

2010 FIFA WORLD CUP™

HOST CITY CAPE TOWN

GREEN GOAL LEGACY REPORT



Cover Photo: A view of action showing Table Mountain at sunset during the 2010 FIFA World Cup™ Quarterfinal match between Argentina and Germany at Cape Town Stadium on 3 July 2010.
Photo: Clive Rose, Getty Images

The 2010 FIFA World Cup™ Host City Cape Town Green Goal programme is proud to have been awarded the International Olympic Committee (IOC) Sport and Environment Award.

Nominated by FIFA, the award recognises the efforts of the Host City to mitigate negative environmental impacts of the World Cup and to maximise the positive environmental and social legacy.

The award was presented at the IOC 9th World Conference on Sport and Environment held from 30 April – 1 May 2011 in Doha, Qatar.



It took the effort of a committed team to realise the environmental and development objectives of the Host City Cape Town Green Goal 2010 projects. Host City Cape Town Green Goal 2010 Co-ordinator, Lorraine Gerrans, holding the IOC trophy.



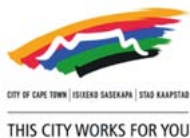
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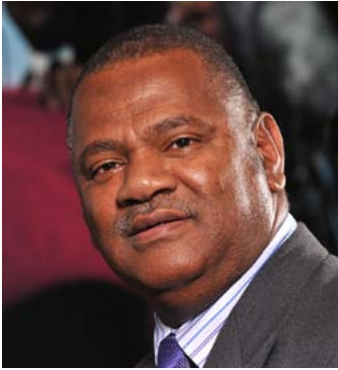
A SOCIALLY AND ENVIRONMENTALLY RESPONSIBLE 2010 FIFA WORLD CUP™

In hosting the 2010 FIFA World Cup™, South Africa faced the dual challenge of managing the major investment and infrastructure development necessary for the event to be a success, while making sure that this was undertaken in a sustainable manner.

The country recognised that an event cannot be called world-class unless it is hosted in a socially and environmentally responsible manner. This presented unique planning opportunities and challenges for Host City Cape Town, which was transformed by the preparations for 2010. One of the key challenges was to ensure that the event left a positive legacy, contributing to the developmental objectives of the city and region, including those of poverty alleviation, skills development, economic growth and environmental sustainability.

TABLE OF CONTENTS

MESSAGE FROM THE EXECUTIVE MAYOR OF CAPE TOWN, ALDERMAN DAN PLATO	2
MESSAGE FROM THE PREMIER OF THE WESTERN CAPE, HELEN ZILLE	3
MESSAGE FROM THE KONRAD-ADENAUER-STIFTUNG, DR WERNER BÖHLER	4
MESSAGE FROM THE BRAZILIAN AMBASSADOR, JOSÉ VICENTE DE SÁ PIMENTEL	5
GLOSSARY	6
EXECUTIVE SUMMARY	10
1 INTRODUCTION AND OVERVIEW	12
1.1 Purpose of this report	14
1.2 A brief history of the greening of mega-sporting events	15
1.3 A compelling case for a sustainable event	16
2 HOST CITY CAPE TOWN Setting the scene	18
2.1 Where the World Cup journey started	20
2.2 Host City Cape Town event footprint	20
2.3 Event operations	22
2.4 Transport operations	22
2.5 Budget	24
2.6 Legacy	25
3 THE NEW GREEN JEWELS IN CAPE TOWN'S CROWN	26
3.1 Cape Town Stadium	28
3.2 Green Point Park	30
3.3 Cape Town Stadium Quick Facts	31
4 THE HOST CITY CAPE TOWN GREEN GOAL PROGRAMME	34
4.1 Workshop series 1: August 2007 to March 2008	34
4.2 Workshop series 2: February to April 2009	36
4.3 Project implementation	36
4.4 Institutional arrangements	36
4.4.1 Host City Cape Town	36
4.4.2 Local Organising Committee (LOC)	37
4.4.3 National Department of Environmental Affairs (DEA)	38
4.5 International cooperation	39
5 OVERALL IMPACT OF THE GREEN GOAL 2010 PROGRAMME	40
6 THE GREEN GOAL 2010 PROJECTS	44
6.1 Projects at a glance	46
6.2 Projects by thematic area	50
1. Energy efficiency and climate change	50
2. Water conservation	59
3. Integrated waste management	63
4. Transport, mobility and access	69
5. Landscaping and biodiversity	74
6. Green building and sustainable lifestyles	78
7. Responsible tourism	87
8. Green Goal communications	92
9. Monitoring, measuring and reporting	101
7 GREEN GOAL 2006 AND 2010 Is there progress?	106
8 LESSONS LEARNT Challenges and recommendations	111
9 LOOKING TO THE FUTURE Hosting mega-events in developing countries	116
REFERENCES	120
2010 FIFA WORLD CUP™ QUICK FACTS	124
LIST OF TABLES AND FIGURES	128
ACKNOWLEDGEMENTS	129



MESSAGE FROM
THE EXECUTIVE MAYOR OF CAPE TOWN,
ALDERMAN DAN PLATO

The 2010 FIFA World Cup™ has come and gone. For the first time, the world's largest sporting mega-event was hosted in Africa, and has been widely hailed as a major success. The thrill of having some of the world's most famous sporting celebrities and leading soccer teams in Cape Town, and of being the focus of global attention for a month, was indeed worth all the hard work during the six years of preparation.

The 2010 FIFA World Cup™ was a catalyst for major redevelopment in Cape Town. The city has been transformed. New roads were built, investments were made in public transport infrastructure as well as a new bus rapid transport system. Pedestrian bridges were constructed to make pedestrian routes safer and more attractive for workers, visitors and tourists. Trees and fynbos were planted in an effort to green and shade the city.

Through the implementation of the Green Goal programme, the adverse environmental effects that are inevitably associated with organising an event of the scale of the World Cup were kept to a minimum. Significant water and energy savings were achieved, and the waste-recycling target was exceeded at Cape Town Stadium and other event venues.

Cape Town is now recognised as a top world destination for hosting major events, and, undoubtedly, considerable socio-economic advantages accrue to the city as a result. However, let us not forget that our natural beauty and significant natural resources represent our most important economic asset. It is critical that we ensure that major events are organised in a manner that enhances, rather than jeopardises, this asset. We must look after our region's limited resources, limit our carbon footprint, and avoid expedient decisions that may have harmful long-term effects.

