

*Joondalup Learning Precinct
& City of Joondalup
World Environment Day Activities
Carbon Inventory Report*

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Introduction

Climate change is a global challenge with serious consequences for our social and economic infrastructure, as well as the natural environment. The greenhouse gas (GHG) emissions that cause climate change are emitted mainly from burning fossil fuels such as coal, oil and natural gas.

The most common greenhouse gas is carbon dioxide (CO₂) and two of the largest global sources are the generation of electricity and heat (32%) and transportation (17%).¹

In running an event, carbon emissions are generated through power consumption, fuel use, travel by organisers and attendees as well as specifics such as food and beverage consumption or other services that may be provided. By making carbon conscious decisions, an event can raise awareness and influence the behaviours of its organisers, suppliers and attendees to positively impact the most dangerous effects of climate change.

By developing a carbon management plan as part of the event, organisers can ensure it can be run with minimal carbon output, minimising the impact on the environment.

Having established a carbon management plan and implemented as many carbon reduction opportunities as possible, event organisers may decide to take the next step and make the event carbon neutral. This involves the purchase of carbon offsets equal to the remaining emissions generated by the event and associated activities.

Greensense was engaged to conduct a comprehensive carbon inventory for the Joondalup Learning Precinct and the City of Joondalup's joint World Environment Day activities and to offset the emissions.

This was a positive step taken by the event organisers, with the objective of providing a much better understanding of the sources of carbon emissions to help ensure that future events have the least possible impact on the environment.

Activities captured in the audit include attendee travel, catering, print and promotional material, electricity and water use, and waste and recycling. This report includes the outcome of the review and details of the subsequent carbon offsetting.

1. World Resources Institute. Climate Analysis Indicators Tool, 2006

Audit Executive Summary

The day's events were responsible for approximately 8.2 tonnes CO₂-e (carbon dioxide equivalent) of greenhouse gas emissions.

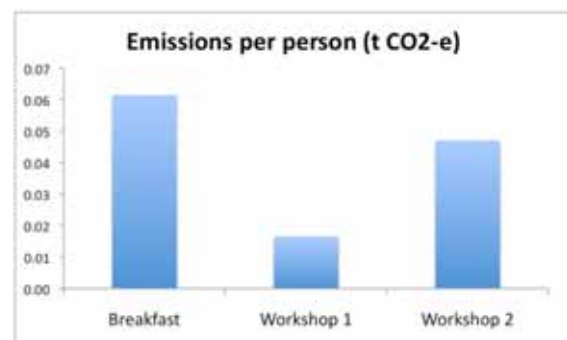
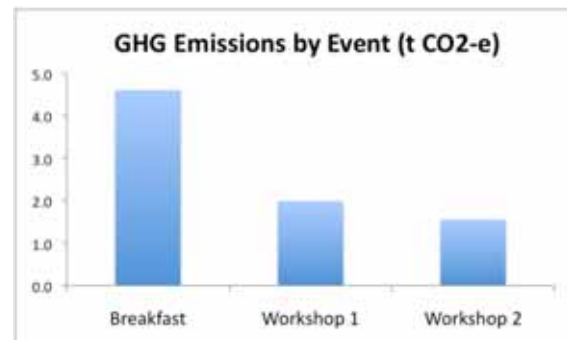
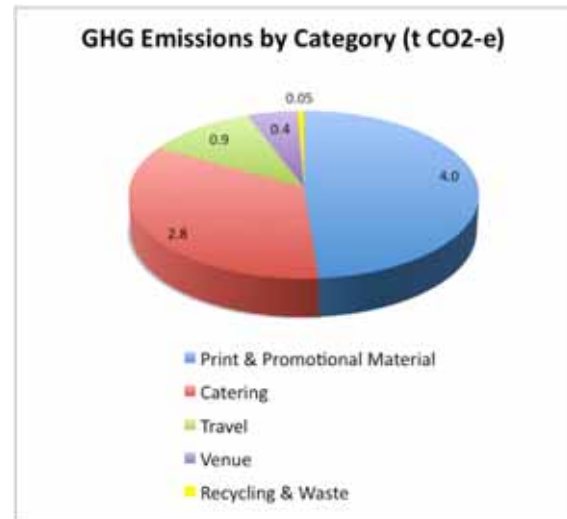
All GHG emitting activities have been quantified and classified by category and event.

