

CARBON NEUTRAL TOURISM

Autumn 2010



INTRODUCTION

Key Points:

- **Carbon Neutrality means either producing zero carbon dioxide emissions or offsetting all emissions produced.**
- **We can choose between offsetting all direct or direct and indirect emissions.**

Being **carbon neutral**, or **carbon neutrality**, refers to neutral (meaning zero) total carbon release, brought about by balancing the amount of carbon released with the amount sequestered or offset:

- It can refer to the practice of balancing carbon dioxide released into the atmosphere from burning fossil fuels, with renewable energy that creates a similar amount of useful energy, so that the carbon emissions are compensated, or alternatively using only renewable energies that don't produce any carbon dioxide.
- It is also used to describe the practice of offsetting carbon dioxide produced by a project or business with planting or protecting trees (sequestration)

Becoming carbon neutral can be done by a combination of the following options:

1. Limiting energy usage and emissions
 - From transportation (walking, using bicycles or public transport, avoiding flying, using low-energy vehicles).
 - From buildings, equipment, animals and processes.

2. Obtaining electricity and other energy from a renewable energy source, either directly by generating it (installing solar panels on the roof for example) or by selecting an approved green energy provider, and by using low-carbon alternative fuels such as sustainable bio-fuels.
3. Offsetting the remaining emissions that cannot for the moment be avoided or generated from renewables in a responsible carbon project, or by buying carbon credits.

To be considered carbon neutral, an organisation must reduce its carbon footprint to zero. Determining what to include in the carbon footprint depends upon the organisation and the standards they are following.

Generally, direct emissions sources must be reduced and offset completely, while indirect emissions from purchased electricity can be reduced with renewable energy purchases.

Direct emissions include all pollution from manufacturing, company owned vehicles and reimbursed travel, livestock and any other source that is directly controlled by the owner. Indirect emissions include all emissions that result from the use or purchase of a product. For instance, the direct emissions of an airline are all the jet fuel that is burned, while the indirect emissions include manufacture and disposal of airplanes, all the electricity used to operate the airline's office, and the daily emissions from employee travel to and from work. In this case, the power company has a direct emission of greenhouse gas, while the office that purchases it considers it an indirect emission.

Before an agency can certify an organisation or individual as carbon neutral, it is important to specify whether indirect emissions are included in the Carbon Footprint calculation. Most Voluntary Carbon neutral certifiers such as Standard Carbon in the US, require both direct and indirect sources

to be reduced and offset. As an example, for an organisation to be certified carbon neutral by Standard Carbon it must offset all direct and indirect emissions from travel by 1 lb CO₂ per passenger mile, and all non-electricity direct emissions 100%. Indirect electrical purchases must be equalised either with offsets, or renewable energy purchase.

The World Resource Institute only requires **direct emissions** to be reduced and balanced for carbon neutral status.



THE IMPACT OF TOURISM ON CLIMATE CHANGE

Key Points:

- **Tourism is the world's largest industry and expected to grow both internationally and within Namibia.**
- **Tourism is responsible for a large percentage of CO₂ emissions (5.3% global total).**
- **Most of these emissions are from air travel going to the destination (80%).**
- **Campers produce the most CO₂ when within the tourist destination.**

Tourism is the largest industry in the world and is still growing rapidly. Climate Change might have a negative impact on this growth in Namibia as:

- Increased environmental taxes on air travel make travelling more expensive,
- Increases in temperature mean that more people in cooler climates e.g. Europe prefer to stay at home
- It might decrease Namibia's domestic tourism as more people prefer to travel out to cooler climates. However these will have little impact compared other factors and international tourism is expected to continue to increase.

Travelling is a fossil fuel-dependent activity and tourism is a major contributor to climate change. Air travel in particular is a major contributor to CO₂ emissions, and travel to a destination can contribute as much as 0% of international tourists' total CO₂ emissions. The impact on climate change of air travel is even greater than the CO₂ emissions as air travel also produce nitrous oxide and water vapour. Gössling 2001 suggested that CO₂ emissions, adjusted for these extra emissions, from tourism may be in the order of 5.3% of the global total. Ninety per cent of these emissions come from transport.

Different types of tourist use different amounts of energy and carbon once within a country. A case study of New Zealand found that coach tourists produce over a third less carbon emissions than campers who travel in personal vehicles.