The promise of a 'legacy' was also a significant factor in South Africa's bidding for and hosting the 2010 FIFA World Cup™. Building unity and pride among South Africans, celebrating Africa's humanity, and ensuring urban and environmental upgrades were mooted to be this event's hallmarks.

A large amount of public money was spent on the World Cup, and we need to ensure that Cape Town is left with a legacy that enhances the city's globally recognised path to sustainability. Now is a good time to examine whether Host City Cape Town has lived up to its promise. This Host City Cape Town 2010 FIFA World Cup™ Green Goal Legacy Report reviews the environmental measures instituted by Host City Cape Town; it assesses their effectiveness and emphasises the lessons learnt, all of which will be useful for those planning future events in Cape Town as well as for the organisers of future World Cup and other major sporting events.

Finally, I would like to pay tribute to the Konrad-Adenauer-Stiftung, whose proactive involvement as both a funder and a partner in our greening programme was a major contributing factor to the programme's successes.

ALDERMAN DAN PLATO
MAYOR OF CAPE TOWN



MESSAGE FROM
THE PREMIER OF THE WESTERN CAPE,
HELEN ZILLE

We are now proud to present the results achieved by Green Goal 2010. Whereas Germany focused on four main Green Goal projects in 2006, we managed to pick up that baton and expand the programme for the 2010 FIFA World Cup™. Our challenge now lies in expanding the raised awareness into concrete action across the Western Cape, as well as sharing our lessons with Brazil for the 2014 FIFA World Cup™.

The World Cup catalysed investment to improve key infrastructure, and provided an opportunity to position the city and region as responsible hosts of major events. Apart from the physical legacy that the event has left behind, we are pleased that the World Cup also offered organisers the opportunity to educate and inspire local and international fans about the importance of sustainability.

However, there are two areas where we would like to see improvements when hosting future events. Carbon emissions of major events remain one of the biggest environmental challenges. Sporting federations should partner with host nations and cities to reduce the high emissions resulting from the event. Together, we can achieve more.

The other key challenge we face in relation to the greening of major events in future is to broaden the buy-in of all stakeholders. The tourism and hospitality sectors have embraced the principles of environmental sustainability to some degree. However, implementation is not yet meeting the required levels, especially with regard to water use, energy consumption and waste generation. The Provincial Government, together with partner organisations Sustainable Energy Africa, the British High Commission and its agencies, has introduced a green certification system to create incentives for more positive action.

The results and lessons set out in this Host City Cape Town 2010 FIFA World Cup™ Green Goal Legacy Report required the commitment of many stakeholders – from international governments to sponsors, non-governmental organisations, schools, business, sports clubs and society at large. We are grateful to the Konrad-Adenauer-Stiftung for the support provided to the Green Goal 2010 programme.

The 2010 FIFA World Cup™ has been widely praised for confounding the sceptics, and proving that South Africa has the capacity to host world-class events that showcase the best of African hospitality, natural beauty and modern infrastructure. We can now also claim that our collective efforts have contributed to a positive and lasting environmental legacy.

I trust that the organisers of large sporting events in the future will further optimise the achievements and lessons of Green Goal 2010, and that environmental sustainability will be a firmly established, integral part of the FIFA World Cup™ in Brazil in 2014, and thereafter.

HELEN ZILLE
PREMIER OF THE WESTERN CAPE



MESSAGE FROM
HEAD OF THE KONRAD-ADENAUER-STIFTUNG,
SOUTH AFRICA

DR WERNER BÖHLER

In June and July 2010, the world experienced an awe-inspiring football festival, hosted for the first time on the African continent. Also, it was only the second time in the history of the FIFA World Cup™ that the environment was on the agenda.

As a German political foundation, the Konrad-Adenauer-Stiftung (KAS) has fostered and supported the process of democratic transition and consolidation in South Africa for more than 25 years. KAS activities aim to provide platforms for the dissemination of research results and expertise as well as for informed discussions among various target groups.

The Foundation's involvement with the 2010 FIFA World Cup™ started almost four years ago, and was based on the positive experience in Germany with the Green Goal environmental programme when hosting the FIFA World Cup™ in 2006. The Green Goal programme, developed by the German Öko-Institut and supported by the German government, for the first time introduced measurable targets regarding transport and mobility, energy, water, waste and other critical areas.

In 2007, KAS, in partnership with the non-governmental organisation Sustainable Energy Africa (SEA), funded a series of workshops for the City of Cape Town and the Western Cape Provincial Government. The objective was to develop the Green Goal programme further and adapt it to the South African context. In 2008, the Host City Cape Town 2010 FIFA World Cup™ Green Goal Action Plan was launched. A second round of KAS workshops focused on the implementation and monitoring of the 42 Green Goal projects. This led to the production of the Host City Cape Town 2010 FIFA World Cup™ Green Goal Progress Report, which was launched in late 2009.

Now, in mid 2011, we celebrate the publication of the Host City Cape Town 2010 FIFA World Cup™ Green Goal Legacy Report. One of the lessons learnt from hosting the FIFA World Cup™ in Germany and South Africa that I would like to highlight is that political will and buy-in are fundamental requirements for hosting an environmentally friendly event.

I feel it is time to make the Green Goal programme an integral part of the contractual agreements between sporting federations and host cities. To consider the environmental impact of an event is no longer a luxury but a necessity.

I would therefore like to urge FIFA to develop binding environmental guidelines for future application in the FIFA World Cup™. The experience with Green Goal 2010 in South Africa has shown that much more would have been achieved by all the host cities had this been the case.

I sincerely hope that this report will assist host cities of future FIFA World Cup™ events to tap into the vast pool of event-greening experience, expertise and networks that has been generated in Host City Cape Town over the past years.

DR WERNER BÖHLER
KONRAD-ADENAUER-STIFTUNG



MESSAGE FROM
THE BRAZILIAN AMBASSADOR,
JOSÉ VICENTE DE SÁ PIMENTEL

The publication of the 2010 FIFA World Cup™ Host City Cape Town Green Goal Legacy Report is testimony to the fact that the environmental baton has now been handed over from South Africa 2010 to Brazil 2014.

