



# GREENING OF LARGE EVENTS

## A VOLUNTEER'S GUIDE

come play GREEN with us



**environmental affairs**  
Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA



## foreword

As a volunteer, you will find that this guideline provides you with a brief summary of various environmental issues in South Africa, a description of the challenges, some interesting facts that enable people to relate environmental challenges to their sporting world, and some suggestions of best practice that you can pass on to the spectators, teams, and anyone else you work with.

This guideline provides you with a basic understanding of greening strategies being undertaken for large events, whilst directing you to further resources.

The guideline is divided into nine thematic areas. Each thematic area is divided into four sections. The first section “Knowing the Game”, provides you with background information on that theme. The second section “Environmental Impacts” describes the potential environmental impacts associated with large sporting events. This section has an emphasis on providing you with “Wow” statistics and facts that are described using sporting analogies. The “Winning Strategies” section outlines the mechanisms that

could be adopted to green the sporting events, and the final section “Walking the Talk” provides you with practical steps and tips that can be taken in order for you and others to assist in greening large events, whether sporting or other types.

As a volunteer, you won't have time to read the entire book to those people you hope to influence. Get people's attention by telling them about the “Wow” facts outlined in the Environmental Impacts section. Then, when they have grasped the issue, give them some tips about what they can do. Encourage people to follow the tips - each small contribution counts and takes team South Africa closer to the sustainable development trophy.

Interspersed in the guideline are activities for you as volunteers to complete in order to ensure that you understand the material you are reading.

Your role as a volunteer is crucial, and this guideline provides you with a tool towards that success.



Whilst this guideline has been compiled in order to assist volunteers in carrying the message of sustainable development, it is anticipated that it will assist you as a guide for future events.

Reach for the goal, we are all part of team South Africa.

A handwritten signature in black ink, appearing to read 'Nosipho Ngcaba', written in a cursive style.

NOSIPHO NGCABA  
DIRECTOR-GENERAL: ENVIRONMENTAL AFFAIRS



environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

## acknowledgements

The Greening Team [Ms Dorah Nteo, Dr Jenitha Badul, Mr Stranton Narain, Mr Godfrey Nyakhulalini, Ms Lindiwe Tshabalala, Mr Patrick Lebeya and Ms Faith Phookol]

The National Department of Environmental Affairs.  
The Department of Environment, Food and Rural Affairs, United Kingdom,  
for its contributions towards the development of the Volunteer's Guide.

Photographs were supplied by  
Department of Environmental Affairs

South African Tourism

City of Cape Town

Grace Stead

Actionphoto

Liz McDaid

This book is printed on Sappi's \*Triple Green Paper

\* [Sugar cane fibre. Chlorine free. Sustainable forestry]



acknowledgements

# GREENING OF LARGE EVENTS

## A VOLUNTEER'S GUIDE

### table of contents

#### SECTION 1: THE SOUTH AFRICAN CONTEXT

1.1	South Africa: A sporting venue	1
1.2	Context of greening the event - being a player in team South Africa	2
1.3	Best management practice	3
1.4	Greening the World Cup	4

#### SECTION 2: GREENING STRATEGIES

2.1	Climate Change and Energy	5
	a) Knowing the game	
	b) Environmental Impact	
	c) Winning Strategies	
	d) Walking the talk	
2.2	Waste Minimisation and Management	10
	a) Knowing the game	
	b) Environmental Impact	
	c) Winning Strategies	
	d) Walking the talk	
2.3	Transport	13
	a) Knowing the game	
	b) Environmental Impact	
	c) Winning Strategies	
	d) Walking the talk	

2.4	Water Conservation and Management	16
	a) Knowing the game	
	b) Environmental Impact	
	c) Winning Strategies	
	d) Walking the talk	

2.5	Biodiversity	19
	a) Knowing the game	
	b) Environmental Impact	
	c) Winning Strategies	
	d) Walking the talk	

2.6	Sustainable Procurement	23
	a) Knowing the game	
	b) Environmental Impact	
	c) Winning Strategies	
	d) Walking the talk	

2.7	Design and Construction	26
	a) Knowing the game	
	b) Environmental Impact	
	c) Winning Strategies	
	d) Walking the talk	

2.8	Tourism	29
	a) Knowing the game	
	b) Environmental Impact	
	c) Winning Strategies	
	d) Walking the talk	

2.9	Health and Well-being	31
	a) Knowing the game	
	b) Environmental Impact	
	c) Winning Strategies	
	d) Walking the talk	

#### SECTION 3: KEEPING SCORE

3.1	Developing a plan	33
3.2	Measuring progress	33
3.3	Leaving a legacy	34
	Conclusion	35
	References	36
	Glossary	37

# section 1: the south african context

Thousands of people, both local residents and international travellers, will be travelling around our beautiful country, in order to watch, participate in or manage various sporting events.

As volunteers, you are on the ground, available for providing guidance and support to spectators, players, fans and other supporters. Although media interest in global climate change has sharpened everyone's awareness of environmental issues, most people find it difficult to understand such environmental challenges in terms of their everyday lives, or how they, as the general public, might play a role in improving our environmental quality.

South Africa can be proud of its environmental policies and laws, as these are ranked amongst the best in the world. There are also a number of

environmental success stories that South Africa can boast about.

## 1.1. South Africa: An ideal venue

South Africa's climate makes it a popular location for international events, such as sporting events, major conferences and congresses etc. High profile sporting events include the Argus Pick 'n Pay Cycle Tour, the Two Oceans Marathon and the Comrades Marathon. Since South Africa's democracy, we have hosted a number of international events such as the World Summit for Sustainable Development 2002, the ICLEI—Local Governments for Sustainability World Congress; the 1995 Rugby World Cup; 2003 ICC Cricket World Cup; 2008 Women's World Cup of Golf, and the 2009 Indian Premier League cricket. 2010 sees the FIFA

soccer World Cup in South Africa, by far, the largest sporting event to be played in this country.



## Case Study: Kenilworth Racecourse

In the centre of the privately owned Kenilworth racetrack, the oval contains 41 ha of remnant vegetation described as Sand Plain Fynbos of which only 1.7% is conserved. A conservation area, the Kenilworth Conservation Area (KCA), has been established which contains a total of 331 different plant species. Nineteen plant species are listed as Red Data species, and six species occur only in the KCA. The area is currently being restored in a partnership between the Western Cape Nature Conservation Board (CapeNature), Kirstenbosch National Botanical Garden and the Millennium Seed Bank.



Hundreds, if not thousands, of large sports events are hosted around the globe annually. Apart from the participants, such events generally attract thousands of spectators, and in some cases, require the construction of stadiums and other specialised sporting facilities and related infrastructure. These have the potential for major environmental impacts if they are not planned and implemented in an appropriate manner. These facilities can then be utilised to host other events such as concerts.

South Africa will be proudly hosting a green 2010 FIFA World Cup™ and will use this opportunity to raise awareness and to lay a foundation and set new and higher environmental standards for future events.

## 1.2. Context of greening the event - being a player in team South Africa

### What is event greening?

Event greening is when host cities and event managers organize the event in such a manner that it supports sustainable development. This is done through successfully implementing programmes and practices which have a minimum or no impact on the natural resource base throughout all stages of the project cycle, and contribute towards skills development, job creation and income generating initiatives. This could involve reducing the negative impact on the environment by conserving resources, for example using resources efficiently, and thereby minimizing pollution. Greening can also result in

significant cost reductions by using resources more efficiently and by minimizing waste.

Greening an event is not about simply planting trees in the area and neighbouring surrounds. Rather, it involves deliberate management intervention in all facets of event planning and execution, such that all resources (such as water, energy, waste and biodiversity) are utilised in a way that promotes sustainable development.

Greening an event can also attract positive media attention and raise the profile of the event, its host location and venue. An improved public image will enhance public participation in, and support for the event, minimising potential conflict and attracting further

media attention. In addition, sponsors and donors often look for high profile opportunities to associate themselves with publicly supported causes. They may also be attracted by the chance to demonstrate their own environmental technologies, practises and achievements.

Event greening has steadily gained momentum in the past decade. South Africa strives to remain on top of global environmental management best practice through lessons learnt from the 2006 World Cup in Germany, the 2008 Beijing Olympic Games and new initiatives which, when combined, deliver a 2010 event with a minimum ecological footprint.

Over the past decade, the integration of sustainability principles and implementation of greening programmes at international sporting events has increasingly become accepted practice and even a requirement for the bidding process.

*GREENING AN EVENT WILL HELP MAKE IT AN EVEN GREATER SUCCESS.*

### 1.3. Best management practice

The Department of Environmental Affairs, as the lead government agency responsible for promoting sustainable use and protection of our natural resources, has proudly committed to building a partnership and a coordinated network of actions.

Whilst important lessons have been learnt from greening efforts in previous events, such as commitment and adequate financial resource allocation, government aims to enhance the involvement and support from the general public for future events. The general public are a key focus area, specifically with regards to the implementation of legacy projects over the longer term.

The city of Johannesburg is partnering with the 2010 FIFA World Cup™ organisers in an innovative and ambitious environmental programme that aims to leave a positive environmental legacy after 2010.<sup>1</sup>

The City of Johannesburg will concentrate on a number of projects in order to score its green goals in 2010. These include, for example:

- Greening Soweto - planting trees
- Rehabilitating the Klipspruit river and catchment
- Green stadiums - recycling and energy saving programmes
- Green soccer fields - planting grass and upgrading
- Greening mine dumps - planting grass on mine dumps
- Clean city, Proud city - waste collection, recycling, and pavement beautification
- Rea Vaya - Environment Friendly bus transport system
- Stay Green - applying environmentally friendly practices to tourism accommodation
- Enhancing its ecotourism facilities

<sup>1</sup> [www.joburg.org.za/fifaworldcup/pdfs/greengoal.pdf](http://www.joburg.org.za/fifaworldcup/pdfs/greengoal.pdf)

## The Generic Principles of Greening

**Environmental Best Practice.** Reduce negative environmental impact by employing technologies and behavioural practices that: conserve water; use energy efficiently; minimise and manage waste and pollution; use resources sustainably; conserve biological diversity; and prevent resource loss and degradation before they occur.

**Social and Economic Development.** Promote social and economic development through environmental best practice. Select environmental best practice options that also raise awareness, involve communities in decision-making, conserve cultural diversity, improve human health, create jobs and stimulate local economies.

**Education and Awareness.** Communicate greening plans and progress to relevant audiences. Explain why greening is taking place and why it is beneficial to the audience. Aim to change behaviour.

**Monitoring, Evaluation and Reporting.** Assess the effectiveness of greening activities throughout and after the greening process. Make people accountable for their actions and encourage constant learning by communicating findings.

**Leaving a Positive Legacy.** Ensure that both the short and long-term impacts of decisions and actions are positive. Implement activities that lead to sustainability. Source: IUCN, 2003

## 1.4. Greening of an event:

Government's vision for the National Greening Programme states that the programme will:

- Help change people's mindsets
- Promote sustainable development principles
- Encourage pro-active local initiatives
- Reduce negative impacts of the games
- Enhance short and long term ecological, social and economic benefits

Further, the Government Framework for greening the 2010 FIFA World Cup™ endorses the following principles:

- Sustainable procurement
- Sustainable construction
- Waste reduction and management
- Water conservation and management

- Energy efficiency
- Air quality management
- Biodiversity conservation
- Social development
- Sustainable tourism
- Participation, communication, skills transfer and public awareness.
- Monitoring, evaluation and reporting
- Leaving a positive Greening Legacy

The government 2010 Greening Framework contains a number of environmentally related strategies. Following the same broad themes, we will unpack the following key priority strategies for greening of events:

1. Climate Change and Energy
2. Waste Reduction and Management
3. Water Conservation and Management

4. Sustainable Procurement
5. Biodiversity Conservation
6. Transport
7. Design and Construction
8. Tourism
9. Health and Wellbeing

The next section of this guideline explains these strategies, provides ideas on how to help the public understand these concepts, and outlines practical examples of actions everyone can take towards achieving the goals of environmental best practice.



