
Carbon Offsetting & Mitigation by Queensland Tourism Enterprises

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Carbon Mitigation in Tourism

AIM

- Review carbon offsetting & mitigation measures implemented by Qld tourism enterprises (i.e. hotels, tour operators, attractions, transport) in response to climate change and sustainability



Photo courtesy of Tourism Queensland

Objectives

- Evaluate what carbon offset measures (e.g. tree planting, renewable energy) have been adopted by different Qld tourism enterprises & why
- Examine the influence of eco-certification schemes & government sustainability programs (e.g. ecobiz) in mitigation & carbon offsetting
- Review the role of Tourism Queensland & tourism industry associations in promoting sustainability, mitigation & carbon offsetting
- Assess environmental motives of Qld tourism owner-operators for carbon offsetting

Justification of Research

“Carbon intensity of travel a major contingent financial and regulatory risk for the tourism sector”

“Carbon offsetting and mitigation measures should help tourism internalise future carbon costs and enable competitive differentiation at the enterprise level”

Professor John Cole, 3 September 2010

Rationale for Carbon Mitigation

Government Responses to Climate Change

- Impact of climate change & carbon emissions on ecosystems (e.g. Great Barrier Reef, coasts, rainforests)
- Tourism is a priority sector in *Queensland ClimateSmart Adaptation Action Plan 2007-2012*
- *Great Barrier Reef Tourism Climate Change Action Strategy 2009-2012* (GBRMPA, 2009)
- *Climate Change Guide: Mitigation and adaptation measures for Australian tourism operators* (DRET, 2009)



Photo courtesy of Tourism Queensland

Rationale for Carbon Mitigation

Consumers

- Concern about climate change, transport emissions (plane travel) & environmental impacts of tourism
- Growing demand for green travel products – UK/Europe & US travel wholesalers demand 'green credentials' from suppliers

Business

- Reduce business operating costs through energy, water & waste management (eco-efficiency & mitigation)
- Tourism operator compliance with environmental regulations & carbon measurement or reporting (become 'carbon neutral')
- ECO certification & Climate Action certification programs
(*Climate change: A brief guide for tourism*, QTIC, 2008)

Climate change

- A significant problem for sustainability.
- Greenhouse gases such as carbon dioxide absorb some heat radiation as it tries to leave the Earth, hence trapping it & warming the Earth.
- Caused mainly by emissions from fossil fuels: coal for electricity, oil for vehicles, natural gas.
Tourism industry heavily reliant on fossil fuels
- Other causes – agriculture, land clearing, waste breakdown, industrial processes
- Result = the greenhouse effect – global warming – climate change.
- *An Inconvenient Truth* film in 2006



Climate change effects

- Increase in average temperatures
- Changes to rainfall and wind patterns
- Melting of glaciers and ice caps
- Rising sea levels
- Extreme weather events such as storms, floods and droughts
- Increased ocean acidity



Coral reef destruction



Climate change and tourism



- Tourism is heavily reliant on the natural environment as its major attraction
- Therefore, it is susceptible to adverse effects of climate change, e.g.:
 - Increased temperatures can cause health impacts, bushfires, coral bleaching
 - Reduced rainfall can reduce water levels in dams and in waterways used for recreation
 - Sea level rise and storm surges can cause coastal damage to beaches, reefs, jetties
 - More frequent extreme weather reduces access and number of days businesses can operate

(Becken & Hay, 2007)

Climate change and tourism

- Tourism is also a major contributor to the causes of climate change
- Luxury resorts, aircraft, consumer purchases, tours, activities and throwaway goods create additional greenhouse gases
- Total global CO₂ emissions: 25 billion tonnes
- Tourism total: approx 1.5 billion tonnes (6%)

(Becken & Hay 2007)



Photo courtesy of Tourism Queensland



Climate change & Australian tourism

➤ Department of Resources, Energy & Tourism

National Tourism and Climate Change Taskforce (2007)

Tourism and climate change – A framework for action (2008)

The climate change guide: mitigation and adaptation measures for Australian tourism operators (2009)

➤ Sustainable Tourism CRC

Climate change and Australian tourism (2007)

The carbon footprint of Australian tourism (2008)