Brazil has a population of some 200 million, compared to South Africa's 49 million. There are large distances to travel between most of the largest cities in Brazil (up to 8 hour flights between the northernmost and southernmost 2014 Host Cities). There will be 12 Host Cities for the 2014 FIFA World Cup™, including the well know cities of São Paulo, that may host the opening match, and Rio de Janeiro, that will be hosting the Final.

Other than that, the two countries share a number of similarities:

- There is a similar system of government to South Africa with Federal (National), State (Provincial) and Municipal (Local) Systems of Government.
- The Brazilian Football Association (CBF) is the Local Organising Committee (LOC) for the Brazilian event and there is already a strong relationship between FIFA, the CBF and the Brazilian government.
- The current stadia require upgrades. New models of financial sustainability are being explored. South African expertise would come in handy.
- Just as in South Africa, legacy of infrastructure, services and facilities are a focus.
- The event legacy is a concern in Brazil and the pressures to host the 2016 Olympic Games suggest lessons from Green Goal can change the way that things are done (behaviour change).

There are already a number of formal links between Cape Town and Brazil. The Provincial Government of the Western Cape has established ties with different spheres of Brazilian government, including the Federal Government and the States of Rio de Janeiro and São Paulo, for example; the Western Cape Provincial Government and São Paulo State are both members of the Regional Government Network. And more recently, South Africa has received a formal invitation to join the Brazil, Russia, India and China (BRIC) group of large emerging economies.

Brazil is eager to learn from South Africa's fabulous success as hosts of the 2010 FIFA World Cup™. All South African host cities and provincial governments have a great deal to teach us. Cape Town and the Western Cape have already practically demonstrated their willingness to share 2010 World Cup greening experiences with Brazil. A workshop entitled, "Sharing Insights on Greening the FIFA World Cup™ with Brazil" was convened in February 2010 and steps identified to further this cooperation have been taken.

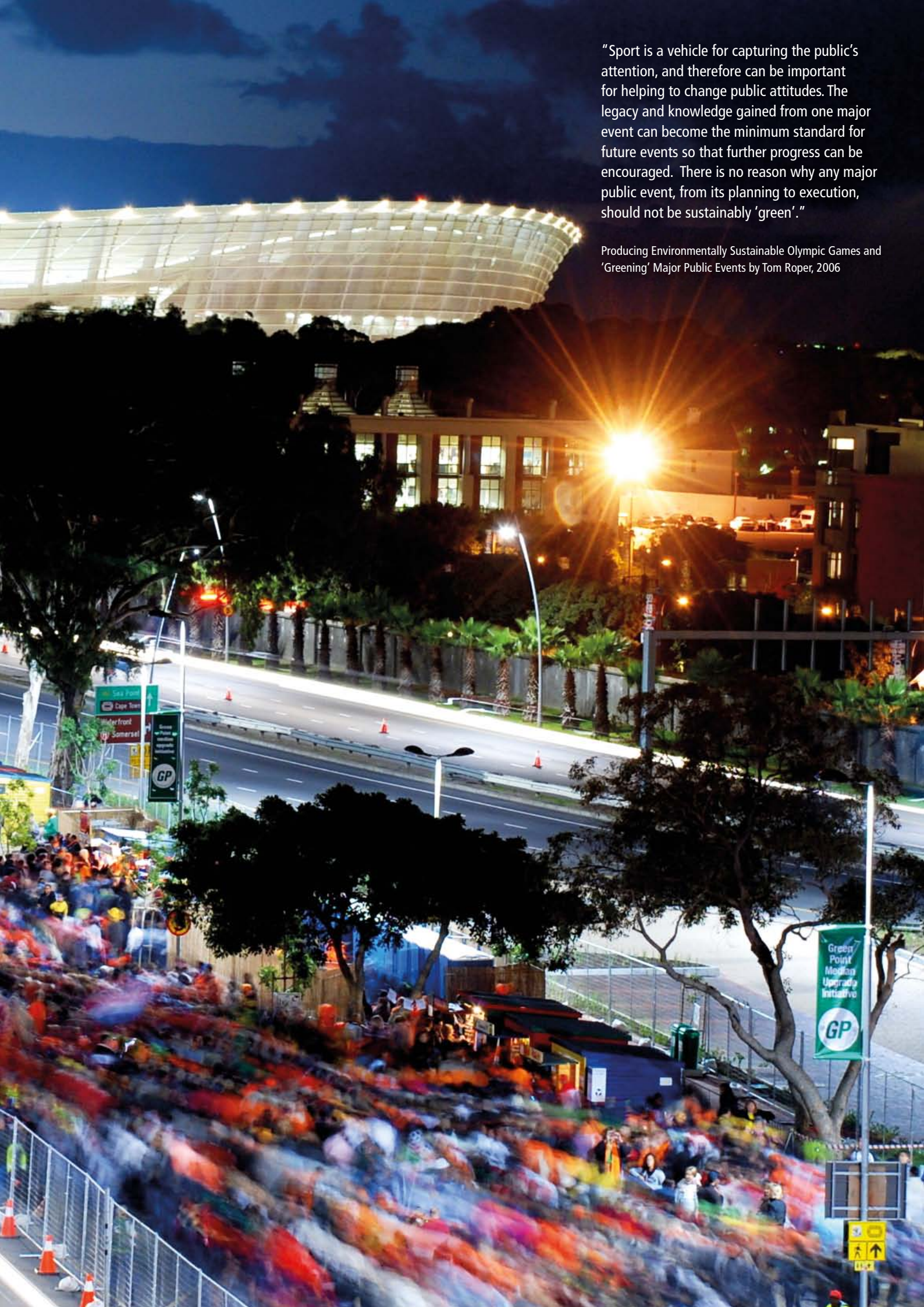
Brazil is extremely fortunate to benefit from the event greening experience and these networks. I am sure that the Green Goal insights will be beneficial during both the 2014 FIFA World Cup™ and the Olympic Games in 2016.