## section 2: greening strategies

### 2.1. Climate Change and Energy Efficiency

#### [a] Knowing the Game

Climate Change is caused by high concentrations of Greenhouse Gasses in the atmosphere, these gases are mainly released from the burning of fossil fuels. Climate change is forcing all countries to reconsider their reliance on fossil fuels, and to turn increasingly to renewable energy resources as well as adopting more efficient practices in the consumption of our energy. South Africa has one of the best solar energy resources in the world. South Africa has potential for using our natural assets including the sun, the wind, as well as generating energy from waste.

In South Africa, one of the most fundamental requirements for our society is access to energy. We run our households, businesses and industries

on energy. South Africa is committed to provide access to electricity for all by 2012. South Africa has historically relied on fossil fuels like coal and oil to meet its energy needs. Electricity supplies in South Africa are currently insufficient to meet demand.



#### Darling wind farm:

South Africa has its first commercial wind farm, the Darling wind farm. During the life of its first phase, it is predicted to save South Africa 258 192 tons of carbon dioxide emissions, 142 560 tons of coal and 369,6 million litres of water. <sup>2</sup>

Hosting of international events clearly require significant amounts of energy for their planning, staging and operation. In stadiums, arenas and in-door facilities electricity for lighting and cooling are typically required. The Green Point stadium in Cape Town will, for example, use 3-6MW over a 3 hour period for a major event, due in part to a number of innovations that reduce lighting by 50% in some areas.

For outdoor events the demand for electricity is not as great, but is required for sound systems, catering and media broadcast centres. There are many opportunities for energy savings and improvements of efficiency, but these need to be considered in the early planning stages of an event in order to achieve results.

For major international events, the long distances travelled by spectators, host



authorities and participants are, for example, a major source of carbon emissions. However major events are increasingly adopting programmes to compensate for the carbon emissions arising out of the events. (e.g. WSSD 2002, Helsinki Athletics 2005, ICLEI 2006, FIFA World Cup 2006, Torino Winter Olympics 2006, London 2010).

<sup>2</sup> Smartliving pg 38

## [b] Environmental Impact

South African consumers of electricity do not use electricity wisely and efficiently. For each 100 units of energy contained in coal, the country only use 27 units of useful electricity<sup>4</sup>. The country is also using fossil fuels to produce our electricity and for our transport - this leads to increasing emissions. More than 90% of South Africa's electricity is produced from coal<sup>5</sup>. As a result, South Africa emits more greenhouse gases per person than most countries and is the highest emitter on the African continent.

In a study for the Egoli 2010 project (of the greater Johannesburg metro council), the cost of public healthcare in Johannesburg due to air pollution from energy production and use was calculated to be R280 million per year.<sup>6</sup>

For every 1000km one spectator travels on a short haul aeroplane flight to South Africa to watch the World Cup, 110 kg of carbon dioxide will be added to the atmosphere.

One local spectator driving their car to watch a match in a nearby town might add 8 kg of carbon dioxide to the atmosphere, while someone travelling the same distance on a local bus would only add 2.5 kg of carbon dioxide to the atmosphere.

The energy contained in a soccer ball as it slams between the goal posts is equivalent to just under half the energy your kettle uses each second it boils water for tea at half time<sup>7</sup>.



## TORINO 2006 HECTOR PROGRAMME

The HECTOR (HEritage Climate TORino) programme was launched to create awareness of the problem of climate change and to compensate for the emission of greenhouse gases produced during the period of this Olympic event. The total amount of CO<sub>2</sub> emissions was 120,000 tonnes of carbon dioxide equivalent.

The programme included actions to reduce emissions as well as to offset remaining emissions through the generation of carbon credits from new energy-efficiency projects and renewable energy sources.

Up to 70 per cent of the greenhouse gas emissions generated by the 2006 Winter Olympics were offset, by both local and international projects.<sup>3</sup>

<sup>3</sup> DEAT Guidelines for the Greening of Large Sports Events, with a Focus on the FIFA World Cup™

<sup>4</sup> Sustainable Energy Africa 2006.

<sup>5</sup> [www.eia.doe.gov/emeu/cabs/South Africa/Electricity.html](http://www.eia.doe.gov/emeu/cabs/South Africa/Electricity.html)

<sup>6</sup> Enviropaedia pg 94

<sup>7</sup> McDaid, 2009



### TEAM SOUTH AFRICA

#### - GET YOUR BEHAVIOUR RIGHT - DON'T WASTE ENERGY

It is possible to take action to reduce your carbon emissions - see section (d) to read about the actions you can take to reduce your energy use, and to compensate for the energy you need to use.

#### [c] Winning Strategies

Climate change and energy efficiency strategies for greening large events are discussed as follows:

##### 1. Conservation of energy and energy efficiency

An Energy Conservation and Efficiency Strategy should be developed for each major sporting event by:

- Identifying opportunities through completing energy audits of venues
- Incorporating energy efficiency design into the construction or remodelling of relevant facilities:
  - Use passive heating, cooling and ventilation in the design of buildings,
  - Utilize night temperatures to cool buildings,
  - Maximise the use of natural light in facilities e.g. light wells used in underground parking,
  - Ensure that thermal performance of facilities meets accepted national standards,
  - Select materials with low embodied energy for facilities, temporary structures, and catering equipment (food containers),
  - Insulate all hot water cylinders and pipes in venues,
  - Optimise lighting management including T5 lamp technology, lighting sensors and time switches to reduce periods of illumination,
  - Use Building Management Systems (central computerised systems) to ensure that only areas in use are lit, ventilated or heated,
  - Design the operating systems for

buildings (cooling and heating, power and water delivery, lighting and waste disposal) to minimise energy use e.g. combine space and water heating; insulate pipes; minimise distance travelled by water by locating tanks close to point of use.

- Select low carbon/energy efficient IT (Information Technologies) e.g. TV screens, LED screens and laptops.
- Incorporate green design features for office facilities for the organising committee, such as natural and efficient lighting and efficient air-conditioning systems, efficient office equipment and emphasize best practice energy practices in office management.
- Promote energy efficient forms of travel, such as walking, cycling, and public transport.
- Use gas for catering kiosks for cooking and hot water supply. New technology such as solar stoves can also be used.
- Maintain all facilities and equipment regularly according to an agreed maintenance schedule and/or procedures.



##### 2. Maximising the use of renewable energy resources

- Use renewable energy sources to provide power to event-related facilities:
  - Purchase Green Energy certificates,
  - Set a target of 20% on-site renewable energy sources,
  - Install renewable energy systems into the sports facilities and related buildings, for example, photovoltaic panels, solar water heating or small wind turbines,
  - Use street lighting with integrated solar panels,
  - Install Biogas plants to produce energy, for example, a Biogas generator to capture methane gas from sewage, for cooking,
  - Feed solar power from the Photovoltaic system back into the grid, where possible,
  - Use solar water pumps in the urban parks,

- Use alternative fuel sources in vehicles. Consider electric-diesel hybrid, electric, hydrogen or solar powered vehicles for staff, participants and public transport.

### 3. Reducing the carbon footprint

- Define and measure the carbon footprint of the event.
- Aim to achieve a target percentage (for example 15%) of carbon dioxide emission reductions in permanent venues, including the embodied energy in materials (based on baseline studies).
- Maximise the use of public transport to reach venues during the games by, for example, including the cost of public transport into tickets for the events.
- Use rail for transport of construction materials and waste.
- Select low-carbon vehicles and fuels for the fleet of the organising committee and athletes.
- Develop and implement an Energy Management Plan that continually explores opportunities to reduce energy consumption / greenhouse gas emissions via periodic audits of buildings, vehicles, and which includes checks on metering.



- Monitor daily energy consumption of each building and facility for the event and report to the relevant manager(s). Undertake any adjustments, modifications and repairs required to lower the energy consumption of various activities.
- Use the media to highlight climate change and energy issues. Launch programmes to create awareness of the problem of climate change and increased energy consumption to compensate for the emission of greenhouse gases produced during the period of the event.
- Identify, develop and implement verifiable carbon offset projects. Where possible, obtain sponsorships for these using the mechanisms of the Kyoto Protocol.

### [d] Walking the Talk

So, what can you tell people about how they can help team South Africa be energy wise?

#### **Activities for volunteers:**

*The Plant-a-tree-Today Organisation has calculated that the average tree absorbs and stores 20.3kgs of carbon dioxide in a year, and assumes that such a tree will live for 40 years. In the developed world, the average person's carbon emissions throughout their lifetime amounts to around 10 tonnes, which is about 492 trees!*  
[[www.plant-a-tree-today.org](http://www.plant-a-tree-today.org)]



## Green Energy Certificates

Green energy certificates - or Tradable Renewable Energy Certificates (TREC's) - enable electricity consumers to purchase electricity generated from renewable sources (green electricity), thereby supporting these alternatives. These certificates can be bought to cover all or part of energy used, and make it possible to access green energy without having to build on-site infrastructure or make changes to supply arrangements.

The concept behind the certificates is to produce renewable energy where it is cost effective and reduce the losses from the transmission of electricity. Green electricity may be generated from biomass wastes in the sugar, wood and paper industries; from micro-hydro plants; with further plans for wind and solar energy currently under investigation.

CO <sub>2</sub> EMISSION FACTOR	Kilograms carbon dioxide per passenger kilometer (kgCO <sub>2</sub> /pkm) <sup>8</sup>
Aeroplane short haul	0.11
Aeroplane long haul	0.18
Train (long distance)	0.04
Car	0.178
Bus (long distance)	0.0125*

\* Assuming 30 people occupy the bus.

#### Energy saving tips:

- Going to be out at the games all day - use a hot box to cook the evening meal.
- For those at home - don't fill up the kettle in order to boil water for only one cup of water.
- Open the curtains instead of switching on the electric lights.
- Switch off all the appliances on standby (you can save about 8% of your electricity).<sup>9</sup>
- Energy saving is also water saving. Power stations use two litres of water to generate one unit (kilowatt hour) of

electricity.

- Wrap up warmly in the jersey and/or scarf of your favourite team in front of the TV, don't switch on the heaters. Better still, go out to one of the public areas where the big screen TV's are broadcast, get to know your fellow South Africans, warm up by cheering your team!



### Learn from the past:

The 2006 FIFA World Cup produced 92 000 tons of carbon emissions. Was there a way to avoid those emissions somewhere else in the world? How can one offset such a huge amount?

#### Example:

In India, 900 families were provided with biogas cookers, thereby avoiding burning fossil fuels.

In South Africa, a coal furnace at a citrus fruit farm was replaced by a new plant that runs on sawdust.

#### Carbon offset tips:

- Plant trees and grow your own vegetables in order to capture some of the carbon generated by people flying to South Africa.
- If you drive by car 60km to an event, you will produce 10kgs of carbon dioxide and need to plant one tree in order to offset your carbon footprint!
- If you go by bus, you will only produce 6 kgs of carbon dioxide, and you can plant one tree and offset both yours and another bus passenger's carbon footprint.
- But you can go further - do your bit to address climate change by planting trees for your favourite international star. For every 1000km they fly, you need to plant 5 trees.

