carbon offset schemes as well as committing to offset the travel of their own staff and crew (\$2.5M).
- Air New Zealand and Qantas are expected to trial gliding descent techniques at Auckland Airport.
- Qantas aims to reduce emissions per passenger by up to 20 per cent with its new aircraft.
 - The A380 will use about 3 litres of fuel per passenger per 100kms which is comparable to an efficient car.
 - The 787 will be 20% more efficient than smaller sized aircraft.
 - Rolls Royce Trent engines, like the Trent 1000 (for the B787) will be 15 per cent more fuel efficient than the Trent 800 series (on the B777).
- Qatar Airways plans to be the first airline to fuel its aircraft with natural gas (and is undertaking a joint venture with Shell to develop this).
- Virgin Atlantic is a member of the Sustainable Aviation Group and intends to invest about \$2.4B in biofuels.

Bibliography

1. Australian Bureau of Statistics (2007) 'Tourism Satellite Account 2005-06' Australian Bureau of Statistics Australian National Accounts, Cat 5249.0, Canberra, May.
2. Australian Government, Bureau of Meteorology (2007) 'Climate Change and Australia's Natural Systems', Sustainable Tourism Cooperative Research Centre Climate Change Workshop, 5 July, Melbourne.
3. Commonwealth of Australia (1992) 'National Strategy for Ecological Sustainable Development' (online)
<http://www.environment.gov.au/esd/national/nse/d/index.html>
4. Commonwealth of Australia (2003) 'Tourism White Paper: A Medium to Long Term Strategy for Tourism', Department of Industry, Tourism and Resources, Canberra, March.
5. Commonwealth of Australia (2004) 'Directions for the National Reserve System: A Partnership Approach', National Resource Management Ministerial Council, Department of Environment and Water Resources, February, Canberra.
6. Commonwealth of Australia (2007) 'National Climate Change Adaptation Framework'.
7. Commonwealth of Australia (2007) 'Report of the Task Group on Emissions Trading', The Department of Prime Minister and Cabinet, Canberra.
8. CSIRO (2007) 'Climate change in Australia: evidence, future impacts and solutions', TTF Australia National Tourism and Transport Climate Change Summit, Sydney, 10 July 2007.
9. Dwyer, L, Forsyth, P. Spurr R. Ho, T.V. (2003) 'Tourism's Contribution to a State Economy: A multiregional general equilibrium analysis', Tourism Economics, 9, (4), pp. 431-448.
10. Dwyer, L. Forsyth, P. Ho, T.V. (2004) 'New Measures of Economy Wide Tourism Yield using CGE Models', Sustainable Tourism CRC Industry Workshop on Tourism Yield, Sydney, December.
11. Dwyer, L. Forsyth, P. Spurr, R. Ho, T.V. (2006) 'Economic effects of the world tourism crisis in Australia', Tourism Economics, 12, (2), pp. 171-188.
12. Garret, P. (2007) 'UN Climate Change Report – 'It's Unequivocal'', Media Release, 3 February.

13. IPCC, 2007: Summary for Policymakers. In: Climate Change 2007: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
14. OESR (2002) 'The Contribution of International and Domestic Visitor Expenditure to the Queensland Regional Economies 1998-99', Office of Economic and Statistical Research, Queensland Government Treasury, Brisbane, May.
15. Possingham, H. Ryan, S. Baxter, J and S Morton. (2002) 'Setting Biodiversity Priorities', Submission to the Prime Minister's Science, Engineering and Innovation Council, Department of Education Science and Training, Canberra.
16. Ricardo, D. (1817) 'On the principles of political economy and taxation'.
17. Ritchie, J.R. Crouch, G.I. (2000) 'The competitive destination: A sustainability perspective', *Tourism Management*, 21, (1), pp. 1-7.
18. STCRC (2007) 'Tourism Satellite Account: Northern Territory 2003-04' and 'Tourism Satellite Account: Tasmania 2003-04', Sustainable Tourism Cooperative Research Centre, Griffith University Queensland, March.
19. Tourism Research Australia (2007) 'Forecast 2007 Issue 1', Tourism Forecasting Committee, Tourism Research Australia, Canberra, June.
20. Tourism Research Australia (2007) 'International Visitor Survey (IVS) and National Visitor Survey (NVS)' (online), 14 June.
21. TTF Australia (2004, 2006) 'TTF Australia National Tourism Employment Atlas 2004', and 'NSW Employment Atlas 2006', Tourism and Transport Forum, Australia, Sydney.
22. TTF Australia (2007) 'Natural Tourism Partnerships Action Plan: Creating effective public-private partnerships for natural tourism and conservation in Australian Parks', Sydney, July.
23. UNWTO (2007) Scott, D. Amelung, B. Becken, S. Ceron, JP. Dubious, G. Gossling, P. Simpson, M. 'Climate Change and Tourism: Impacts, Adaptation and Mitigation', World Tourism Organisation: Madrid and UNEP: Paris.
24. World Economic Forum (2007) 'The Travel & Tourism Competitiveness Report', Geneva.