Carbon-neutral transport technology is not expected to be mainstream in the near future. Other initiatives are needed to offset tourism's emissions, at least in the short and medium term, to move tourism towards being ecologically sustainable. Global emissions from all transport grow in the order of 2% per year (WBCSD, 2004).

Table 2: Energy use within New Zealand for transport and accommodation for different tourist types (data from 2001 International Visitor Survey (IVS) (14))

<i>International tourists 2001</i>	<i>Number of touring tourists</i>	<i>Energy use per tourist within NZ (MJ)</i>	<i>Total energy use (PJ)</i>	<i>CO₂ per tourist within NZ (t)</i>	<i>Total CO₂ (t)</i>
Coach tourist	429 159	3538	1.52	0.244	104 767
VFR	343 577	3649	1.25	0.252	86 506
Auto tourist	247 972	3440	0.85	0.237	58 859
Backpacker	131 419	3657	0.48	0.252	33 161
Camper	84 195	6306	0.53	0.435	36 634
Soft comfort	42 966	5035	0.22	0.347	14 927
TOTAL*	1 279 288	na	4.85	na	334 855
Extrapolated to 2002 arrivals	2 044 962			7.70	531 516



TOURISTS ATTITUDE TO CLIMATE CHANGE

Key points:

- **Tourists have increasing awareness about climate change.**
- **There is a strong backlash against 'eco-labels' and carbon offsetting companies.**
- **Reforestation can have a strong emotional attraction, and schemes which emphasise additional benefits attract more support.**

Research made by Gossling 2002 *check* finds tourists are generally unaware of the impact their travel makes on the environment, both in terms of CO₂ and climate change and other factors such as ozone depletion and biodiversity. There is a section of 'green tourists' who are better informed and more are willing to go on environmentally friendly holidays.

Löfstedt, 1991; McDaniels *et al.*, 1996 found that even when people did understand their view of environmental risk was determined by 'net benefit' i.e. they were willing to pollute when it had great personal benefit to themselves. Holidays are undertaken to achieve personal benefits and it could therefore be 'concluded that the environmental risks associated with holidays are underestimated', and accordingly changes in travel behaviour (e.g. trip suppression or shift to low-emission transport modes) are less likely to happen compared with situations in everyday life.

Gossling in a case study of New Zealand found that about half of all tourists questioned the between climate change and tourism, however a large number (48%) were willing to plant a tree partly because the associated much broader benefits with trees than their function as carbon sinks.

While in very recent years climate change has appeared so much in the news that now tourists are better informed about their environmental impacts there multiple offsetting companies and 'green holidays' has led to confusion and mistrust and they prefer to ignore them. There has been a considerable backlash in the media and people's perceptions against 'green wash' the lack of regulation leading to a call for standards and verification. An informal poll taken by the guardian recently found 98% of respondents did not trust carbon offsetting. P. Hart, S. Becken and I. Turney agree with *Gossling's check* findings that

voluntary schemes that stress multiple benefits (i.e. carbon sequestration and restoring forest ecosystems) may find favour and acceptance from tourists. Campaigns need to be differentiated and emphasise to different degrees the wide range of functions of trees (sequestration of carbon dioxide, erosion prevention, biodiversity, aesthetic landscapes, healthy microclimate, etc.). Tourists have both a greater understanding and less scepticism of these additional effects.

It should be noted that projects that make claims of being 'eco-friendly' or 'carbon-neutral' should be prepared to face greater scrutiny and critics of all environmental impacts e.g. building on protected land etc.



TYPES OF CARBON NEUTRAL TOURISM

Key points:

- **We can either make the tourist package carbon neutral by building it or powering it in a carbon neutral way or we can offset carbon emissions produced by the tourist.**
- **We can create offsets via mitigation or reforestation.**

Carbon Neutral Tourism can be achieved in two ways:

- a) By making the package non-CO₂ emitting, e.g. using renewable energies in lodges
- b) 2. Offsetting the carbon produced by investing in mitigation (e.g. renewable energy schemes) or sequestration (planting trees).

Examples of 'carbon-neutral' resorts:

Hidden Valley Cabins is Australia's first carbon neutral resort and tour company. It operates solely on solar power and includes other environmentally friendly ideas such as: use of compact fluorescent bulbs; turning off all major electrical appliances in the bar and entertainment area at night; waste minimisation by composting food and paper products (to be used for gardens); recycling aluminium cans, paper, etc; and educating tourists about the importance of being environment-friendly, power conservation, species conservation, renewable energy, etc.