<sup>8</sup> "Sustainable Tourism Futures: Perspectives on Systems, Restructuring and Innovations" By Gossling, Hall and Weaver, 2009

<sup>9</sup> [www.bbc.co.uk/bloom/actions/unpluggadgets.html](http://www.bbc.co.uk/bloom/actions/unpluggadgets.html)



## 2.2. Waste Management and Minimisation

### [a] Knowing the Game

South Africa has several laws, policies and strategies to reduce and manage waste. Of significance is the recently promulgated National Environmental Management: Waste Act (Act 59 of 2008) and the National Waste Management Strategy. Furthermore, in 2001, Government held a national waste summit in Polokwane and the resulting declaration stated that South Africa was committed to achieving zero waste by 2022.

South Africa has adopted an integrated waste management approach and this is reflected in the National Waste Management strategy and newly passed national Waste Act of 2008, that presents a long term plan for addressing key issues, needs and

problems experienced with waste management in South Africa. The objective of such legislation is integrated, holistic and participatory waste management that covers the entire waste cycle from cradle to grave. This means that all sectors should have plans in place not only to dispose of waste, but to minimise its production in the first place.

There is now a growing recognition that waste generation is one of the major environmental problems associated with large sporting events. Waste can be generated by participants and spectators through event-related activities such as the consumption of food as well as the wide range of supplies and materials used in hosting an event. In addition, on a larger scale, waste is produced in the construction of permanent facilities and the creation and disposal of temporary installations. The major

challenge is to develop and implement a Waste Minimisation Strategy at the outset of the event planning process to ensure reductions in the demand for natural resources and the amount of waste generated. In most cases solid waste from the actual venues of for example, large sporting events, results primarily from the provision of catering services for spectators and through the production and supply of the relevant products. This includes transport and packaging materials, bottles and leftover food which accumulate in kiosks. Waste is also produced through the supply and sale of merchandise and in the media and business centres.

### [b] Environmental Impacts

South Africa generates more than 42 million cubic metres of waste each year - and another 5 million tons of highly toxic waste. This works out to 700g of waste per person every day.

Each year, globally, 28 000 000 000 plastic bottles for bottled water are produced, and 86% are thrown away. If all the fans, spectators and participants throw such bottles away, imagine the impact it is going to have on our landfills.<sup>10</sup>

To provide each spectator with one drink in a plastic bottle for one match in the Green Point stadium in Cape town at full capacity would use up 34 barrels of oil, produce 50 tons of carbon emissions, and afterwards, the bottles are just thrown away. Worldwide 1500 bottles are thrown out into the garbage every second.<sup>11</sup>

<sup>10</sup> EPI - Earth Policy Institute [www.earth-policy.org](http://www.earth-policy.org)

<sup>11</sup> EPI - Earth Policy Institute [www.earth-policy.org](http://www.earth-policy.org)



### Be aware of wastage:

- To produce one ton of paper uses 100 tons of water. For every ton of paper recycled, 17 trees are saved.<sup>12</sup>
- Recycling tins saves 95% of the energy needed to make them from raw materials
- For every ton of paper recycled, 40% less energy, and 30% less water is needed compared to making new paper
- Recycling one glass bottle saves energy equivalent to a 100w light bulb burning for 4 hours.<sup>13</sup>

In our daily activities, we consume and we create waste - on a planet which is in trouble because of our demands for the world's resources, we can't afford to waste. Each person produces on average 2kg of waste per day!<sup>14</sup>

*LET'S GET IN SHAPE - NO WASTING FOR TEAM SOUTH AFRICA.*

### [c] Winning Strategies

Waste management and minimisation strategies for greening large events are discussed below.

#### 1. Waste Prevention and Avoidance

- The necessity of acquiring a particular product should be assessed before it is procured. Is the product really necessary? Are there other alternatives? Can the product be rented?
- When materials and goods are procured, select products that have been manufactured in a waste efficient manner.
- Appoint service providers that implement waste minimisation strategies.
- Use technologies and appliances that assist with waste minimisation or avoidance e.g. printers capable of double sided printing

#### 2. Reducing the need for disposal

- Encourage separation of waste at source for recycling, reuse and composting.
- Initiate recycling or buy-back programmes, especially for glass bottles, cans, plastic and paper products.
- Approach manufacturers (e.g. Mondi, SAPPI) about collecting and re-cycling used products.
- Use durable cutlery and crockery.
- Use durable towels instead of disposable ones
- Encourage composting of organic waste for landscaping, urban agriculture, and community gardening projects.

#### 3. Sound disposal

- Provide bins for specialised non-recyclable waste, such as hazardous or medical waste in close proximity to sites where waste is generated. .
- Avoid leakages and spills during

storage and disposal of non-recyclable or hazardous waste.

- Arrange waste collection and transportation during periods of low traffic and event activity.
- Ensure that waste is disposed of at a permitted landfill.

### [d] Walking the talk

So, what can you tell people, how can they drive an almost zero waste campaign, and how can they help team South Africa to stop wasting?

*South Africa can be proud that the plastic bag is no longer our national flower along the roadsides. This was achieved in part through the introduction of plastic bag regulations.*

<sup>12</sup> Smart living handbook page 18

<sup>13</sup> Adapted from the Smart Living Handbook

<sup>14</sup> EnviroPaedia - [www.enviroPaedia.com](http://www.enviroPaedia.com)

### Tips for managing and minimising waste

- **Don't buy more plastic bags for your shopping** - buy a durable bag and in doing so, you will be supporting job creation. Many of these bags are made by vulnerable communities that receive the benefits of your less wasteful lifestyle.
- **Pick up your litter** - be a proud South African - these are our stadiums, facilities and roads, we don't throw papers in our own homes because we are proud of clean houses - street cleaners have enough to do, keep the stadiums and other infrastructure clean - they don't need to pick up your rubbish.
- **Recycle your tins, glass and paper, and organic waste.** Encourage people to set up their own recycling systems at home, at school and at work.
- **Buy your takeaways with the least amount of packaging** - a hot dog or boerewors roll will taste just as good in a paper packet with a paper serviette as wrapped in Clingfilm and Styrofoam.
- **Bring your own water from home** - don't waste money buying bottled water. This will increase the amount of plastic bottles that will be need to be dumped

in landfills.

- **Don't throw your organic (wet and food waste)** in the bin – consider composting - get yourself a worm farm and make your own compost.

### Not wasting "waste"

During the Nedbank Golf Challenge event, 23 restaurants generated up to 2 tons of food waste each day. Pig farmers collected this waste daily, and so reduced the amount of waste necessary for disposal in a landfill.

In addition, almost 92% of the beverage packaging was recycled (due largely to strategically located colour coded bins). Around 113 275 cans, 19 260 glass bottles and 72 413 plastic bottles were recycled. A total of around 26 tons diverted from the landfill - equivalent to approximately 325 average weight sports fans (at 80kg a person).

### Activities for volunteers:

*The FNB stadium holds 94 700 spectators when full. If each person buys one plastic bottle of cooldrink*

*during their time at the event, calculate:*  
a) *How many bottles are going to be thrown away?*

b) *If all those bottles were glass and were recycled, how many light bulbs could be kept burning for 8 hours with the energy saved. (Remember that recycling one glass bottle saves energy equivalent to a 100w light bulb burning for 4 hours).*

**Take 10 household products and establish how many of your cleaning household products are environmentally friendly.**

When first looking at a product, remember to ask yourself some key initial questions:

1. Is this product made from natural and non-toxic materials?
2. Is this product free from unsustainable materials, such as petroleum based plastic?
3. Is this product made from recycled materials; is it recyclable or reusable?
4. Is this product durable and can it be disposed of safely?
5. Is the product packaging limited and is the packaging materials

biodegradable, recyclable and PVC free?

6. Is this product, in its production and use, energy efficient?
7. Does this product comply with the ethical standards?

Where possible the answers should be YES!

Remember to think about the **life cycle cost** of the product, from the source materials, its manufacturing process right through to how the product is packaged, used and then finally disposed of.<sup>15</sup>

### Actions for volunteers:

- Make sure that the signage on recycling bins is easily visible.
- Direct spectators and fans to the bins, explaining what to put where if necessary.
- Advise vendors on how to reduce waste.
- Check that bins are being emptied regularly.
- If possible, ask for can crushers and encourage people to crush their tins before dumping them.

<sup>15</sup> WWF Eco-Procurement Guidelines, [www.wwf.org/](http://www.wwf.org/)

## 2.3. Transport

### [a] Knowing the Game

In our modern society, we often live far from where we work, play or go shopping. Transport is critical to our existence. New and improved public transport is needed in South Africa.

For example, for the 2010 FIFA World Cup, it is estimated that an extra 350 000 visitors will arrive through air travel<sup>16</sup>, while buses and taxis play an enormous role in transporting people to where they want to go. Approximately 1 million people use the train every day in South Africa<sup>17</sup>. Goods such as food, household consumables as well as larger items such as building materials all need to be transported from where they are made to where they are needed. Trucks, trains and ships provide this service, mostly based on energy from fossil fuels.

Modern long distance travel, including air travel, results in environmental impacts. These impacts often relate to the energy use, predominantly climate change impacts resulting from carbon emissions.

Moving towards a low carbon emissions public transport system would be ideal. The hosting of the 2010 FIFA World Cup has been used as a catalyst to fast track the development of an efficient, sustainable and affordable public transport system that will benefit commuters and the economy in the years following the event. A national Transport Action Plan has been developed and Transport Plans at the local level are underway. Transport Action Plans at both the national and local level inform the sustainable use of public transport in South Africa. For example, the Transport Action Plan for 2010 includes:

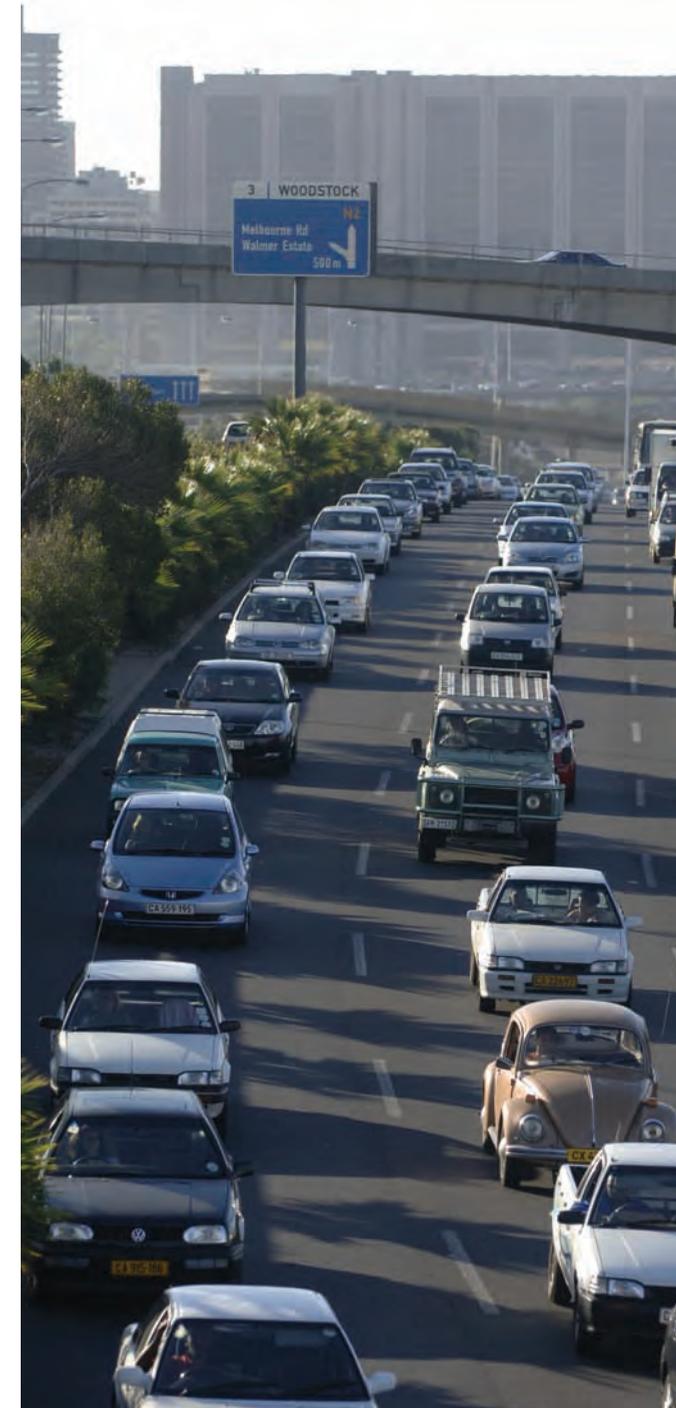
- Major public transport improvements

including road, rail and aviation infrastructure, non-motorised transport infrastructure, building and upgrading of railway stations and airline terminals, and redesign of fare collection systems

- Adopting economic incentives / disincentives:
  - Differential parking rates for High Occupancy Vehicles (HOV),
  - Dedicated lanes for HOVs or buses,
  - Secure, weather protected bicycle storage facilities,
  - Pedestrian links between venues,
  - A weekly transport card for all modes of transport,
  - Park and ride areas,
- Establishment of a World Cup (Joint) Operations Centre and sub-centres (closed circuit television monitoring, area traffic control, etc.).

<sup>16</sup> [www.project2010.co.za/World Cup transport.asp?N=9](http://www.project2010.co.za/World%20Cup%20transport.asp?N=9)

<sup>17</sup> [www.tshwane.gov.za/documents/sftp/Chapter6 AssessmentProposalsontheVariousModes.pdf](http://www.tshwane.gov.za/documents/sftp/Chapter6%20AssessmentProposals%20on%20the%20Various%20Modes.pdf)



## [b] Environmental Impacts

The quality of our air is decreasing as more and more vehicles come on to the roads. As a result, pollutants are expected to increase by 44% by 2011<sup>18</sup>. Large events attract large numbers of international visitors and this can have significant environmental impacts. For example, air travel related to the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg accounted for 95% of summit related carbon emissions.

1000 extra buses will be used to transport spectators during the 2010 FIFA World Cup - If these buses were laid end to end, they would form a chain approximately 15kms long.<sup>19</sup>

Every day approximately 36 people die on our roads and 15 of these are pedestrians.<sup>20</sup>

<sup>18</sup> Pg 57, DEAT Guidelines for the Greening of Large Sports Events, with a Focus on the FIFA World Cup

<sup>19</sup> [www.news24.com/News24/South Africa/Politics/0,,2-7-12-2508787,00.html](http://www.news24.com/News24/South Africa/Politics/0,,2-7-12-2508787,00.html)

<sup>20</sup> [www.arrivealive.co.za](http://www.arrivealive.co.za)

<sup>21</sup> Enviropaedia pg 129

In 1989, the Exxon Valdez oil tanker crashed and spilled 42 million litres of crude oil along the coast. The oil spill killed at least 580 000 birds (including 144 rare bald eagles, 5500 sea otters, 22 whales and oiled 5 100 kms of coastline. The clean up cost \$4 billion dollars, and afterwards, a number of measures were put in place to prevent such a disaster happening in the future.<sup>21</sup>

## [c] Winning Strategies

Strategies for greening transport arrangements for large events are discussed below.

### 1. Minimization of transport needs

- Where airline travel is unavoidable, suggest airlines with good environmental policies for participants and provide opportunities for participants to offset their travel related carbon emissions (see Section 2.2 on Climate Change and Energy Efficiency for information on carbon offset projects),
- Select event venues and

accommodation facilities that are near each other.

- Set up attractive pedestrian and cycle routes between stations and stadium.
- Time events during off-peak hours to avoid congestion.

### 2. Promotion of public transport

- Raise awareness about the merits of public transport amongst staff, participants and public. Provide information about available routes.
- Promote behavioural change towards the use of public transport through choosing facilities that are accessible to each other and to airports and train stations, via public transport.
- Create 'park and ride' facilities at transport hubs.
- Create incentives for using mass transportation (e.g. make event tickets valid on local public transport and use special offers to encourage people to use public transport).
- Use volunteers or trained staff in key stations/areas to assist people in finding their way to the games and related events/services.





- Optimise the efficiency of transport system to attract users:
  - Ensure the frequency of transport matches demand.
  - Match vehicle size to demand so that vehicles do not travel empty.
  - Train vehicle drivers and maintenance staff in environmental best practice.
- Create incentives for car-pooling by reducing parking costs for multi-passenger vehicles.
- Provide adequate signage and information:
  - Provide extensive directional signage (at transport hubs, event venues), published information brochures and dedicated information assistants (often volunteers), using a common, recognisable signage theme.
  - Mount comprehensive travel orientation displays at stadium precincts and fan parks.
- Locate venues for sports fans (e.g. Fan

festivals and Fan Parks) in central areas close to public transport.

### 3. Reduction of pollution from transport

- Use energy efficient and low emission technologies and fuels:
  - Use vehicles that utilise alternative fuel sources such as ethanol, biodiesel, gas, electric or hydrogen where available. Use fuel blends, unleaded petrol, low-sulphur diesel for regular vehicles.
  - Install particulate filters on bus exhausts.
  - Purchase, or retrofit, vehicles with catalytic converters.
- Showcase alternative vehicular technologies at events.
- Use non – motorized transport, e.g. rickshaws, bicycles.
- Provide walking and cycling routes and supply maps for these routes. Provide secure bicycle parking at venues.
- Provide clear and reliable information on alternative transport methods in various media, in particular, through the

internet.

- Vehicles should conform to national emission standards.

### [d] Walking the Talk

#### Actions for volunteers:

Direct the public to the nearest public transport closest to them

- Leave your car at home, use public transport - or drive your car to the nearest train station
- Watching the game will be more fun as a group of friends, share your transport
- Where cycle paths exist, use a bicycle. This will help keep you keep fit, save fuel, save money, improve your health, reduce your carbon emissions and keep the air cleaner for everyone to breathe, while at the same time allowing you to have fun on your bicycle. "Think bike".
- Remind the public again of the energy savings from public transport (See section

## 2.1 Climate Change and Energy Efficiency, "Environmental Impact".)

### Activities for volunteers:

*If 350 000 extra visitors are going to arrive in our country for the world cup, let us look at how they could be transported and what impact that might have on traffic congestion.*

*If each of those people hired their own car, and they all lined up on the N1 driving from Johannesburg to Cape Town, they would form a line approximately 116kms long.*

*If a tour bus can take 60 passengers, and is 13m long, how much shorter would the traffic queue be?*

*Refer back to the energy section and think about how much carbon emissions can be saved if visitors take public transport.*

## 2.4. Water Conservation and Management

### [a] Knowing the game

Fresh water is essential for the daily life of all aquatic and terrestrial organisms, including humans. It is crucial for maintaining ecosystem health, biodiversity and the livelihoods of fishermen, farmers, foresters and those economically involved in recreation and tourism.

South Africa is a semi-arid country, with an average rainfall of 450 millimetres per year, about half the world average of 860 mm per annum. Rainfall in South Africa is highly variable, with the eastern and southern parts of the country receiving significantly more rain than the northern and western regions. The surface water resources in South Africa are already highly developed, with dams and reservoirs capturing about 66% of the total mean annual rainfall. About 20% of this runoff needs to remain in

the rivers and estuaries to support natural ecosystems.<sup>22</sup>

Consumption of water at sporting venues is associated with facilities for irrigation, ablution, catering, cleaning of venues and accommodation facilities, air conditioning, and landscaping. Golf courses have a particularly high water demand and responsible water management could enhance the image of such sports. Rugby and soccer grounds and cricket pitches also have a relatively high demand for irrigation and the large numbers of spectators attending games use significant quantities of water for catering and ablution.

Water quality is important for water based sports such as canoeing, windsurfing, surfing, and angling. Poor water quality already impacts on our water sports on inland dams that are negatively affected by urban run-off and sewage disposal.

*“Per capita availability of freshwater is declining globally, and contaminated water remains the greatest single environmental cause of human sickness and death” - UNEP, 2007. GEO 4<sup>23</sup>*

### [b] Environmental Impacts

If present trends continue, 1.8 billion people will be living in countries or regions with absolute water scarcity by 2025, and two-thirds of the world's population could be subject to water stress.<sup>24</sup>

According to the United Nations, everyone needs 20 to 50 litres of clean, unpolluted water every day. With 27% of all Africans without adequate water, it is praiseworthy that the UN Millennium Development Goal (2000) is to 'Reduce by half, by 2015, the proportion of people without sustainable access to safe drinking water.'<sup>25</sup>

Every time you flush the toilet, you could waste up to 20 litres of purified drinking water.

Water run-off from the Green Point stadium roof under an extreme winter rainstorm could be as high as 1.7 cubic metres per second. That is enough water to cover the football pitch to a depth of 1 metre in 49 minutes. This is water that could be harvested and used to flush the toilets for example or to water the lawns in the dry summers.

As far as water quality goes, many of our rivers are polluted. The Msunduzi river, which is used for the Duzi Canoe marathon, is unfortunately badly polluted. Between July 2006 and October 2008, all sampling sites exceeded the safe level of Ecoli bacteria at some time.<sup>26</sup>

<sup>22</sup> Pg 30, DEAT Guidelines for the Greening of Large Sports Events, with a Focus on the FIFA World Cup™

<sup>23</sup> UNEP, 2007 global Environmental Outlook 4: Environment for Development

<sup>24</sup> UNEP, 2007 global Environmental Outlook 4: Environment for Development

<sup>25</sup> [www.unesco.org/water/wwap/facts/basic\\_needs.html](http://www.unesco.org/water/wwap/facts/basic_needs.html)

<sup>26</sup> Bryan Ashe - ppt from Umgeni water sampling - 2008

### [c] Winning Strategies

Strategies for greening water management for large events are discussed below.

#### 1. Minimisation of water usage

- Develop and implement a Water Management Plan for the event and each venue. Focus efforts on the main water demand activities, e.g. catering, cleaning, cooling of buildings, and landscaping.
- Conduct water audits of existing venues to identify water uses and consumption levels and identify areas for improvement.
- Design or retrofit venues to maximise water efficiency, including the use of water efficient technologies:
  - Install equipment which promotes water efficiency e.g. Infra-red controlled taps, waterless urinals, low-flush or dual flush toilet cisterns, low flow shower heads,

tap aerators, spray taps and self closing taps.