JOSÉ VICENTE DE SÁ PIMENTEL
BRAZILIAN AMBASSADOR

GLOSSARY

ACSA	Airports Company South Africa	KAS	Konrad-Adenauer-Stiftung
BMS	building management system	kW	Kilowatt
CBD	central business district	kWh	Kilowatt-hour
CEMP	construction environmental management plan	LED	light-emitting diode
CDM	Carbon Demand Management	LOC	FIFA World Cup™ Local Organising Committee
CFL	compact fluorescent lamp	MVA	million Volt-Amperes
CO²	carbon dioxide	NDoT	National Department of Transport
CO²e	carbon dioxide equivalent	NGO	non-governmental organisation
CPUT	Cape Peninsula University of Technology	NMT	non-motorised transport
CSIR	Council for Scientific and Industrial Research	Norad	Norwegian Agency for Development Cooperation
CTICC	Cape Town International Convention Centre	NQF	National Qualifications Framework
CTT	Cape Town Tourism	PETCO	PET Plastic Recycling Company
DANIDA	Danish International Development Agency	PRASA	Passenger Rail Agency of South Africa
dB	Decibel	PTFE	polytetrafluoroethylene (also known by the DuPont brand name as Teflon®)
DEA	Department of Environmental Affairs (formerly Department of Environmental Affairs and Tourism/DEAT)	PV	photovoltaic
DEA&DP	Western Cape Department of Environmental Affairs and Development Planning	PVA	public viewing area
DOT	Department of Transport	PVC	polyvinyl chloride
DWA	Department of Water Affairs (formerly Department of Water Affairs and Forestry/DWAF)	ROD	Record of Decision
ECO	environmental control officer	rPET	Recycled Polyethylene Terephthalate
EIA	environmental impact assessment	SAFA	South African Football Association
EIR	environmental impact report	SAPIA	South African Petroleum Industry Association
EMP	environmental management plan	SAPP	South African Power Pool
EMS	environmental management system	SAPS	South African Police Services
FCC	FIFA Confederations Cup	SEA	Sustainable Energy Africa
FIFA	Fédération Internationale de Football Association	SMME	small, medium and micro-sized enterprise
GEF	Global Environment Facility	TET	Tourism Education Trust
G-ForSE	Global Forum for Sports and Environment	tCO²e	tonnes of carbon-dioxide equivalent
GHG	greenhouse gas	TGCSA	Tourism Grading Council of South Africa
HCA	host city agreement	TIC	Traffic Information Centre
HCTOP	Host City Transport Operations Plan	TM	Trademark
HDI	historically disadvantaged individual interested and affected party	TMC	Traffic Management Centre
I&AP	Interested and Affected Party	UCT	University of Cape Town
ICLEI	Local Governments for Sustainability	UEMP	Urban Environmental Management Plan
IOC	International Olympic Committee	UNDP	United Nations Development Programme
IRT	integrated rapid transit	UNEP	United Nations Environment Programme
IUCN	International Union for Conservation of Nature	UPS	uninterrupted power supply
IWMP	Integrated Waste Management Plan	URV	unit reference value
JOC	Joint Operations Centre	VOC	Venue Operations Centre
		VTOP	Venue transport operational plan
		VSTS	venue-specific training sites
		WSSD	World Summit on Sustainable Development
		W	Watt
		WWF	Worldwide Fund for Nature

The fan walk was one of the most important legacies of the World Cup, not only achieving local participation for 581 913 ticket and non-ticket holders, but also contributing to the Green Goal target of 50% of fans accessing the stadium by public transport or on foot. Photo: Jeff Ayliffe



“Sport is a vehicle for capturing the public’s attention, and therefore can be important for helping to change public attitudes. The legacy and knowledge gained from one major event can become the minimum standard for future events so that further progress can be encouraged. There is no reason why any major public event, from its planning to execution, should not be sustainably ‘green’.”

Producing Environmentally Sustainable Olympic Games and ‘Greening’ Major Public Events by Tom Roper, 2006





HOST CITY CAPE TOWN

SUCCEEDED TO REDUCE THE ENVIRONMENTAL IMPACT OF THE 2010 FIFA WORLD CUP™ THROUGH THE IMPLEMENTATION OF THE GREEN GOAL PROGRAMME.

This report documents the process through which the programme was developed and implemented.

42 projects covering energy-efficiency, carbon mitigation, water conservation, waste management, transport, landscaping and biodiversity, green building, responsible tourism and communication and awareness were actioned over a period of four years.

THE REPORT ALSO PROVIDES RECOMMENDATIONS, WHICH THE AUTHORS HOPE WILL SERVE AS

ENCOURAGEMENT

to the greening efforts of those planning future FIFA World Cup™ tournaments and other mega-events.



EXECUTIVE SUMMARY

From 11 June to 11 July 2010, South Africa made history as the first African country to host one of the world's greatest sporting events – the 2010 FIFA World Cup™. Thirty-two countries had qualified for the tournament, which was held across nine host cities. Ten stadia accommodated the matches, five of which had been newly constructed and the other five upgraded for the event. A total of 309 554 foreign tourists arrived in South Africa for the primary purpose of attending the tournament.

Cape Town hosted eight games, including a quarterfinal and semifinal match, with an average attendance of 63 000 fans at each game. Preparations and infrastructural development associated with the event included the construction of a new 68 000-seater stadium, public transport and electricity infrastructure upgrades, and city beautification. Green Point Common and precinct, adjacent to the new stadium, were also upgraded. Sports complexes in Athlone and Philippi were renovated as part of the legacy to provide better-quality facilities to the people of Cape Town. The total expenditure on infrastructural developments was over R12 billion.

The hosting of mega-events, such as the 2010 FIFA World Cup™, has a tremendous impact on cities. These impacts could be positive, i.e. economic investment for improved infrastructure, facilities and technologies so as to meet the requirements of these events, but could clearly also be negative, i.e. an increase in carbon and other environmental footprints. For developing countries such as South Africa, it is not only about hosting successful mega-events, but also about promoting social, economic and environmental sustainability through these events, especially in cities.

As an official initiative of the 2010 FIFA World Cup™, the Green Goal programme focused on incorporating socially and environmentally responsible decision making into the planning, organisation and implementation of the World Cup in order to leave a positive environmental legacy.

Host City Cape Town committed over R10 million in direct funding to implement the Green Goal Action Plan.

This funding leveraged an additional R8 million in grant funding for the greening of the 2010 FIFA World Cup™ in Cape Town and the Western Cape. Indirect funding from the City of Cape Town, the Provincial Government of the Western Cape and the Department of Transport for major infrastructure projects in support of the Green Goal objectives amounted to approximately R1,9 billion.