The highest contributing categories were print and promotional material and catering. Both of these categories have what is known as embodied energy included in their emissions calculations. This is an allowance for GHG emissions created during the lifecycle of the product. For example, the transport of food is included in its emissions factor.

The highest contributing event was the Carbon Literacy breakfast, responsible for 4.6 tonnes CO₂-e.

Viewing emissions per person per event, workshop 1 (with 120 attendees) was the most efficient, emitting 15kg CO₂-e per person. This is in contrast to 62kg CO₂-e per person for the breakfast and 46kg CO₂-e per person for the second workshop. The large difference in per person emissions for the two workshops is due to the significant difference in the number of attendees (being 75 for the breakfast and 33 for the second workshop).

To put this in perspective, 8.2 tonnes CO₂-e is equivalent to the emissions created driving a small car 51,250km.¹



¹ <http://www.vcacarfueldata.org.uk/>
- based on 160g CO₂-e/km
- if 0.00016 Tonnes CO₂-e = 1km,
then 7.9 Tonnes = 49,375km

2009 World Environment Day Activities

As part of their World Environment Day activities, the Joondalup Learning Precinct and the City of Joondalup co-hosted a breakfast seminar and two workshops.

The breakfast, titled "Doing business the carbon literate way", focussed on the proposed Carbon Pollution Reduction Scheme (CPRS) and opportunities which may exist for businesses in an emerging green economy.

The two workshops targeted local community members and provided information on creating sustainable gardens and improving energy efficiency in the home.

All events were held at the Joondalup Reception Centre and the day ran from 7am to 9:30pm. Including set up time, the venue was in use for approximately 16 hours. Three rooms were in use throughout the day, being the foyer for registration, the main seminar and workshop room and the adjacent kitchen where staff prepared breakfast and finger foods throughout the day.

All events were well attended and comments from attendees were positive in terms of value and information gained from having attended.

Commitments and Targets

The Joondalup Learning Precinct and City of Joondalup decided to audit the carbon footprint for the day, to offset those emissions and to make the information available to the various event organisers.

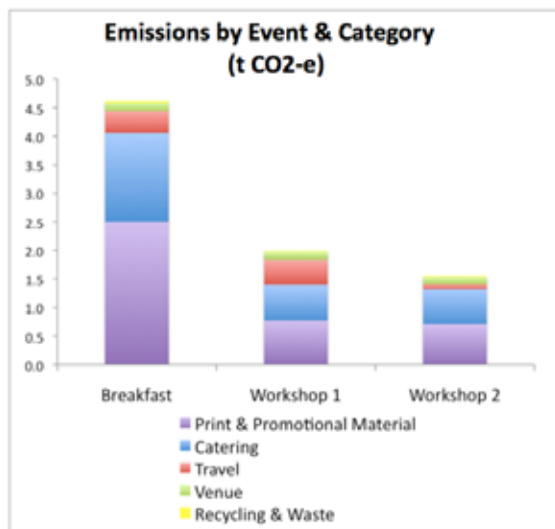
This is a positive step taken by the JLP and the City of Joondalup to help raise awareness of the climate change issue and finds ways to reduce their impact on the environment.

The event organisers also chose to use an environmentally friendly supplier, Great Gardens, to run the afternoon and evening workshops. Great Gardens have implemented an initiative that sees them offset 2.6 tonne CO₂-e for each of their workshops.

As well as minimising their own environmental impact this initiative demonstrates the positive influence an event can have on the community by raising awareness and supporting suppliers with environmentally friendly products and services.

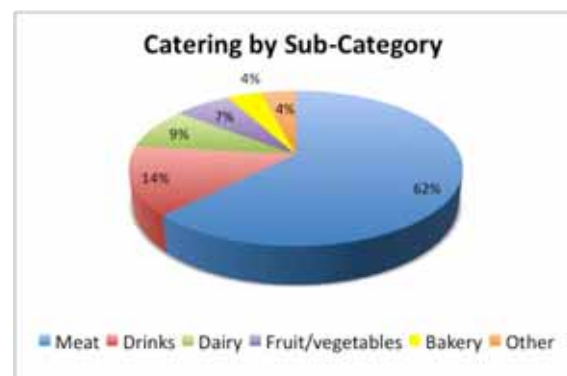
Carbon Audit Analysis

A review of emissions by event and category shows a similar breakdown across all events, with print and promotional material and catering being responsible for the majority of emissions across all events.