- Harvest rainwater from roofs – stadiums roofs provide particularly large areas – and use for irrigation or toilet flushing; store this water in above ground tanks or below ground storage units. Use recycled grey water for toilet flushing and irrigation.
- Employ ecological sanitation systems on site, e.g. biological or reed bed filtration of sewerage, with water produced used for irrigation.
- Install drip irrigation for landscaping.
- Adopt water management plans on construction sites, as part of Environmental Management Plans. Use recycled water or rainwater for vehicle washing, dust settlement, and toilet flushing on construction sites.
- Select drought tolerant plants for gardens and landscaping.
- Use non-potable water for irrigation,

e.g. non-potable wells, municipal treated effluent, and recycled grey water.

- Monitor and maintain water systems regularly to avoid losses through leakage. Install sub-meters to enhance identification of high use areas. Publish the data or display on electronic notice boards.

#### 2. Protection of water resources and avoiding pollution

- Work with local conservation organisations to promote the conservation of natural wetlands or estuaries near the event site.
- Use porous or permeable paving to allow storm water infiltration, groundwater recharge and on-site storage, in implementing the principles and technologies of Sustainable Urban Drainage Systems (SUDS) in and around stadiums.





- Connect temporary toilet facilities to the established sewer network wherever possible to reduce use of chemicals.
- Construct storm water swales (ditches) to maximise storm water infiltration on site.
- Divert rainwater into ponds or rivers or build retention dams on site.
- Provide special washing areas for sporting equipment to avoid pollution.
- Monitor the quality of water effluent from facilities to ensure that the necessary policy and regulations are complied with.

#### [d] Walking the Talk

South Africa is a water scarce country

so we need to use water wisely.

- The cost of bottling water works out to be almost 2000 times higher than the price of tap water - keep your money in your wallet and use tap water. A five minute shower uses 80 litres of water whereas filling a bath tub uses almost double the amount – approximately 150litres. So, as far as possible, consider taking a shower instead.
- Clean your driveway or yard with a broom instead of a hosepipe and save 320 litres of water.<sup>27</sup>

#### Actions for volunteers:

- Check that taps are turned off when not in use.

- Report leaks to supervisors who can get them fixed.
- Check changing rooms and toilets at sports venues to make sure that there are no leaks - explain to the public why toilets have dual flush system. Sports venues should have taps that switch off automatically - explain to the public why this is so.
- Transport companies should use minimum water when washing buses, and do their washing on open fields or green belts so that the water can soak into the grass, rather than draining off into the sewage system, wasting away. Use environmentally friendly non toxic cleaning materials that will degrade into

food for plants, not remain toxic forever. Help the public to understand that for South Africa, water is more precious than gold. Team SA can show the world that we are water wise.

#### **Activities for volunteers:**

*Using the statistics in the section above, calculate how much water would be wasted in the Peter Mokaba stadium if all the spectators had a bath instead of a shower when they went home (Peter Mokaba stadium has seating capacity of 45 000).*

<sup>27</sup> Wildlife Environment Society of Southern Africa, 2009

## 2.5. Biodiversity

### [a] Knowing the Game

Biodiversity can be defined as simply “life on earth”.

The planet earth contains a multitude of species, from microscopic algae and bacteria through to giant trees and blue whales. All of these species interact in a complex web of interactions that maintain a balanced system of life on earth.

8000m above sea-level, the human body fails to function without oxygen, experiences head-splitting headaches, nausea etc. However, bar-headed geese fly across the Himalayas (8850m) without any problem.<sup>28</sup>

From a selfish human perspective, biodiversity is essential for ensuring

ongoing provision of ecosystem services such as the production of clean water, prevention of erosion, carbon storage (to counteract global warming), and clean air. The resources provided by our biodiversity that support the economy and economic development, are the basis of many livelihoods, and are the source of raw materials and medicines.

South Africa is one of the world’s most biologically diverse countries and contains three globally recognised biodiversity hotspots: the Cape Floristic Region, the Succulent Karoo, and Maputaland-Pondoland (an area shared with Mozambique and Swaziland).

The number of indigenous plant species in the Cape Peninsula (2256 species) totals more than the number of plant species in the whole of Great Britain

(1492).<sup>29</sup> This is surpassed by the Succulent Karoo biome that hosts 6000 plants, of which 2400 are found nowhere else in the world.<sup>30</sup>

What are these species and what is special about them? Author, Leonie Joubert, had this to say about tortoises in southern Africa: “If tortoises were currency, we would be sitting on Wall Street and the USA would be a third rate economy. There are only 43 tortoise species in the world. Fourteen occur across Southern Africa, and many of these do not occur anywhere else in the world”. [The USA and Mexico only have 4 species]

<sup>28</sup> Leonie Joubert, *Scorched*, Wits University Press, 2006

<sup>29</sup> *Indigenous plants - smart living handbook* page 93

<sup>30</sup> *Green Connection- Farming Sunlight - climate change booklet* 2008



In keeping with international commitments to conserve this biodiversity, South Africa has put in place national laws and an action plan.

Sporting events and facilities can impact on biodiversity. The principal negative impacts on biodiversity associated with sporting facilities and events relate to their location and layout including the design and management of the facilities.

On the other hand, sporting events provide an opportunity to protect and enhance the biodiversity of both urban and rural areas in and around host cities and countries. New facilities may be accompanied by opportunities to expand or establish urban parks, the protection and restoration of sensitive natural environments and city-wide urban greening with indigenous species. An event could make financial contributions to the establishment and/or management of conservation areas in a host city or country.

### **Ethekwini Open Space System Environmental Services Management Plan (Open Space System)**

The Ethekwini Open Space System (D'MOSS) now called Ethekwini Environmental Services Management Plan was designed and launched in 1989 in the Durban Municipal Area(DMA). As a result, a network of open space conservation and recreation areas, linked by open space corridors, was created in the previous municipal area. The aim of D'MOSS is to preserve the city's ecological diversity and enhance living environments. The D'MOSS system was updated and extended in 1998 to include the whole metropolitan area through the development of a D'MOSS Framework Plan. During the preparation of the plan, all potential metropolitan open space was identified, mapped and quantified in order to create an inventory of the open space 'assets' within the DMA. The various types of open spaces and ecosystems in the city provide varying quantities and mixes of environmental goods and services, each of which have specific values, e.g. wetlands are worth around R 200, 000 per hectare per annum while forests have a value of around R 21, 000 per hectare per annum.

In general, more diverse natural landscapes have greater value since they provide a wider range of services. Research in the field is ongoing, but currently available figures are widely accepted as a useful guide and tool for providing 'order of magnitude' estimates of the value of open space to humanity. Using the outcomes of this research it has been estimated that the total replacement value of the environmental goods and services supplied by the 2002 open space system is R 3.1 billion per annum. It is noteworthy that this excludes the value of the role of open space in the tourism industry of Durban, which itself was estimated to be worth R3.3 billion in 2001.<sup>31</sup>

Because individual species rely on the environment in which they live and they interact with other species that share this environment, habitats are often more important than individual species. This is why there is an important focus on preserving corridors of biodiversity, open spaces in urban areas, and nature reserves.

### **[b] Environmental Impacts**

"We are indeed experiencing the greatest wave of extinctions since the disappearance of the dinosaurs," said Ahmed Djoghlaif, head of the U.N. Convention on Biological Diversity. "Extinction rates are rising by a factor of up to 1,000 above natural rates. Every hour, three species disappear. Every day, up to 150 species are lost. Every year, between 18,000 and 55,000 species become extinct. The cause: "human activities", he said.<sup>32</sup>

<sup>31</sup> [www.durban.gov.za/durban/services/departments/environment/environmental\\_policies/open\\_spaceplanning/](http://www.durban.gov.za/durban/services/departments/environment/environmental_policies/open_spaceplanning/)

<sup>32</sup> [www.news.softpedia.com/news/The-Rate-of-Extinction-3-Species-per-Hour-55411.shtml](http://www.news.softpedia.com/news/The-Rate-of-Extinction-3-Species-per-Hour-55411.shtml)

If about 10 000 land based species are estimated to be going extinct each year - in a 90 minute soccer game, the time that one soccer match takes to play until full time, results in about 2 species being lost from planet earth forever.



Blackpoll warbler <sup>33</sup>

Birds travel very long distances moving between feeding and breeding grounds. For example the Blackpoll warbler flies a 90 hour trans-ocean marathon flight.

Should our sportsmen and women want to perform a similar feat, it would mean running the four minute mile for 80 continuous hours.

Human impacts that destroy more and more natural habitats leave these unique animals with nowhere to go, and if they cannot adapt, they die. Many of these species are plant species.

One important benefit of biodiversity conservation is that genetic makeup of wild plants can be used to strengthen food security. Five thousand plant species have been used by humans for food. But in modern times, only 20 plant species feed the majority of the world's population and only four provide the basic carbohydrates for the vast majority of the world's peoples.<sup>34</sup> Plants that we don't use as food now could be useful in the future, as they may be better at adapting to climate change, be resistant to diseases or improve productivity. If these plants become extinct, they will be gone forever and we will never realise these benefits.

### [c] Winning Strategies

Strategies for greening biodiversity management for large events are discussed as follows:

#### 1. Conservation of biodiversity

- The design of facilities should consider such things as:
  - Providing refuge for fauna within landscaping structures and features e.g. dry-packed rock walls or log walls provide more habitat for invertebrates and reptiles than fences, small wetlands and ponds could provide effective habitat for amphibians rather than capturing runoff in pipes.
  - Provide habitats where possible on buildings e.g. bird nests, vegetated roofs.
  - Avoid over-lighting venues to reduce impact on nocturnal species.
  - Allow for appropriate management (e.g. some ecosystems require fire to persist).
- Minimise the 'footprint' of construction by clear demarcation of sensitive or 'no go' areas, and areas for materials storage.
- Collect indigenous plants for use in landscaping post-construction, and rescue and relocate fauna on venue construction sites, where appropriate, as advised by a specialist.
- Maintain facilities:
  - Limit access to priority areas for

- conservation and/or sensitive areas during sporting events by creating and monitoring a buffer zone between these areas and event venues.
- Control movement of visitors across natural spaces by using clear signposting of facilities and guides, and provide adequate route maps and path networks.
- Avoid or minimize use of pesticides, herbicides and fertilizers.
- Clear invasive alien species on a regular basis.
- Use sustainably harvested indigenous species of cut flowers, such as proteas and strelitzias, at venues to support local industries and livelihoods.
- Source food and wine from biodiversity friendly/certified and organic sources (e.g. Biodiversity and Wine Initiative).
- Rehabilitate or restore, where applicable, natural areas that were degraded during the event.
- Monitor and manage the implementation of conservation projects established via the event to ensure that they deliver desired outcomes.

<sup>33</sup> [www.en.wikipedia.org/wiki/File:BlackpollWarbler23.jpg](http://www.en.wikipedia.org/wiki/File:BlackpollWarbler23.jpg)  
- website specifies that pic is in public domain so it can be used in this publication

<sup>34</sup> Smart living handbook - page 101



## 2. Promotion of urban greening

- Implement extensive urban greening programmes that significantly increase the area of indigenous vegetation in the host city and serve to connect areas of natural habitat within the city where at all possible.
- Establish tree and plant maintenance and monitoring contracts.
- Use locally-occurring indigenous, water-wise species, such as aloes for new landscaping. Selection of species should consider future predicted changes in climate.