Host City Cape Town implemented the Green Goal programme through 42* projects across the following nine environmental target areas:

1. Energy efficiency and climate change
2. Water conservation
3. Integrated waste management
4. Transport, mobility and access
5. Landscaping and biodiversity
6. Green building and sustainable lifestyles
7. Responsible tourism
8. Green Goal communications
9. Monitoring, measuring and reporting

This report presents the findings of the Host City Cape Town 2010 FIFA World Cup™ Green Goal programme. It documents the actual impact of the Green Goal 2010 projects and interventions against predefined targets and objectives, highlighting lessons learnt in the process. The report also documents the four-year process through which the Host City Cape Town Green Goal programme was developed and implemented, including the Green Goal 2010 workshop series and the local and national institutional framework. Finally, the report provides recommendations, which the authors hope will serve as encouragement to the greening efforts of those planning future FIFA World Cup™ and other mega-events in Cape Town, South Africa and the rest of the world.

The Green Goal programme achieved many noteworthy successes. Host City Cape Town exceeded the national targets for waste-to-landfill reduction and the use of public and non-motorised transport by a large margin, thereby significantly reducing the environmental impact of the event. Throughout the World Cup one of the key success factors was the manner in which good waste management added to the general tourist appeal and fan experience.

Of the 42 Green Goal 2010 projects implemented in Host City Cape Town, 17 are legacy projects, meaning that they will be contributing to the well-being of residents long after the 2010 FIFA World Cup™.

The quantifiable impact of the Green Goal 2010 programme can be summarised as follows:

- Energy:** Cape Town Stadium achieved an estimated 15% saving in electricity use.
- Water:** Cape Town Stadium is estimated to have achieved a 27% reduction in water use.
- Waste:** Waste reduction measures were implemented, and 58% of waste generated was diverted away from landfill to recycling. The City therefore well exceeded National Government's waste-to landfill reduction target of 20%.
- Transport:** The main mode of transport used to travel to matches was public transport for 40% of fans, with 13% walking. This exceeded the national target of 50% for the use of public and non-motorised transport to the stadium.
- Carbon:** Carbon mitigation projects compensated for the events carbon footprint.

Eskom donated renewable energy for Cape Town Stadium, while green energy for the FIFA Fan Fest™ was purchased from the Darling Wind Farm. In one or two areas, more could have been achieved: The greening efforts in the hospitality industry were disappointing, and financial and other constraints hampered the large-scale implementation of carbon mitigation projects. On the other hand, the large proportion of recyclable waste generated at all the venues, and the use of public and non-motorised transport, are glowing success stories.

The 2010 FIFA World Cup™ provided an extraordinary opportunity for the visibility, branding and communication potential of the event to be mobilised for greater environmental and sustainability awareness. The Green Goal programme therefore used the platform afforded by the World Cup to communicate, promote and mainstream sustainability among the broader population, to inspire



behavioural change, and to catalyse a societal shift towards more sustainable lifestyles. The 2010 National Environmental Questionnaire Survey, commissioned by the Department of Environmental Affairs, showed that 35% of respondents in Host City Cape Town were aware of the Green Goal programme or other environmental projects linked to the World Cup. This may not have been the majority of respondents, but it is relatively high, considering that the national Green Goal programme and official mark (logo) were launched only six months prior to the start of the tournament.

Clearly, many aspects of the World Cup were of great benefit to South Africa. The investments in public transport are one of the most significant. The report offers some considerations on how developing countries may host future major events in a manner that best supports their developmental agendas.

Given the environmental imperatives facing the world and the huge impact of mega-events, it is important that the Green Goal concept be further strengthened and developed with each World Cup. The report thus identifies the many lessons that were learnt and documents the positive legacy that can result if greening is fully incorporated into the event planning process from the start. It is hoped that the success of the Host City Cape Town Green Goal programme will serve as encouragement to the greening efforts of those planning future FIFA World Cup™ events, such as Brazil in 2014, Russia in 2018 and Qatar in 2022.

*The original 2010 FIFA World Cup™ Host City Cape Town Green Goal Action Plan identified 41 projects. An additional project was added after the Action Plan was published making the total 42.



INTRODUCTION AND OVERVIEW

Scoring Green Goals: The international trend towards hosting environmentally responsible events were central motivators for the Host City Cape Town Green Goal 2010 programme. In South Africa, promoting social and economic sustainability, through the event, was also critical.



Siyabonga Mbaleki of Khayelitsha inspires children to realise their potential by being part of a soccer team that he coaches voluntarily.

Photo: Nikki Rixon

1 INTRODUCTION AND OVERVIEW

For the month from 11 June to 11 July 2010, the world's attention was on South Africa, as the first African host country of the world's greatest sporting event – the 2010 FIFA World Cup™. For South Africa, the challenge was not only to host the event successfully from a logistical and operational perspective, but also to ensure that the country's developmental needs were addressed. These concerns and the international trend towards hosting environmentally responsible events were central motivators for the Green Goal 2010 programme in Host City Cape Town, the City of Cape Town, the Western Cape province, and indeed for South Africa as a whole.

Mega-events such as the 2010 FIFA World Cup™ invariably involve huge infrastructure development projects and directing a significant amount of resources to the hosting of the event. This inevitably has a considerable impact on the environmental and social spheres of the host nation, which is an important reason for the establishment of a programme that considers the environmental, economic and social consequences of the choices made in hosting the event.

The Green Goal programme, first implemented during the 2006 FIFA World Cup™ in Germany, had been initiated to reduce the environmental impact of FIFA World Cup™ tournaments, and to support the establishment of a sustainable legacy. The programme was again implemented at national, provincial and host city level for the 2010 FIFA World Cup™. Cape Town was among the South African host

cities to embrace the Green Goal concept enthusiastically and to ensure that it was developed into a substantial and high-profile component of hosting the event.



1.1 PURPOSE OF THIS REPORT

This document reports on the results of the Host City Cape Town 2010 FIFA World Cup™ Green Goal 2010 programme. It documents the actual impact of the Green Goal 2010 projects and interventions against predefined targets, objectives and milestones, highlighting lessons learnt in the process.

The report also documents the process through which the Host City Cape Town Green Goal programme was developed and implemented, including the Green Goal 2010 workshop series and the local and national institutional framework.