The impacts of climate change on Australian tourism destinations (2009)

Kakadu, Cairns, Blue Mountains, Vic. Alps, Barossa Valley, Margaret River

The carbon footprint of Queensland tourism (2010)

Tourism Queensland & Climate Change

- Sustainability & Climate Change Resource Centre
Buzz Words, Case Studies, Fact Sheets, Sustainability Checklist & Action Plan, *Offsetting Your Carbon Footprint*
- Sustainability Case Studies: Accommodation (n=47); Tours, Transport (n=26); Attractions (n=6)
- Sustainable Regions Program (49 operators reduced their carbon footprint, 3 plan to offset, EC3, 2009)
 - *Offsetting carbon emissions from vehicles through Greenfleet (Magnetic Is=19; Airlie Beach=16; Agnes Water & 1770= 16; Stradbroke Is.=14; Mackay=5; Winton=13: ecobiz 'Climate Smart Cluster Program')
- “*The Biggest CarbonLoser*”, Scenic Rim (38 in 2009)

Queensland Tourism Industry Council & Climate Change

- Involved in *Tourism and Climate Change Taskforce*
- Part of GBR Tourism Climate Change Action Group
GBR Tourism Climate Change Action Strategy 2009-2012
- Climate change & tourism reports

The Implications of Climate Change for Australia's Great Barrier Reef (2004)

Climate Change Discussion Papers: Impacts on Qld Tourism

Offsetting Air Travel (2007)

Climate Change: A Brief Guide for Tourism (2008)

- Submissions on Qld Climate Change, National Carbon Offset Standard, CPRS, Waste & Water, Green Skills & Greenspace
- Support Agency for actions in *Qld Tourism Strategy (2006)*:
5.1.3 Climate Change & 5.1.4 Sustainable Tourism

Qld Tourism & Carbon Offsetting

➤ Tourism Qld - *Offsetting your Carbon Footprint*

National Carbon Offset Standard (NCOS)

(excludes renewable energy, forestry – in Kyoto Protocol)



Ecofund Qld (Qld govt. broker of carbon offset projects)

<http://www.ecofund.net.au>

Consumers & carbon offsetting (e.g. airlines, car hire)

➤ Qld Tourism Industry Council (2008)

AGO Greenhouse Friendly, Carbon Offset Providers (n=32)

1. Forestry Projects (time limit, drought, bushfires-TQ, QTIC;
lack of scientific research, large monocultures-QTIC)
2. Energy Projects (more sustainable than tree planting;
compliant with National Standard-TQ)

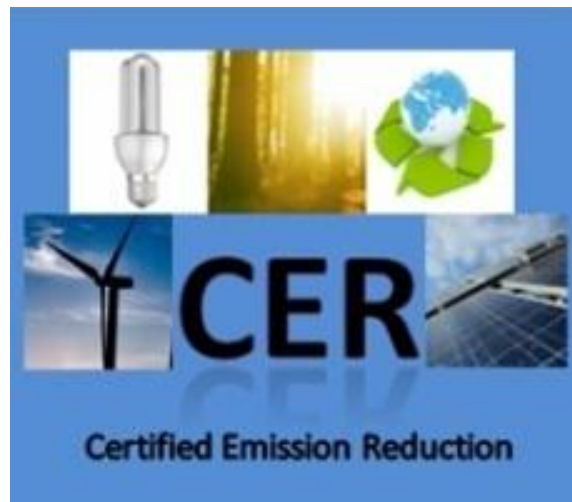
Adaptation or mitigation?

- **Adaptation** – initiatives and measures to reduce the vulnerability of natural and human systems to climate change effects, i.e. *minimise the effects of climate change* (STCRC 2009)



Adaptation or mitigation?

- **Mitigation** – actions to reduce greenhouse gas emissions and to enhance carbon sinks (any process, activity or mechanism that removes a greenhouse gas or aerosol...from the atmosphere), i.e. *reduce the extent of global warming* (STCRC 2009)



Adaptation or mitigation?