## 3. Protection and restoration of urban ecosystems

- Establish or extend existing urban parks through:
  - restoration of degraded areas identified

in local authority and/or provincial biodiversity plans;

- the protection and management of sensitive ecological areas (e.g. wetlands or water courses); and
- the linking, protection and management of significant remnants of natural habitat within the urban fabric.
- Create or extend viable habitat for locally-occurring and threatened fauna e.g. ponds, road underpasses linking remnant habitats.

## 4. Raising awareness about the natural heritage of the host city/country/region.

- Launch or support existing campaigns with conservation NGOs, local or provincial conservation agencies to instil national pride of natural heritage.
- Involve key sports icons participating in the event as biodiversity champions to convey messages about the value of biodiversity and about conservation projects the event is supporting.
- Provide information on the protected areas to visit in the host region.

## [d] Walking the talk

### Actions for volunteers:

- Explain to the public how important our animals and plants are for the environment. Our natural assets are part of the reason that we had 9 million visitors to South Africa in 2007.<sup>35</sup>
- Our animals and plants are part of our sporting life. Here are a few interesting facts about our sporting emblem:

Proteas - Proteas are one of the fire adapted plants in the Cape Fynbos.<sup>36</sup> As well as being beautiful, they are long lived, and the summer fires are part of their lives.

- Encourage public to support their local sporting teams by planting indigenous plants such as proteas.
- Remind spectators not to drop litter. As well as being unsightly, such waste can also blow or get washed down into the rivers. Our rivers contain unique fish, and frogs, found nowhere else in the world.
- Encourage visitors (both national and international) to visit local biodiversity hotspots.
- Try to avoid chemicals in the natural

environment. Use organic composts in your garden.

- Use natural mechanisms to get rid of household pests, for example:
  - Flies and mosquitoes - burn citronella candles.
  - For most insects, highly fragrant herbs such as citrus oil, peppercorns, powdered red chilli pepper, bay leaves, or cloves are all great repellents.

### Activities for volunteers:

*Referring to the information provided above, if an event is two hours long, calculate how many plants and/or animals would have become extinct? Reflecting on these losses, plan ways in which individuals can make a positive difference to biodiversity conservation, for example, for each event you watch, plant a tree in your backyard or local open space and nurture it to encourage other animals and plants to settle nearby. In this way, we can help our local South African fauna and flora survive and flourish.*

<sup>35</sup> [www.southafrica.info/travel/tourism-2007.htm](http://www.southafrica.info/travel/tourism-2007.htm)

<sup>36</sup> [www.wildlifepreservation.suite101.com/article.cfm/when-fire-brings-new-life](http://www.wildlifepreservation.suite101.com/article.cfm/when-fire-brings-new-life)

## 2.6. Sustainable Procurement

Procurement in South Africa has a strong focus on Local Economic Development and support of Black Economic Empowerment (BEE).<sup>37</sup> From a greening perspective, procurement decisions need to consider several additional issues already discussed in this document, namely Climate Change and Energy Efficiency (Section 2.1), Waste Management and Minimisation (Section 2.2), and Water Conservation and Management (Section 2.3). These sections will give you additional insights into mechanisms and practical opportunities for greening procurement.

### [a] Knowing the Game

Smart eco-friendly living can be promoted if we can find the goods and services we need that are geared

towards a water wise, zero waste, clean energy, and transport society. Sustainable procurement is a powerful strategy for achieving the objectives that have been highlighted in other sections.

Green products are produced in a way that consumes fewer natural resources, involves less energy and water and minimises hazardous and other waste. They may require less energy to operate, contain fewer toxic or hazardous substances, or be recyclable. They generally offer long-term cost savings through efficient use of energy, longer lifespan and the production of less toxic waste that is expensive to transport, dispose of and obtain permits for.

<sup>37</sup> [http://www.southafrica.info/doing\\_business/trends/empowerment/bee.htm](http://www.southafrica.info/doing_business/trends/empowerment/bee.htm).



### BROAD BASED BLACK ECONOMIC EMPOWERMENT:

An integral part of the BEE Act of 2004 is the balanced scorecard, which measures companies' empowerment progress in four areas:

- a). Direct empowerment through ownership and control of enterprises and assets.
- b). Management at senior level.
- c). Human resource development and employment equity.
- d). Indirect empowerment through:
  - Preferential procurement,
  - Enterprise development, and
  - Corporate social investment - a residual and open-ended category.

Procurement decisions need to consider two particular issues over and above the BEE requirements:

- 1) Environmental issues such as energy efficiency, water conservation and waste reduction; and
- 2) Prioritisation of goods manufactured locally - firstly within the region where the event is being hosted and secondly within South Africa.

## [b] Environmental Impacts

Decisions based on clear procurement guidelines can be made to avoid or reduce wastage through smart purchasing or appointing the right service providers. Procurement can also be used to support the local economy in a proactive way and to encourage social upliftment through supporting fair-trade products.

Refer back to the environmental impacts associated with waste, water and energy and it is easy to see that we could make choices that would benefit the environment.

## [c] Winning Strategies

Strategies for greening procurement for large events are discussed below.

### 1. Ensure a clear strategy and labelling of products and services

- Develop appropriate criteria with different weightings applied to each criterion on a contract by contract basis, according to the nature of the goods, services or work being procured. This could include specific requirements such

as energy efficiency, water conservation and waste reduction, as well as a requirement for locally produced goods.

- Select products that have an eco label as this ensures that products comply with certain standards such as FairTrade, Forest Stewardship Council (FSC), Energy Star and Organic Certified.



### 2. Reduce the negative impact of catering, clothes, gear and other merchandise

- **Purchase local products:** The purchase of regional food products, or even direct purchasing from farmers, should be considered as a mechanism to support local economic development. Support the “proudly South African” brand.
- **Purchase environmentally sound products:** Products purchased should be produced in an environmentally sound and natural manner. This could include organic products or limited use of pesticides.

- **Select seasonal products:** The deliberate selection of seasonal products also relieves pressure on the environment through reduced freight paths.

- **Consider labelling:** Ensure that appropriate labelling is complied with. As an example, fish should comply with the South African Sustainable Seafood Initiative Guide<sup>38</sup>, which has a species list to help make choices that are better for the environment when buying seafood.

- **Support fair trade food:** Where possible select fair traded food products to support producers in developing countries, such as Rooibos Tea from the Heideveld Co-op in South Africa. This makes an important contribution towards securing the existence and future of local domestic farmers.

- **Encourage reduced packaging:** Request that the food is packaged appropriately in containers that can be re-used rather than disposable containers, and avoid the use of individual packaging, but rather support bulk deliveries.

- **Promote the use of refundable or re-usable items:** Avoid the use of

disposable tableware and specifically items that cannot easily be recycled such as polystyrene cups.

- Carefully select suppliers to ensure that social and environmental standards are being complied with.

<sup>38</sup> [www.wwf.org.za/sassi](http://www.wwf.org.za/sassi)



## South African rugby gear for the 2007 Rugby World Cup

During the 2007 Rugby World Cup, the Congress of South African Trade Unions (COSATU) called for a boycott after learning that the South African rugby gear had been imported. An agreement was subsequently undertaken to ensure that most of the replica jerseys and other memorabilia were made in South Africa. In addition more goods and services were to be sourced locally.

### (d) Walking the Talk

#### Actions for volunteers:

- Encourage public to read labels and look out for things such as<sup>39</sup>:
  - Has the product been certified by a credible institution? Does the national government in the host region or an internationally recognised specialist in the field support the certification?
  - Does the product have a long lifespan?
  - Is the product designed to minimize waste?
  - Is the product recyclable or biodegradable?
  - Is it recyclable locally?
  - Can the product be returned to the manufacturer for reuse or recycling?
  - Is packaging minimised?
  - Is packaging made of recycled materials?
  - Do manufacturers accept packaging for reuse or recycling?

- Educate vendors about green procurement and why it is important - draw on "Wow Facts" from earlier sections of this guideline to highlight key challenges and strategies to address them.

#### Activities for volunteers:

- a. Take ten household products you use regularly. How many of them carry the proudly South African logo?
- b. By supporting local products, you are helping to build the local economy. Try to source all or nearly all of your household products locally.

<sup>39</sup> Questions extracted from the Canadian Department of Environment, 1995



## 2.7. Design and Construction

The built environment is responsible for a major proportion of global resource use and environmental degradation. The design of buildings has a broad range of environmental impacts, including those associated with several themes already discussed in this guideline, such as:

- the use of energy (Section 2.1) and water (Section 2.3),
- the loss of biodiversity (Section 2.5) from raw material extraction and the clearing of vegetation under the footprint of new infrastructure and,
- waste streams (Section 2.4) that emanate from construction activities and the operation of facilities.

Please refer to these sections to obtain additional insights into mechanisms for greening design and construction associated with large events.

### [a] Knowing the Game

The broad aim of sustainable design is to reduce the environmental impacts of buildings and increase the social and economic benefits during the production

of building components, during the construction process, as well as during the lifecycle of the building.

Sustainable design for major sports events typically require the erection of new sports facilities or upgrading of existing facilities, where sustainable design strategies should be set as a requirement by the organising body. This requirement should also apply to the construction of temporary structures for outdoor events, such as communication towers, spectator stands, and ablutions facilities. The design of associated urban parks should be guided by sustainable landscaping principles.

The concepts of sustainable landscaping include the selection of indigenous plants that enhance biodiversity and reduce water consumption. Certain components used in sustainable design may cost more than conventional technology, such as photovoltaic panels for the in-situ generation of electricity. In contrast, the so-called passive design approaches reduce construction and operational costs by investing in a building's form

and envelope (e.g. optimising building orientation, shading, and thermal performance of the building envelope) so that the heating, cooling, and lighting loads are reduced, and in turn, less costly ventilation and air conditioning systems are needed.

The construction phase of a project entails activities that have significant environmental impacts. In particular, the use of energy and water during construction, the production of waste, pollution of land, air and water and impacts on biodiversity need to be mitigated and well managed.

Until recently, there has been little awareness and few examples of sustainable buildings in South Africa. However the South African Green Building Council developed a Green Rating system based on the Australian Green Star model.

The green building rating tool sets standards and benchmarks for green building, and enables an objective assessment to be made as to how

"green" a building is. The rating system sets out a "menu" of all the green measures that can be incorporated into a building to make it green. Points are awarded to a building according to which measures have been incorporated, and, after appropriate weighting, a total score is arrived at, which determines the rating.

At the local level some municipalities have initiated green building guidelines. For example the City of Johannesburg<sup>40</sup> is in the process of developing, and the Tlokwe municipality is in the process of incorporating the South African Energy and Demand Efficiency Standard into building plans for new municipal buildings and commercial buildings in the private sector.<sup>41</sup>

<sup>40</sup> Design Guidelines for Energy Efficient Buildings in Johannesburg, Version H. CSIR, 2008

<sup>41</sup> Pers. comm., Y Reddy, Sustainable Energy Africa, Cape Town.

## CONSTRUCTION OF THE INTERNATIONAL BROADCASTING CENTRE (IBC) FOR THE 2006 FIFA WORLD CUP

Television coverage of the 2006 FIFA World Cup was broadcast to a billion people from the IBC. This centre was built using recycling-friendly construction methods and regenerative raw materials, mostly wood. After the World Cup, the centre was dismantled and most of the material could be used for other purposes, for instance the construction of 60 houses.

### [b] Environmental Impacts

- The lifespan of an average building exceeds 100 years,<sup>42</sup> so decisions made in building design could last for over a century. The built environment has a significant impact, being responsible for:
  - 20-30% of all greenhouse gas emissions,

- 30-40% of global energy use, and
- uses up 40% of materials produced each year.