Finally, the report provides recommendations, which the authors hope will serve as encouragement to the greening efforts of those planning future FIFA World Cup™ tournaments and other mega-events in Cape Town, South Africa and the rest of the world.

This Host City Cape Town 2010 FIFA World Cup™ Green Goal Legacy Report is the third in a series of Host City Cape Town Green Goal reports, the other two being:

- the Host City Cape Town 2010 FIFA World Cup™ Green Goal Action Plan published in October 2008; and
- the Host City Cape Town 2010 FIFA World Cup™ Green Goal Progress Report published in September 2009.



1.2 A BRIEF HISTORY OF THE GREENING OF MEGA-SPORTING EVENTS

The Olympic Games Organising Committee first included environmental protection as one of the requirements for a successful bid to host the Games. In particular, the Summer Olympic Games in Sydney (2000) and Beijing (2008) respectively, the preparations for the London 2012 Games, and the Winter Olympics in Lillehammer (1994), Turin (2006) and Vancouver (2010) all included substantial greening programmes. Each of these further developed areas of best practice, and confronted the challenges of implementing integrated environmental protection programmes for mega-events. The World Summit on Sustainable Development (WSSD) held in Johannesburg in 2002 was one of the first large-scale events in South Africa to undertake a greening component, and was used as a case study in the development of the Green Goal programme for the 2010 FIFA World Cup™. The ICLEI (Local Governments for Sustainability) World Congress hosted in Cape Town in 2006 raised the event greening bar to new levels, and set a standard for other events to emulate.

The Green Goal programme in Germany 2006 was the first greening programme for a football competition. The vision for the German Green Goal programme was simple yet ambitious. It aimed to reduce as far as possible the adverse effects on the environment that would be associated with the hosting of the event. The environmental programme offered the hosts the opportunity to sensitise broad sections of the public on environmental management. The German Green Goal programme focused on four key areas, namely energy, water, waste and sustainable transport. An overall target was to reduce the greenhouse gas (GHG) emissions associated with the event, and offset those that could not be avoided by appropriate offset programmes –

thereby effectively hosting a 'carbon-neutral' event. A comparison of the German Green Goal 2006 programme and the Host City Cape Town Green Goal 2010 programme can be found in section 7 of this report.



GREENING
the WSSD

WHAT IS EVENT-GREENING?

Event-greening is the process of incorporating socially and environmentally responsible decision-making into the planning, organisation and implementation of, and participation in, an event. It involves including sustainable development principles and practices in all levels of event organisation, and aims to ensure that an event is hosted responsibly. It represents the total package of interventions at an event, and needs to be done in an integrated manner. Event-greening should start at the inception of the project, and should involve all the key role players, such as clients, organisers, venues, subcontractors and suppliers. It aims to achieve the following:

- To improve the resource efficiency of the entire event and supply chain management
- To reduce negative environmental impacts, such as carbon emissions, waste ending up on landfill sites, and the effect on biodiversity
- To increase economic, social and environmental benefits (triple-bottom line)
- To enhance the economic impact, such as local investment and long-term viability
- To strengthen the social impact, such as community involvement and fair employment
- To improve sustainable performance within an available budget
- To present opportunities for more efficient planning and use of equipment and infrastructure
- To reduce the negative impact on local inhabitants
- To protect the local biodiversity, water and soil resources
- To apply the principles of eco-procurement of goods and services
- To raise awareness of sustainability issues among all role players
- To ensure that the aims and objectives are clearly defined and measured

Smart Events Handbook, City of Cape Town

EVENT-GREENING HAS TWO KEY DIMENSIONS:

1. The mitigation of the direct environmental impact, or 'footprint', of the event (including the carbon dioxide emissions, as well as waste created, water and energy used, biodiversity threatened, etc.)
2. The potential of the event to catalyse a broader societal and political shift towards more sustainable lifestyles, and to leave a positive legacy

In terms of the former, the literature is dominated by technical and scientific attempts to calculate baseline emissions and event footprint emissions, or input-output modelling of events. In terms of the latter, Arthur Mol's recent description of the Beijing Olympics as a "sustainability attractor" argued that mega-events can work to inspire, facilitate and focus a wide range of environmental initiatives. Thus, as James Mitchell puts it, greening programmes are far more than publicity stunts or once-off initiatives. Rather, they can instil "a sense of environmental consciousness and global camaraderie connecting all fans and athletes, thus serving as a catalyst for future multilateral efforts to improve our environment".

Sources:

Sustainability as a global attractor: The Greening of the 2008 Beijing Olympics by A.P.J. Mol, 2010

Sustainable Soccer: How green projects at international sporting events benefit the fans, the global climate and local populations by J. Mitchell, 2007



Cape Town Stadium under construction in 2009. Photo: Bruce Sutherland, City of Cape Town

1.3 A COMPELLING CASE FOR A SUSTAINABLE EVENT

The hosting of large events, such as the Olympic Games and the FIFA World Cup™, has a significant impact on the resources of the host nation. Major events could affect the environment through damage to natural spaces and biodiversity, consumption of non-renewable resources such as energy and water, emissions into the atmosphere, and the generation of large amounts of waste. However, major events also present an opportunity to introduce green technologies, raise awareness of key environmental issues, and promote sustainable lifestyles.

There currently is an international move towards hosting major events in a more responsible way. The concept of event-greening is becoming more established, with many sporting federations now focusing on environmental and social programmes when organising events.

The International Olympic Committee (IOC) adopted clear principles and guidelines to this end in 1994, when environmental protection was incorporated into the Olympic Charter and environmental protection became the third pillar of the Olympic Movement, alongside sports and culture. Event-greening initiatives were included in the past two FIFA World Cup™ tournaments (2006 and 2010), with Brazil, the next hosts in 2014, already working on their event-greening programme.



In the South African case, the host city agreement (HCA) signed by FIFA, the Local Organising Committee (LOC) and Host City Cape Town in March 2006 included the following clause on environmental protection:

“The host city undertakes to carry out its obligations and activities under this Agreement in a manner which embraces the concept of sustainable development that complies with applicable environmental legislation and serves to promote the protection of the environment. In particular, the concept of sustainable development shall include concerns for post-competition use of the stadia and other facilities and infrastructure.”

Although this clause did not define precisely what was meant by “the protection of the environment”, it did point to the need to include sustainable development principles in some of the key areas of organising the event.