- Linked but may act for or against each other
- For example, increased use of air conditioning (adaptation) results in high energy use and acts against mitigation (i.e. increasing GHG emissions)
- Adaptation is reactive, & mitigation is pro-active
- Adaptation may yield substantial tangible benefits – immediate, medium, long term
- Mitigation will not yield immediate benefits due to long time scales in climate system (e.g. tree planting = future offsetting & carbon sequestration)

(STCRC 2009)

Mitigation strategies for tourism

- Tourism is a leader in mitigating the effects of climate change
 - Energy efficient management strategies and building design techniques
 - Water and Waste management techniques
 - Adoption of green codes of ethics
 - Accreditation with certification programs such as Green Globe, Eco Certification, Climate Action Certification Australia



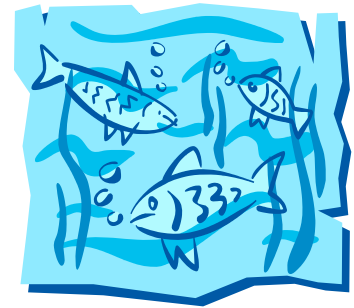


Examples of mitigation strategies



Climate change & tourism research

- Impacts of climate change on tourism destinations (environmental, economic)
- Carbon footprints of tourism
- Climate change risks & adaptation
- Climate change mitigation (e.g. energy use, eco-efficiency in hotels, Curtis, 2002)
- Tourist perceptions of aviation impacts & travel to long haul destinations
- Tourist awareness of carbon offsetting
Becken, 2004; Dodds, Leung & Smith, 2008)
(48% of tourists would pay to plant a tree)



Research - Aviation Carbon Offsetting

➤ Tourist perceptions of carbon offsetting schemes (Becken, 2004)

*Survey of 496 domestic & international tourists in New Zealand (02/03)

Q. Tree planting (NZ\$15) to offset some GHG as a result of travel?

*48% would pay to plant a tree: Green Tourists (36%), Uninformed Willing (12%)

Motives: GT/UW: Give back to nature (25%); GT: Good idea (14%), take responsibility (11%); UW: trees important (14%), tourist attraction (10%)

➤ Tourist & travel agent awareness of carbon offsetting (Dodds et al, 2008)

*Survey of travel agents (n=50) & travellers (n=305) in Canada (2006)

Q. Awareness of carbon offsetting: Tourists 16%: 18-25 (45%), >41 (22%)

Travel agents: 34%: 26-40 (57%)

Q. Choosing a carbon offset program option if offered: Tourists (30%);

Travel Agents: tourist offset enquiries (2%), provide offsetting information (22%)



Aviation Carbon Offsetting - Australia

- Tourist attitudes to buying carbon offsets for flights (Mair & Wong, 2010)
 - *14 Melbourne interviews - 10 bought offsets: Right thing to do, help environment, less guilty; Moderate environmental awareness; Unaware of purpose, or type of offsetting project; Expand offsetting to include hotels & rental cars

Australian Airline Carbon Offset Schemes – began 2007

*Virgin Blue/Pacific Blue/Polynesian Blue

AGO Greenhouse Friendly, LMS Generation (landfill methane gas)

*Jetstar

4%-5% on long flights, 6%-6.5% trans-Tasman flights

2009- over 70,000tCO₂ offset by passengers (nearly \$1 million)

*Qantas – Carbon Offsets by Fieldforce (up to 1 July 2010)

In 2009/10, 7.5%-9% Qantas passengers offset 265,000tCO₂
+ 73,000tCO₂ offset by Qantas for staff travel (Creedy, 2010)



CARBON OFFSET

- ‘Carbon offsets represent a reduction in greenhouse gases, or enhancement of greenhouse gas removal from the atmosphere. Carbon offsets are tradeable and often used to offset all or part of another person or organisation’s emissions’

Department of Climate Change and Energy Efficiency. 2010. National Carbon Offset Standard. www.climatechange.gov.au

1. Tourism operator buying carbon offsets for business
2. Travellers paying for an optional carbon offset (e.g. transport, hotels, tours, festivals, conferences)

CARBON NEUTRAL

- 'Balancing the amount of carbon dioxide released into the atmosphere with an equal amount of carbon dioxide that has been sequestered or offset' (DRET, 2009)
- Carbon emissions are measured & reduced with remaining or residual emissions offset
- Carbon Neutral tourism operator: Hidden Valley Cabins (100% solar, vehicle use offset, verified by *Climate Friendly*)