- The Moses Mabhida stadium in Kwazulu Natal has used 23 000 tons of concrete<sup>43</sup> - that is equivalent to the total body weight of approximately 300 soccer players.

### [c] Winning Strategies

Strategies for sustainable design for large events are discussed below.

#### 1. Environmental sustainability

- Install water efficient devices, e.g. waterless urinals, low flush toilets, and low-flow shower heads and taps.
- Install flow meters to monitor consumption and leaks. Measure the water consumption and compare to predicted consumption.
- Harvest rainwater and store for use in irrigation or flushing of toilets.
- Collect stormwater on site in retention ponds or storage structures and allow

infiltration or use for irrigation.

- Reuse and adapt existing structures wherever possible to conserve resources.

#### 2. Social sustainability

- Design for environmental control by users, e.g. vents, shading devices, and operable windows.
- Make provision for disabled access.
- Make the sustainability strategies visible to the building users.

#### 3. Economic sustainability

- Design spaces that are adaptable for different uses.
- Configure services to allow for different internal arrangements.
- Employ structural systems that allow easy renovation.

<sup>42</sup>[www.usgbc.org/News/PressReleaseDetails.aspx?ID=3124](http://www.usgbc.org/News/PressReleaseDetails.aspx?ID=3124)

<sup>43</sup> Engineering News - [www.engineeringnews.co.za/article/a-progress-report-card-on-the-ren-world-cup-stadiums-2007-07-13](http://www.engineeringnews.co.za/article/a-progress-report-card-on-the-ren-world-cup-stadiums-2007-07-13)



**Stadium Australia**, built for the Sydney Olympic Games in 2000, achieved sustainable standards far above those of conventional stadiums at the time. A wide range of innovative design approaches and technologies achieved the following key results in comparison to conventional stadiums:

- 30% reduction in energy use,
- 37% reduction in greenhouse gas emissions, and
- 13% reduction in water use with 77% of water used either recycled or collected on site.

A consulting team was commissioned by Department of Environmental Affairs to undertake a review of the greening status of stadiums in Cape Town, Polokwane, Rustenburg and Durban, being constructed for the 2010 World Cup in South Africa.<sup>44</sup>

Cutting edge and best practice initiatives include:

- A hybrid pitch, which is a combination of synthetic and natural grass requiring 50% less irrigation (potential saving of R78,975 per annum),
- Water-cooled variable refrigerant cooling system,
- Carbon dioxide monitors in the parking garage to switch fans on only when required,
- Low emitting finishes,
- Rainwater harvesting from detention pond for irrigation (potential saving of R187,725 per annum),
- A mesh fabric facade, combined with insulated panels that reduces heat gain while allowing breezes through for natural ventilation,
- Purchase of 'green energy' for stadiums, and
- Reuse of demolition material from the old stadium.

<sup>44</sup> DEAT 2008 Review of Greening Status of the Stadia for the 2010 World Cup South Africa: Fact-finding mission and desktop review. Final draft, May 2008.

### [d] Walk the talk

If you consider the environmental impacts relating to buildings and their construction, it is easy to see why building decisions made today are so important.

Using the environmental impact facts as well as the suggestions made in other sections and in the winning strategies section above, point out to the public that decisions we make today can have serious implications for the future.

Using examples for other sections, encourage everyone to do their bit towards reducing our impact on the planet.



## 2.8. Tourism

### [a] Knowing the Game

Tourism is the fastest growing industry in the world. More than 9 million foreigners visited South Africa in 2007, enough people to fill the Nelson Mandela Bay stadium to capacity approximately 164 times.<sup>45</sup>

Although the South Africa tourism industry has emerged to maturity, and its rapid growth is fuelling the national economy (Gross Domestic Product contribution now larger than gold), little headway has been made in terms of understanding its impact on the environment and subsequently minimising and monitoring this impact.

Whilst there is an increasing presence of accreditation systems internationally, within South Africa there are still relatively few players working in this area, and efforts have not been coordinated. However, the Responsible Tourism Minimum Standards an initiative by the Department of Tourism and Tourism Grading Council of South Africa is

informed by the three pillars of sustainable development i.e. environment, socio-cultural and economic areas of focus.

Efforts to improve the environmental profile of the 2006 event in Germany through the “Green Goal” programme showed that hospitality is one of the three big focus areas for such initiatives – with transport and stadiums being the other key areas. A green rating system will also support the National Cleaner Production Strategy which the National Cleaner Production Centre will implement<sup>46</sup>.

All accommodation facilities are encouraged to consider the impacts of their operations on the environment and look at how they can reduce their environmental footprint.

### [b] Environmental Impacts

Greening tourism requires consideration of all the preceding thematic areas. All the environmental impacts from the preceding sections are therefore relevant to promoting sustainable tourism.

### [c] Winning Strategies

A “green rating system” for the hospitality industry in South Africa should ideally address the following:

- Provide marketing benefits to hotel guests and offer the choice to support businesses that are environmentally and socially rated,
- Facilitate a more competitive operation as many interventions are highly cost effective,
- Lower operating costs and facilitate market access for small entrepreneurs, and
- Support local and national efforts to move towards a responsible and sustainable economy.

There are several green rating systems for the hospitality industry in South Africa which have been established privately. They include:

- Green Wilderness,
- GreenStay SA, and
- Heritage SA.

<sup>45</sup> [www.outhatfrica.info/travel/tourism-2007.htm](http://www.outhatfrica.info/travel/tourism-2007.htm)

<sup>46</sup> Sustainable Energy Africa, 2007.



## [d] Walking the Talk

### Actions for volunteers:

As a volunteer, you will be able to draw from the other sections of this manual in order to provide your audience with ideas for being a green tourist. Here are a few tips to pass on:

- Organic food waste from hotels, restaurants and bed and breakfast establishments can be turned into compost through a worm farm.

### FEEDING THE SPECTATORS AT THE 2006 GERMAN FIFA SOCCER WORLD CUP

- 44 million servings of drinks
  - 1 million litres of beer
  - 750 000 sausages
  - 400 000 portions of ice-cream
  - 86 000 meals for volunteers
- Imagine the amount of waste that will be generated from the 2010 world cup. What could have been done?



The Mount Nelson hotel in Cape Town has decided to go green, by initiating an organic-waste recycling program that sees its kitchen waste such as orange peels, cabbage hearts, apple cores etc. being fed to worms, that in turn produce compost. This is then used to keep the hotel's lawns and pot plants well fed. There are about 33 000 worms hard at work recycling the hotel's organic waste.<sup>47</sup>

- Some hotels have a system of letting you use your towels for more than one day. This saves water and electricity as the towels will only be laundered when you choose.
- When out visiting local scenic spots or visiting heritage sites, please tread carefully and take nothing but photographs and leave nothing but footprints.

- As a tourist or a resident, you can make responsible choices that will mean that we can host many tourists without impacting heavily on our environment.

### Activities for volunteers:

*Name three choices that responsible tourists could take to reduce their environmental footprints while in South Africa*

<sup>47</sup> [www.southafricalogue.com/accommodation/mount-nelson-hotel-creates-permaculture-of-excellence-with-worm-farm.html](http://www.southafricalogue.com/accommodation/mount-nelson-hotel-creates-permaculture-of-excellence-with-worm-farm.html)



## 2.9. Health and Well-being

### [a] Knowing the Game

One of the main reasons for implementing a green event is to enhance the health and wellbeing of participants and spectators, and people of the hosting country as well as the rest of the world, since climate change knows no boundaries, in a pro-active way such as promoting a healthy lifestyle and better living conditions. As with the previous section, this requires consideration of all the thematic areas described in this guideline.

### [b] Environmental Impacts

Refer to the environmental impact sections of the preceding thematic areas in order to highlight some of the impacts we are having on our environment. Such impacts can also have a harmful impact on human health and well being.

According to the USA Environmental Protection Agency (EPA), harmful indoor pollutants can come from household cleaning and personal care products. The EPA<sup>48</sup> has found that a number of

common pollutants were 2 to 5 times higher inside homes than outside. Such pollutants are found in our houses in products such as paint strippers, glue, aerosol sprays, disinfectants, household cleaners, air fresheners, dry cleaned clothing.

These pollutants can make you ill, resulting in eye, nose, and throat irritation; headaches, loss of coordination, nausea; damage to liver, kidney, and central nervous system. Some organics can cause cancer in animals; some are suspected or known to cause cancer in humans.

### [c] Winning Strategies

Promoting a healthy lifestyle involves adopting the strategies outlined throughout this guideline, such as: **Air quality** - Facilities and activities should be designed and managed in such a way that they have a minimal negative impact on the air quality. This should include the minimal use of ozone depleting products or products producing greenhouse gasses. Use of public transport should be promoted to

reduce the negative impact on air quality through greenhouse gas emissions. **Noise pollution** - Placement and choice of audio equipment or structures should aim to minimise noise.

**Light pollution** - Events should be managed in such a way to minimise the adverse impact of night lighting on the surrounding areas, whilst contributing to public safety where needed. **Toxic materials** - Priority should be given to the selection and use of non-toxic materials during the construction of buildings. Try to reduce materials that have Volatile Organic Compounds (VOCs) or materials containing formaldehyde.

**Access to people with disabilities** - Provision should be made at all facilities and events for appropriate access to people with disabilities, and these provisions should be clearly communicated.

**Health and safety standards** - Health and safety regulations should be implemented by service providers to avoid any incidents relating to food contamination.

<sup>48</sup> [www.epa.gov/iaq/voc.html](http://www.epa.gov/iaq/voc.html)



**[d] Walking the talk**

**Actions for volunteers:**

As a volunteer, your goal is to ensure that all participants and spectators find that the event contributes to their health and well being - it should be a positive experience.

Such a positive uplifting experience could be continued into their lives post the event by following a healthy lifestyle, and treading lightly on the planet. Here are a few ideas for you to pass on:

- Check the labels on your appliances - choose energy efficient and water wise appliances.
- We have the weather to be outdoors for a large part of the year - make use of urban parks, visit nature areas, - and encourage tourists to do so.
- Read the labels on your household products. For example, avoid products that contain Methylene chloride (found in paint strippers, adhesive removers, and aerosol spray paints) or Perchloroethylene (the chemical most widely used in dry cleaning). In laboratory studies, both chemicals have been shown to cause cancer in animals. Encourage people to find out more and to rather

use healthier alternatives.



**TWO RIVERS URBAN PARK**

This urban park, located at the confluence of the Liesbeek and Black Rivers in Observatory, Cape Town, is of historical importance. Originally a place where the Khoisan grazed their cattle herds, it now hosts a working windmill that was part of an old colonial farm and an Observatory. The Observatory was founded in 1820 and was the first scientific institute in sub-Saharan Africa. Horse riding, cycling and walking activities also take place in the Two Rivers Urban Park.<sup>49</sup>

- Try to avoid toxic chemicals in your home, and in sporting venues. An example of a friendly alternative is given below.