The **Lapa Rios Eco-lodge** in Costa Rica Lapa Rios Eco-lodge utilises green construction, helps

protect local wildlife, supports a local elementary school, uses solar power for electricity, recycles all of its own waste, and powers its kitchen entirely through bio-gas produced from captured methane from animal waste.

Other 'green/low carbon' initiatives include:

- Building carefully to preserve the local vegetation and wildlife
- Building with fully renewable construction materials
- LED lighting
- Geothermal water
- Organic food
- Locally produced food which doesn't use a lot of carbon being transported long distances.
- Rain water harvesting

Other 'development' initiatives include:

- Hiring only local workers,
- Funding local community projects
- Encouraging micro-business which has linkages with the business.

Offsetting:

We can offer to offset either the emissions of their flights, or the emissions they occur within Namibia e.g. local driving.

We can either sell credits as is proposed by the Pierre Du Plessis project in association with CRIAA or can we can have the offsetting projects on-going so that any CO₂ produced by the tourism package is automatically offset.

We can either use third party verified credits or non-verified credits.

Offsetting by Mitigation

Credits are sold or donations are collected to invest in schemes that provide alternative forms of energy to fossil fuels. Schemes include:

1. Renewable Energy:

Solar, Wind, Biomass, geothermal, methane combustion.

2. Energy Efficiency:

Energy efficient products or systems use less energy to perform the same task. E.g. compact fluorescent lamps, energy efficient motors, and redesigned cooking stoves. Installing more efficient stoves in developing nations can reduce coal and wood consumption. Improving efficiency of wood

use is particularly important in areas where wood harvesting contributes to deforestation.

3. Tetra Petra and Bush encroachment:

Tetra Petra – dark earth is a form of charcoal. Benefits – it stores carbon for up to 7000 years, it is in fact **Carbon Negative**, it can increase the fertility and water retention of the soil, it reduces the other Greenhouse gas Nitrogen Oxide which is typically produced from fertilisers used in the ground being released. When forming the charcoal gases are released that can be burnt and used as cooking flames.

Sequestration by Planting Trees:

The usefulness of forests as sinks is strongly debated, mainly because it is difficult to measure carbon uptake, the carbon stored is unstable and not permanent (e.g. forest fires, pests), and the promotion of carbon sinks diverts from the pressing need to reduce the combustion of fossil fuels.

On the other hand, carbon sinks are an invaluable means to save time on the way towards energy efficient economies and alternative fuel sources. They are also associated with other benefits; for example in relation to biodiversity, hydrology, soil retention, protecting indigenous species, keeping alive traditional medicinal benefits and the potential to attract tourists to reforested areas. It is important to emphasise these benefits to buyers and it helps differentiate our scheme compared to others.

Planting trees can be a symbolic act for tourists. You can either sell them 'credits' promising to plant trees, or as in New Zealand there has been a lot of success with a project where tourists are given a specific tree, it is numbered and can be revisited by the tourists.

We can perhaps do a version of this showing people the seedlings that are being planted in the nursery and sending them photos of it growing throughout the next ten-twenty years, or letting them plant the seedling themselves.



CONCLUSION

Key points:

- **There should still be a demand for a carbon neutral tourist package.**
- **We should look at a combination of reducing carbon emissions as well as offsetting schemes with strong additional benefits.**

There has been a recent proliferation of carbon-offsetting schemes and because of the unregulated nature of the market there has been a lot of backlash. People question the additionality and reliability of schemes as well as the high percentage of the price used in administration. There has been a greater call for use of international standards and third party verification.

People choose their off-setting schemes by price, quality (including trustworthiness, standards etc.) and additional environmental or developmental benefits.

Carbon-neutral tourism created by using carbon neutral-resorts is still a comparative novelty and with the increasing awareness of climate change there is still a potential demand. If we wish to sell credits especially for large amounts of CO₂ such as off-setting air emissions then we must be prepared for a greater degree of scepticism if the project does not have third party verification. There may be less need for third party verification and international standards if:

- a) We are merely claiming that the resort itself produces no CO₂, or
- b) If we are planting trees not just to off-set carbon but deliberately for other environmental and development benefits.