<http://www.hiddenvalleycabins.com.au>

Voluntary Carbon Offset Schemes

- Australian Greenhouse Office (AGO)

Greenhouse Friendly (2001-2010)

Life Cycle Assessment of product or service for GHG, Offset emissions 'in house' or buy offsets from an approved abatement project (forestry, renewable energy, energy efficiency)

- Australian Carbon Trust (est. 2010)

National Carbon Offset Standard (NCOS)



- NSW Greenhouse Gas Abatement Scheme
- Clean Development Mechanism (CDM)-International
- Approved carbon offset providers (*Climate Friendly*)

Carbon Offset Providers in Australia

AGL, ANZ, Auscarbon International, Australian Carbon Traders, Australian CO2 Exchange, Australian Energy Consultants, Bendigo Bank-Green Generation, Canopy, Carbon Neutral (Aus), Carbon Planet, Carbon Pool, Carbon Reduction Institute, Cleaner Climate, Climate Care, **Climate Friendly**, Climate Positive, Climate Revolution, CO2 Australia, COzero, Elementree, **Fieldforce**, Future Climate Australia, Global Carbon Exchange, **Greenfleet**, Greenhouse Balanced, **Greening Australia**, Landcare - Carbon SMART, My Clean Sky, Neco, Origin Energy, Project Andromeda (ANZ), TreeSmart.

Source: *Carbon Offset Guide* (QTIC, 2008)

<http://www.carbonoffsetguide.com.au/>



Big Cat Green Island Reef Cruises



Carbon Offset

We have taken a very proactive position on climate change because we view it as a very serious threat to the reef environment in which we operate. We are achieving a “Zero Carbon Footprint” by offsetting our direct emissions via “additional” future forest sink offsets supplied by [Greenfleet Australia](http://www.greenfleet.com.au).



<http://www.greenisland.com.au/environment/eco-certification/>

Qld Tourism & Carbon Offsetting

- Which operators use carbon offsetting?
- What is being offset? (whole business, vehicles, office, staff air travel, visitors)
- Type of carbon offset projects (own project, partnership, purchase offsets)
- How are carbon offset providers chosen?
- Operator motives for carbon offsetting
- Operator benefits from carbon offsetting

Tourism Queensland - Tourism Environmental Indicators (2009/10)

1. Carbon Footprint of the Queensland Tourism Industry
2. Energy Use
3. Water Use
4. Waste sent to Landfill
5. **Response to Climate Change by Tourism Operators**
(% of operators participating in adaptation & mitigation)
(no. of Qld tourism operators in certification programs)
6. Regional Sustainability Policies
7. Average Energy Use, Water Use and Waste Sent to Landfill Per Visitor Night
10. **Carbon Offsetting**
(% of visitors using carbon offsets)



Qld. Tourism Operators Environmental Indicators Benchmark Study 2010

- Survey of **986 Queensland tourism operators**
- Accommodation (63%), Attraction (18%), Tour (13%), Other (7%), Transport (3%), F&B (3%), Hire (3%)
- Small Business (1-4 staff) (n=672); Medium Business (5-20 staff) (n=216); [**90% % SMEs**]
Large Business (>21 staff) (n=98)
- Benchmarking of environmental initiatives and sustainability by Qld tourism operators
- **25% had a sustainability policy** (65% LB; 26% MB; 18% SB); 18% aim to in next 12 months (14% LB; 24% MB; 16% SB)
- **14% had a formal environmental action plan** (39% LB; 14% MB; 11% SB); 17% aim to in next 12 months (24% LB; 25% MB; 13% SB)