*Activities for volunteers:*

**Cleaning your drain:**

*You can prevent the build-up of grease and associated blockages in your drain by cleaning your drain on a weekly basis, using an environmentally friendly alternative to commercial chemical cleaners, such as the recipe below: Pour cup baking soda followed by cup of white vinegar down the drain.*

*Cover and leave for 2 hours  
Rinse with boiling water.<sup>50</sup>*

*Now that you have successfully cleaned the drain, look out for more environmentally friendly household cleaning hints.*

- *Ensure that you are aware of the access points, toilets and any other facilities for disabled persons.*

<sup>49</sup> [www.sao.ac.za/about/history/](http://www.sao.ac.za/about/history/)

<sup>50</sup> Smart living handbook page 27



# section 3: keeping score

## 3.1 Developing a Plan

Greening an event involves a number of key steps which together, comprise an Environmental Management System (EMS) for that event. The EMS should:

- Describe the event and the location and context in which it is being held;
- Identify potential environmental impacts of the event;
- Define and implement greening practices to each of the activities with potential impacts;
- Develop monitoring and evaluation procedures to assess the effectiveness of the greening activities and strengthen the greening legacy;
- Design a communications and marketing strategy to raise awareness and promote implementation of the greening programme.

Most of the activities at large sports events happen in a controlled area,

such as a stadium or along a dedicated route, where a formal management system can be implemented. Having an Environmental Management System in place assists in providing clear guidance on the greening practices to all parties – athletes, spectators and the local community.

## 3.2 Measuring progress

Monitoring and evaluating the effectiveness of greening activities and plans are crucial when aiming to achieve long-term benefits from major events.

The monitoring and evaluation process provides an opportunity to use the results. These results include:

- Assessing reasons for successes and failures: Once the data is collected it needs to be analysed and communi-

cated so that the statistics can add value to the process.

- Communicating lessons learnt: Future event organisers can benefit from these experiences if the processes and lessons learnt are well documented and communicated.

This information is important for present and future organising committees and host cities, as lessons learnt will help to guide the design of future greening programmes and thereby strengthen sustainability aspects of future large events in South Africa.



## PROMOTING THE USE OF PUBLIC TRANSPORT

The 2006 FIFA World Cup™, provided special offer railway tickets to event ticketholders called a 'World Champion Ticket', while those without tickets attending side-events were also offered rebated tickets for rail, tram and bus travel around Germany. As a disincentive to private car use, both the Vancouver 2010 and London 2012 Olympic Games Transport Plans will provide no spectator parking at event venues (except for disabled parking). Similarly, spectators at the Sydney Olympic Games could only access events at major Olympic sites via public transport.

### 3.3 Leaving a legacy

A legacy project is used to promote a specific principle or good practice example, which will help to ensure that the value of the environmental initiative lasts long after the event is over. It aims to strengthen the positive long-term impact of a particular initiative or action as a showcase of what has been done.

A legacy project will help to make sure that:

- there are practical outcomes and improvements, such as trees planted, enhanced water quality and increased energy efficiency in a range of public places for example;
- there is increased environmental awareness and responsibility within the community and the event management industry;
- all environmental sectors cooperate to contribute to long-term change and



environmental benefits. The Norwegian Government in partnership with the National Department of Environmental Affairs assisted in facilitating the process of establishing the carbon footprint as a result of hosting the 2010 FIFA World Cup™.

The Urban Environmental Management Programme through the Royal Danish Embassy (DANIDA) has provided South Africa with funding to the value of R83 million for climate change and carbon offset programmes.

The initial amount of R60 million was distributed to the following cities for climate change and carbon offset related projects:

- City of Johannesburg – R15 Million
- City of Cape Town – R15 Million
- Ekurhuleni Metro – R15 Million
- Ethekewini Metro – R15 Million

- A further R23 million was made available to continue and boost current climate change and carbon offset related projects. The funds were distributed as follows: Department of Environmental Affairs – R4 million for the development of a web-based carbon offset system, communication campaign and legacy report post the 2010 FIFA World Cup™,
- Ekurhuleni – R5 million – for retrofitting of energy efficient street lighting,
- Ethekewini – R7 million for development of green baseline assessment, carbon offset project plan and, implementation of green technologies in main stadium and two training venues,
- Western Cape Province and City of Cape Town – R7 million for the identification and implementation of Carbon intervention projects and monitoring and verification of carbon savings.

## Conclusion

This Volunteer Guideline provides you with information on strategies and actions for greening your event. Reference to this document will equip you to interact with spectators, players, fans and the general public on environmental issues in general, and environmental actions that will promote a sustainable event. You will contribute to leaving a positive environmental legacy and building an environmentally responsible citizenry, by raising awareness on environmental issues and best practises.



## Leaving a Legacy

Hosting the 2010 FIFA World Cup™ provides South Africa with a unique opportunity to improve its infrastructure and market itself to the world. By harnessing the funds made available nationally and internationally for 2010-related facilities, including new stadiums, transport and other upgrades, the country expects post-2010 to be a more desirable destination for leisure and business travellers and investors. As a first of a kind in Africa, hosting the FIFA World Cup™ will leave a lasting legacy for all South Africans.

## References

David Parry-Davies (Ed), 2008 Enviropaedia, Eco-Logic Publishing.

DEAT Guidelines for the Greening of Large Sports Events, with a Focus on the FIFA World Cup™

Sustainable Energy Africa, AMATHEMBA Environmental Management Consulting, 2008.

Smart Living Handbook, A partnership Resource, City of Cape Town.

### Websites:

<http://www.joburg.org.za/fifaworldcup/pdfs/greengoad.pdf>

[http://www.eia.doe.gov/emeu/cabs/South\\_Africa/Electricity.html](http://www.eia.doe.gov/emeu/cabs/South_Africa/Electricity.html)

<http://www.bbc.co.uk/bloom/actions/unpluggadgets.shtml>

[www.earth-policy.org](http://www.earth-policy.org)

[www.enviropaedia.com](http://www.enviropaedia.com)

[http://www.project2010.co.za/2010\\_World\\_Cup\\_transport.asp?PN=9](http://www.project2010.co.za/2010_World_Cup_transport.asp?PN=9)

<http://74.125.95.132/search?q=cache:BxUaByfHRSgJ:www.tshwane.gov.za/documents/sptp/Chapter6AssessmentandProposalsontheVariousModes.pdf+350+000+rail+commuters+cape+town&cd=6&hl=en&ct=clnk&gl=za&client=firefox-a>

[http://www.news24.com/News24/South\\_Africa/Politics/0,,2-7-12\\_250878700.html](http://www.news24.com/News24/South_Africa/Politics/0,,2-7-12_250878700.html)

<http://www.arrivealive.co.za>

[http://www.unesco.org/water/wwap/facts\\_figures/basic\\_needs.shtml](http://www.unesco.org/water/wwap/facts_figures/basic_needs.shtml)

[www.durban.gov.za/durban/services/departments/environment/environmental\\_policies/open\\_spaceplanning/](http://www.durban.gov.za/durban/services/departments/environment/environmental_policies/open_spaceplanning/)

<http://news.softpedia.com/news/The-Rate-of-Extinction-3-Species-per-Hour-55411.shtml>

[www.southafrica.info/travel/tourism-2007.htm](http://www.southafrica.info/travel/tourism-2007.htm)

[http://wildlifepreservation.suite101.com/article.cfm/when\\_fire\\_brings\\_new\\_life](http://wildlifepreservation.suite101.com/article.cfm/when_fire_brings_new_life)

[http://www.southafrica.info/doing\\_business/trends/empowerment/bee.htm](http://www.southafrica.info/doing_business/trends/empowerment/bee.htm)

[www.wwf.org.za/sassi](http://www.wwf.org.za/sassi)

<http://www.engineeringnews.co.za/article/a-progress-report-card-on-the-ten-world-cup-stadiums-2007-07-13>

<http://www.epa.gov/iaq/voc.html>

<http://www.sacao.ac.za/about/history/>



# Glossary for Greening the Games

## A VOLUNTEER'S GUIDE

**Biodiversity:** The variety of life on earth from genes to ecosystems, and the ecological and evolutionary processes that sustain it.

**Carbon footprint:** is the total set of GHG (greenhouse gas) emissions caused directly and indirectly by an individual, organization, event or product.

**Dual flush systems:** refers to a system which allows for two different amounts of water to be flushed in a toilet, based on need. Firstly, a full flush function which releases a large quantity of water for solid wastes and secondly, a partial flush releasing a smaller quantity of water when a full flush is not needed, for instance, for liquid waste. This enables a large quantity of water to be saved.

**Ecological footprint:** a measure of the 'load' imposed by a given population on nature. It represents the land area of average quality needed to sustain current levels of resource consumption and waste discharge by that population. The bigger the footprint, the greater is the impact on the earth.

**Ecosystems:** a dynamic complex set of relationships of animals, plants, and microorganism communities interacting in their non-living environment (soil, water, climate, and atmosphere) and functioning as a unit.

**Embodied energy:** energy consumed by all of the processes associated with the production of a building, from the mining and processing of natural resources to manufacturing, transport and product delivery.

**Food security:** the assured availability and access (physical, social and economic) to safe and adequate food (in terms of quality and quantity) by all people at all times, as required for a healthy, active and productive life.

**Fynbos:** It refers to a scrubland, characteristic of the Western Cape of South Africa. Fynbos comprises of three components: restioid, ericoid and proteoid.

**Genetic makeup:** refers to the genes and inherited from parent organisms, the hereditary information encoded in DNA.

**Global warming:** a gradual warming of the air temperature in the Earth's lower atmosphere as a result of the build-up of greenhouse gases (for example, carbon dioxide, methane, nitrous oxides, and ozone).

**Greenhouse gases:** any gases that absorb and re-emit infrared radiation in the atmosphere, allowing heat to enter the Earth's atmosphere but not to leave it; thus trapping energy and contributing to rising surface temperatures. Also referred to as carbon emissions.



**Habitats:** The environment or area where an organism or community occurs. It is characterized by its physical properties and by the other life forms found there.

**High occupancy vehicles:** are vehicles which carry a minimum number of passengers (usually two), for instance, buses, cars and vans.

**Indigenous:** refers to something which is native to an area; originating, living or occurring naturally in that area or environment.

**Procurement:** is the acquisition of goods and/or services at the best possible total cost of ownership, in the right quality and quantity, at the right time, in the right place and from the right source for the direct benefit or use of corporations, individuals, or even governments, generally via a contract.

**Project cycle:** refers to the life of a project, from the initial idea through to its final stage of completion.

**Renewable energies:** refers to energy obtained from natural resources that are essentially inexhaustible (for example, wind energy, solar energy and hydropower).

**Retrofit:** refers to the upgrading of older systems or structures through the addition of new technology or features.

**Sustainable development:** refers to development that meets the needs of the current generation without compromising the ability of future generations to, in turn, meet their needs.

**Sustainability:** refers to forms of progress that involve the preservation of the earth's natural resources for future generations. A sustainable project will therefore have a minimum, zero or positive impact on the environment, and will be capable of being maintained at a steady level without exhausting natural resources or causing ecological damage.

**Urban parks:** refers to a public open space or park. These are parks in cities and other incorporated places that offer recreation green space to residents of and visitors to the municipality. The design, operation and maintenance is usually done by governance, typically on the local level, but may occasionally be contracted out to a private sector company.

**Volatile organic compounds:** refers to any organic carbon compound that is volatile (evaporating or vaporizing readily under normal conditions). These may come from many man made products, such as paints and cleaning products. They have been associated with negative health effects and also create ozone, a harmful outdoor air pollutant.





**environmental affairs**

Department:  
Environmental Affairs  
**REPUBLIC OF SOUTH AFRICA**



National Department of Environmental Affairs  
Private Bag X447, Pretoria, 0001

Tel: 012 310 3911  
Fax: 012 322 2682  
Call Centre: 086 111 2468  
[www.deat.gov.za](http://www.deat.gov.za)