Building on the German experience in 2006, Host City Cape Town embraced the opportunity to make the 2010 World Cup as ‘green’ as possible. The Green Goal programme was contextualised within the overall strategy for sustainability in the city and province, thereby effectively integrating it with the longer-term objectives of the region, and deploying resources in the long-term pursuit of sustainable development.



The Green Goal programme in Germany 2006 was the first such programme for a football competition and featured a striking visual identity.

2006 FIFA WORLD CUP™ GREEN GOAL PROGRAMME IN GERMANY

Shortly after being announced the hosts of the 2006 FIFA World Cup™, the German LOC commissioned a comprehensive environmental concept for the upcoming tournament. A team of researchers from the Öko-Institut and WWF (Worldwide Fund for Nature) in Germany drew up comprehensive guidelines and environmental objectives. The Federal Environment Ministry supported the work right from the start, and the Deutsche Bundesstiftung Umwelt (DBU) (the German Federal Environment Foundation) provided financial support for the preparation and realisation of the concept. By the spring of 2003, the researchers had developed ambitious, measurable environmental objectives for waste, energy, transport and water, and, with regard to global climate protection, organising the 2006 FIFA World Cup™ was to have a neutral effect on the climate as far as emissions within Germany were concerned.

In March 2003, the implementation of Green Goal began. During the ensuing months, the LOC and the independent German research consultancy Öko-Institut worked together with host cities and stadium operators to implement environmental measures in the stadia.

In September 2005, Green Goal received prominent support: The LOC and the United Nations Environment Programme (UNEP) signed a memorandum of understanding, in which they agreed to work together to realise and communicate Green Goal. The then Executive Director of UNEP – and former German Federal Environment Minister – Professor Klaus Töpfer became a Green Goal ambassador. From the end of 2005, FIFA and its official partners (Coca-Cola and Deutsche Telekom) as well as national suppliers (Deutsche Bahn, EnBW) and other business concerns (PlasticsEurope and TOTAL) joined the Green Goal team. They actively supported Green Goal objectives with their own activities, and participated financially in climate protection projects.



Source:
2006 FIFA World Cup™ Green Goal Legacy Report



HOST CITY CAPE TOWN

SETTING THE SCENE

The World Cup was a catalyst for major redevelopment in Cape Town. The City was transformed. New roads, public transport systems, pedestrian bridges, a 65 000-seater stadium and a new park were constructed.



The spectacular setting of Cape Town Stadium and the adjacent Green Point Park, bounded by the Atlantic Ocean and Table Mountain and Signal Hill.

Photo: Bruce Sutherland, City of Cape Town

2 HOST CITY CAPE TOWN

SETTING THE SCENE

2.1 WHERE THE WORLD CUP JOURNEY STARTED

On 15 May 2004, FIFA appointed South Africa as the host of the 2010 FIFA World Cup™. As one of the nine host cities in South Africa, Cape Town was selected to host eight World Cup matches during the month-long event, including a quarterfinal and a semifinal match. The parties' contractual obligations with regard to hosting the event in Cape Town were set out in the HCA with the LOC and FIFA, which was signed on 15 March 2006.

The City of Cape Town (hereinafter 'the City') and the Western Cape Provincial Government (hereinafter 'the Province') developed a joint business plan in 2006, setting out the vision, objectives, infrastructure, operational plans and legacy model for hosting the event. The business plan was based on the following three strategic pillars:

- Compliance with FIFA requirements
- Optimising the developmental impacts, and leaving a legacy
- Maximising the promotional and positioning opportunities

FIFA required a 65 000-seater stadium to host the semifinal of the 2010 FIFA World Cup™ in Cape Town. The existing stadia in Cape Town were not suitable, and it was decided to construct a new stadium in Green Point, near the Cape Town central business district (CBD). The construction of the stadium was subject to an environmental impact assessment (EIA) in terms of South African legislation, and a rezoning process in terms of the local town planning ordinance. The EIA Record of Decision (ROC), which authorised the construction of the stadium, was issued on 1 May 2007.



Uruguayan fans at the match between Uruguay and France, Cape Town Stadium, 11 June 2010.
Photo: Bruce Sutherland, City of Cape Town

The City concluded the Terms of Cooperation, an HCA addendum setting out the arrangements for hosting a FIFA Fan Fest™, on 19 March 2008. On 4 December 2009, Cape Town successfully hosted the Final Draw of the 2010 FIFA World Cup™ at the Cape Town International Convention Centre (CTICC). The event was televised live to 55 000 fans at the Long Street festival in Cape Town, and to an estimated 200 million other national and international viewers. Cape Town Stadium was officially handed over to the City on 14 December 2009.

2.2 HOST CITY CAPE TOWN EVENT FOOTPRINT

Cape Town Stadium was the primary venue for the 2010 FIFA World Cup™ in Cape Town. The stadium hosted eight matches during the event, including a quarterfinal and semifinal match, with an average attendance of 63 000 people per match. (See Table 1)

The FIFA Fan Fest™ on the Grand Parade formed part of the key entertainment activities associated with the event in Cape Town, particularly for those without match tickets. The Grand Parade is where former President Nelson Mandela first addressed the nation after his release from prison in 1990. The City of Cape Town invested R16,9 million to upgrade the Grand Parade to be used for the FIFA Fan Fest™ and, in future, as a major assembly point for the people of Cape Town.

The FIFA Fan Fest™ operated for the entire tournament from 11:00 to 23:00, except on non-match days. The venue, which could accommodate up to 25 000 people, offered live broadcasts of all matches taking place in the country on a

TABLE 1: Total attendance at Cape Town Stadium for the duration of the 2010 FIFA World Cup™

Date	Team	Time	Stadium attendance
11 June 2010	Uruguay vs France	20:30	64 100
14 June 2010	Italy vs Paraguay	20:30	62 869
18 June 2010	England vs Algeria	20:30	64 100
21 June 2010	Portugal vs People’s Republic of Korea	13:30	63 636
24 June 2010	Cameroon vs the Netherlands	20:30	63 093
29 June 2010	Spain vs Portugal (Round of 16)	20:30	62 855
3 July 2010	Argentina vs Germany (quarterfinal)	16:00	64 100
6 July 2010	Uruguay vs the Netherlands (semifinal)	20:30	62 479

70 m² screen. The Host City Cape Town FIFA Fan Fest™ was the most visited Fan Fest in the country after the Host City Durban Fan Fest™ situated on the Durban beachfront. The FIFA Fan Fest™ attracted more than 550 000 people in total during the tournament.