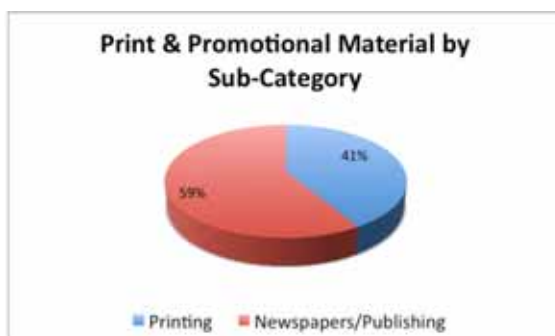
Furthermore, emissions are generated from the energy and fuel required to produce and transport the food.

As the food item is consumed by the event, this full-life-cycle of the food items is included for a complete carbon footprint. Due to the embedded energy of meat, it is responsible for more than half of the catering emissions.



Print & promotional material

Print and promotional materials have many environmental and carbon emission impacts from raw material extraction through to product disposal. These calculations look at the emissions over the entire life cycle of a product based on the volume of material distributed before and during the events.



Travel

Travel to and from an event can contribute significantly to an event's carbon footprint. Attendees were surveyed to determine the mode of travel was used and the distances travelled. Where a car was specified, details of the car size and fuel type were collected.

Of the 134 survey respondents, the overwhelming majority travelled by car. A limited number walked, rode or took public transport. Details are provided in the following table.

	Breakfast	Workshop 1	Workshop 2	Total
Walked	9	1	0	10
Bicycle	1	2	0	3
Public Transport	0	5	0	5
Car	49	57	11	117
Motorcycle	1	0	0	1
Travelled alone in car	40	28	6	74
Reported offsetting car emissions	4	5	2	11

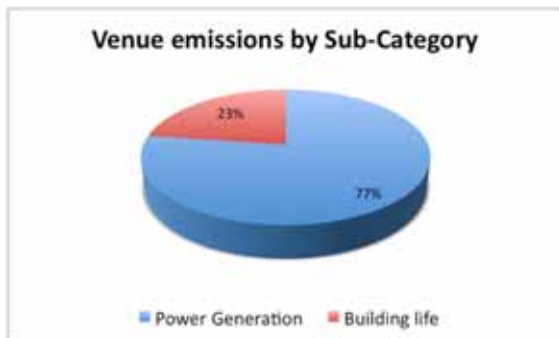
Catering

Food and drink have an impact on carbon output due to the land use associated with growing crops and grazing animals.

Despite driving a car to this event, five respondents commented that public transport is their usual mode of transport, with two of those specifically citing the event timing as an impediment to doing so for this event.

Venue & Utilities

Electricity generation can be a large contributor to an event carbon inventory. This is particularly true in Western Australia where the bulk of our electricity is generated from coal-fired power stations. Added to this is a significant amount of embodied energy within the building. However, given the short timeframe and relatively small size of this event, total emissions associated with the venue contribute little to the complete inventory.



Waste & Recycling

The waste output is captured to determine how much land is required to dispose of the waste and the amount of CO₂-e that is produced as a result.

In total, six 240L bins of rubbish were generated by the event. This equates to approximately 50kg of CO₂-e. There were no facilities to separate waste and recyclables. As such, no recycling was completed. Furthermore, catering staff mentioned that they don't usually separate waste at an event, but do recycle during preparation activities at their home base.

Carbon Offsets

Offsetting the carbon emissions for the day's events was a primary goal for the Joondalup Learning Precinct and the City of Joondalup. This is a positive initiative that demonstrates their commitment towards acting in an environmentally conscious manner.

The total emissions for the event were 8.2 tonnes CO₂-e. In accordance with their own strategy, Great Gardens have offset 5.2 tonnes CO₂-e to account for the emissions associated with the two workshops. This leaves a balance of 3.0 tonnes CO₂-e still to be offset.

Greensense have purchased the remaining offsets through Carbon Conscious (www.carbonconscious.com.au). Carbon Conscious are a Greenhouse Friendly accredited company who create carbon credits and offsets by planting Mallee trees in Australia's wheatbelt region.