Qld. Tourism Operators Environmental Indicators Benchmark Study 2010

- **1 in 10 measured their carbon footprint** (38% LB; 25% MB; 6% SB); mainly Brisbane tourism operators (21%); Sectors: Transport 37%; Tour 17%; Accommodation 7%.
- **1 in 10 purchased carbon offsets** (21% LB; 10% MB; 9% SB); mainly Mackay (22%), Fraser Coast (3%)
- **<10% plan to purchase carbon offsets in the next 12 months** (8% LB; 6% MB/SB); Region: (Mackay 9%; Outback 6%; Whitsundays 4%; Fraser Coast 2%)
- 85% of operators were NOT a member of any environmental certification program (Eco tourism 11%, Green Globe 7-8%)
- 48% of Qld tourism operators had received some education on climate change (70% LB; 58% MB; 42% SB)

Accreditation (ECO certification)

➤ **Eco Certification Program (began 1996)**

- Ecotourism operators must achieve high standards in assessment criteria under three dimensions of sustainability – environmental, economic, social, plus business management.
- 3 levels of certification: Nature Tourism, Ecotourism, Advanced Ecotourism (Ecotourism Australia 2010)
- Eco-certified Qld tourism products

Tour (n=116)

Accommodation (n=41)

Attraction (n=21)



Accreditation (Climate certification)

➤ **Climate Action Certification Program**

- Activities and methods for tourism operators to reduce their carbon emissions and attain climate certification – began in 2007 (Great Barrier Reef & South Aust.)
- 3 levels of certification based on the level of adaptation and emissions reduction actions the tourism operator has taken: Business, Innovator, & Leader (Ecotourism Australia, 2010)
- Climate Action Certified Qld tourism operators (n=15)



Climate Action Certification

➤ Climate Action Leaders

- Measure & audit carbon footprint (creditable system)
- Advanced level of adaptation, emissions reduction, & offsetting (own project, partnership, offset scheme)
- Working towards becoming carbon neutral
- **Big Cat Green Island Reef Cruises**
(‘zero carbon footprint’; 2009 EA Climate Action Award)
- **Low Isles Sailaway**
- **Jungle Surfing Canopy Tours**



What tourism operators are doing on the Great Barrier Reef

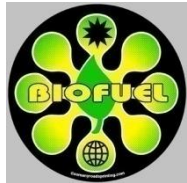
- Calculating and reducing their carbon emissions
- Trialling alternative energy sources such as biofuels
- Becoming climate certified through Ecotourism Australia's Climate Action Certification Program
- Offsetting the emissions created by their business by purchasing carbon credits



(Great Barrier Reef Marine Park Authority, 2010)

What tourism associations are doing on the Great Barrier Reef

- **Tourism Tropical North Queensland (TTNQ)**
 - **Planet Safe Partnership* (2007) 4 reef operators
- **Whitsunday Charter Boat Industry Association**
 - *Climate Change & Sustainability Committee (2008)
- **Association of Marine Park Tourism Operators**
 - *Climate change workshops for GBR operators (09/10)
- **Great Barrier Reef Marine Park Authority (GBRMPA)**
 - *GBR Tourism Climate Change Action Group
 - *Climate change web pages, fact sheets, action plans
 - *Tourism Operators Responding to Climate Change
 - *Tourism Operator's Emissions Calculator
 - *High Standard Tourism Program (certification)



Carbon Emissions
Exchange



Great Barrier Reef Tourism Climate Change Action Strategy 2009-2012

Objective 2. **Reduce carbon footprints**

Strategy 2.2 **Offset emissions**

Action 2.2.1 **Identify regional 'reef friendly' options for offsetting GHG emissions**

Identify suitable carbon offsetting programs that will benefit the NQ region

Action 2.2.2 **Assist visitors in offsetting greenhouse gas emissions caused by travel** by operators offering options.

Objective 5. **Integrate climate change into business operations and planning**

Strategy 5.2 **Develop business strategies to mitigate the impacts of climate change**

Action 5.2.1 **Assess 'green' & 'climate-neutral' technologies & strategies**

Action 5.2.2 **Identify responsive business strategies.** reduce impacts

Carbon offsetting - What's next?

- Review websites of Qld tourism operators/associations for mitigation & carbon offsetting measures
- Evaluate mitigation & offsetting by ECO certified & Climate Action certified Qld tourism businesses
- Survey Qld tourism owner-operators on environmental motives for carbon offsetting & mitigation
- Determine operator preferences for carbon offsetting



Photo courtesy of Tourism Queensland

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