Recommendations for Future Events

Conducting this event, and compiling this audit, demonstrates commendable achievement in the adoption and implementation of sustainability for the Joondalup Learning Precinct and the City of Joondalup.

Going forward, strategies to minimise the carbon footprint of future events should be integrated into the event planning process.

Greensense recommend utilising the Sustainable Event Management principles as outlined in British Standard BS8901. This standard aims to improve sustainability by engaging in a timely and meaningful way with all event stakeholders and supply-chain members. It is important to set targets for the event and to engage and collaborate with suppliers, competitors, and other attendees to achieve this target.

For each category of emissions captured, some specific reduction opportunities have been identified that can be considered for future events. These are discussed in more detail below.

Print & promotional materials

- Use electronic forms of advertising. Support electronic registration for attendees and provide pre-event information, notes, agendas and feedback mechanisms electronically.

Catering

- Ask for credentials of suppliers and set sustainability criteria for selected suppliers. Consider not only cost but also environmental (water use recycling, carbon output etc) and social (fair trade, equal opportunity) factors.

- Use local suppliers who use local produce where available. In addition, if seasonal, unprocessed and organic produce can be used, this will also reduce environmental impact.
- In general vegetarian foods generate lower emissions than meat. Where food is provided consider specific menu choices to reflect this.
- Inform your attendees about these environmental initiatives so they can learn from it.

Travel

- The event was situated in a convenient location for public transport. Consider changing the time to allow those who would like to come via public transport to do so.
- Include directions for accessing the venue by walking, cycling and other public transport options. Include information on the location of bus stops, bike parking and change-room facilities.
- Encourage car-pooling for attendees. Online mediums such as Liftshare can be used to allow attendees to identify other attendees to car-pool with.
- Consider offering a prize for attendees who have walked, ridden their bicycle, or car-pooled to the event.

Venue

- Consider venues that source their electricity from a green power provider.
- Consider other venues in the area that may have a Green Star rating in

building sustainability. For more information on this initiative, visit the Green Building Council Australia at www.gbca.org.au/green-star.

Waste & Recycling

- Waste should be minimised as much as possible through efficient resource use and recycling. Work with the venue managers to discuss installing recycling options at the venue.
- Work with the caterers to determine if there are any inhibitors to recycling at events and ways to overcome these.
- Identify local shelters or NGOs who could benefit from receiving left over food rather than dispose of it.

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Appendix 1: Audit Methodology

The measurements used to derive the carbon footprint calculations are based on the Australian Federal Government Department of Climate Change's National Greenhouse Accounts (NGA) Factors (2008) and other methodologies consistent with the World Business Council for Sustainable Development and World Resource Institute.

The carbon calculations for catering, waste, print, publishing and building life are based on various factors, methodologies, and publications from the Centre for Integrated Sustainable Analysis (University of Sydney) and CSIRO.

Information used to undertake the carbon footprint calculation was obtained directly from event organisers and from event attendees. Where incomplete data was available, appropriate factors and assumptions were used to estimate the emissions for the event that have been included within the report.

The intention of the carbon footprint information is not just to provide a figure for offset purposes, moreover it is provided as an indication of the carbon emissions profile of the event. This information is intended to guide the future improvement of subsequent events and the long-term reduction in emissions resulting from improved event planning and implementation.

This document was prepared for the sole use of providing a post-event carbon footprint assessment for the Joondalup Learning Precinct and City of Joondalup.

No other party should rely on the information contained herein without the prior written consent of Greensense Pty Ltd.

Greensense's findings are based upon its professional judgment, experience and training. These findings are also based upon the reliance of information used to prepare this report.

Greensense believes that its findings are reasonably supported and that they have been developed according to the professional standard of care for the environmental consulting profession in this area at this time.

Appendix 2: Audit Assumptions

The following assumptions were made in determining the total emissions included within this report.

Travel

Data was collected via survey. Where not all attendees responded to the survey, data extrapolated to allow for the full number of attendees.

Print & Promotional

Data on the print and promotional expenses incurred by the Joondalup Learning Precinct and the City of Joondalup was included. Where Great Gardens were unable to supply this information, and

estimate of the volume of materials provided per person was used.

Waste

Volumes of waste were determined by surveying catering staff after the clean up of the breakfast. Using the ratio of food purchased for the breakfast and workshops, this was extrapolated to cover the full days waste.

Appendix 3: Introducing Greensense

Greensense is a Perth based specialist carbon management consultancy. Our mission is to help business and government work towards a sustainable future and to respond to the challenges and the opportunities of a carbon-limited economy.

We believe that businesses need to positively engage with their workforce, their customers and their suppliers to create a business environment that can adapt to the increasing pressures of climate change.

Greensense provides a range of carbon management services under three key areas:

Carbon Management Office		
Climate Change Strategy	Greenhouse Gas Abatement	Compliance and Trading
<ul style="list-style-type: none"> • Executive education • Capability assessment • Strategic planning • Risk assessments • Adaptation strategy • Abatement strategy • Compliance strategy 	<ul style="list-style-type: none"> • Greenhouse gas accounting • Carbon cost optimisation • Employee engagement • Innovation management • Project portfolio management • Offsetting strategy • Offset procurement • Energy efficiency • Landfill gas management • Sustainable procurement • Green IT 	<ul style="list-style-type: none"> • Compliance reporting • Assurance and verification • Trading strategy • CPRS auction preparation

Figure: Greensense Services

We work in close collaboration with our clients, helping them to build their internal capabilities and effectively respond to the challenges of climate change. We have four models that underpin the delivery of our consulting services:

Strategic Planning Model

We have developed a strategic planning model to address the business risks and opportunities presented by a low carbon economy. The framework can be used 'stand-alone' or to incorporate climate change considerations into an existing strategic planning process.

The Greenhouse Gas Accounting Model

All companies maintain detailed financial accounts to effectively run their business and to meet the requirements for external regulation. Now, they should also maintain a set of greenhouse gas accounts that underpin all carbon management activities.

The right accounting model enables businesses to analyse and optimise the cost of carbon, assess their portfolio of abatement options, develop detailed trading strategies and guide long-term investment decisions. Our greenhouse gas accounting model is based on ISO 14064 but has an additional emphasis on forecasting and cost modelling.

The Carbon Maturity Model

The Carbon Maturity Model is a benefits curve that helps our clients shift their climate change focus from compliance and reputation issues to a focus on efficiency and growth. Greensense can assist you with your compliance requirements and company reputation, but our real value comes from helping you engage with your workforce and other stakeholders to foster innovation and to find new opportunities for efficiency and growth.



Figure: Carbon Maturity Model

Carbon Management Office

The Carbon Management Office (CMO) is our model for guiding organisational strategy and performs two functions: Firstly, it provides an evaluation mechanism to identify areas of high risk or value to effectively target the climate change response. Secondly, when implemented in entirety, the CMO becomes a multi-disciplinary centre of excellence charged with managing the carbon emissions of an organisation.

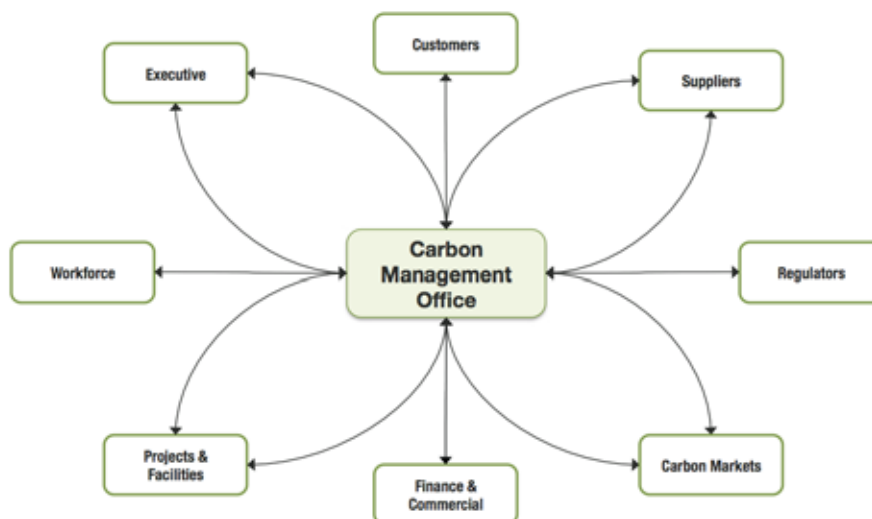


Figure: Carbon Management Office