Entrance to the FIFA Fan Fest™ was free, and live performances by local artists on a huge stage entertained fans between matches. Other attractions included food and drink, five-a-side soccer pitches, and interactive activity zones, including a Green Goal expo. Official 2010 FIFA World Cup™ merchandise and local arts and crafts were offered for sale to fans and tourists.

The fan walk is a 2,6 km pedestrianised walkway between Cape Town Station in the CBD and Cape Town Stadium. Waterkant Street in the CBD was permanently closed and reserved for non-motorised traffic. A new pedestrian bridge was constructed over Buitengragt, and the sidewalk of Somerset Road was widened to increase the footway and include a cycle lane. Somerset Road is flanked by numerous restaurants, pubs, clubs and other entertainment venues, which contributed to the festive atmosphere along the fan walk. On Cape Town match days, the fan walk portion of Somerset Road was a pedestrian-only area, with entertainment and refreshments along the way.

In addition to the official FIFA Fan Fest™, four fan jols elsewhere in Cape Town served as public viewing areas (PVAs), where spectators could watch matches on big screens. These were at the Oliver Tambo Sports Centre in

Khayelitsha, the Swartklip Sports Hall in Mitchells Plain, the Bellville Velodrome, and Vygieskraal Stadium in Athlone. These fan jols were open between 11:00 and 23:00 on Cape Town match days, for all Bafana Bafana matches, for the quarterfinal and semifinal matches, and for the final game and the closing ceremony. Five additional fan jols in other parts of the Western Cape (i.e. in each of the five district municipalities) provided an opportunity for rural communities to participate in the 2010 festivities.

The total attendance at all the different venues in Cape Town for the duration of the event is shown in Table 2.

TABLE 2: Total attendance at all venues in Cape Town for the duration of the 2010 FIFA World Cup™

FIFA World Cup™ venues in Cape Town	Total attendance
Cape Town Stadium	507 332
Fan walk	581 913
FIFA Fan Fest™, Grand Parade	558 159
Oliver Tambo fan jol	28 971
Swartklip fan jol	56 118
Bellville fan jol	68 953
Vygieskraal fan jol	21 427
Total	1 822 873

FIFA required each host city to make available two venue-specific training sites (VSTs) for the 2010 FIFA World Cup™. Athlone Stadium and Philippi Stadium, both located in previously disadvantaged areas of the city, were upgraded for this purpose. Athlone Stadium was upgraded to a 30 000-seater stadium through the addition of two new stands. At a cost of R408 million, the stadium received a number of other improvements, including the size and quality of the pitch, security fencing and controlled access, floodlights and other lighting, media facilities and change rooms. The Province, owner of Philippi Stadium, invested R54 million to upgrade that stadium’s stands, floodlighting, media facilities and pitch. These investments were part of the 2010 legacy to create world-class facilities in historically disadvantaged areas.



2.3 EVENT OPERATIONS

A dedicated 2010 office was established in the City of Cape Town, working closely with the 2010 unit in the Department of the Premier of the Western Cape. The directors and staff regularly met with the LOC and FIFA, and facilitated a number of inspections by FIFA, its technical advisors and the media prior to the event.

Host City Cape Town created 18 multidisciplinary work streams to deliver the event. The work streams were tasked to develop action plans and oversee the implementation of these plans within the set budget and timeframes.

The City hosted a number of events in the run-up to the 2010 FIFA World Cup™, including the Final Draw. These events were used to assess Cape Town's readiness to host the tournament. Three test events in Cape Town Stadium provided an opportunity to refine event operational plans, both inside and outside the stadium.

The Host City Cape Town Green Goal team participated in a programme to observe and share lessons from the FIFA Confederations Cup™ (FCC), which had been held in South Africa one year before the World Cup, and gained valuable insight that particularly influenced the waste management and volunteer programmes in Cape Town during the 2010 FIFA World Cup™.

Host City Cape Town appointed 504 volunteers (421 public volunteers and 83 City of Cape Town staff supervisors) to assist with the logistical operations of the 2010 FIFA World Cup™. The volunteers assisted at the FIFA Fan Fest™, fan walk, fan jols, main transport hubs and traffic warning zones, media centres and volunteer centre.

During the event, venue operations centres (VOCs) were set up at each of the 2010 FIFA World Cup™ venues, staffed by members of the South African Police Service, disaster and emergency services, utility services, and other line functions. The VOCs reported to a joint operations centre (JOC), which, in turn, reported to a national operations centre. Matters that could not be dealt with at the VOCs were escalated to the JOC. Debriefing meetings were held after each event in Cape Town Stadium to inform the city manager and his executive management team on the match-day operations and any potential changes to the plans.



Shuttle buses transported fans to and from Cape Town Stadium. Photo: Bruce Sutherland, City of Cape Town

2.4 TRANSPORT OPERATIONS

The Host City Transport Operations Plan (HCTOP) was developed over a period of three years. Key stakeholders were engaged in the planning process including the National Department of Transport (NDoT), PGWC, FIFA, LOC, the South African Police Services (SAPS), Airports Company South Africa (ACSA), Metrorail and PRASA and the taxi associations.

In the six months before the World Cup, the focus turned to the implementation of transport related items in six key areas:

- The venue transport operational plan (VTOP) in the Green Point precinct including Cape Town Stadium, the V&A Waterfront and surrounding residential and business areas.
- The venue transport operational plan (VTOP) for the Cape Town CBD and fan walk.
- VTOPs for the four fan jols of Swartklip, Vygieskraal, Bellville Velodrome and OR Tambo.
- Event related transport services which included top up of existing public transport services, implementation of new services, negotiations with service providers and the use of non-motorised transport (NMT).
- The resources required to implement the plan.
- The communication of information relating to the transport services that would be provided and to ensure appropriate implementation, the related impacts on the citizens and businesses of Cape Town.

An extensive range of transport related infrastructure projects, costing an estimated R6,8 billion were completed in time for the World Cup. In conjunction with the delivery of the Transport Operational Plan (costing less than the budgeted R80 m), these not only successfully met World Cup requirements, but also delivered a number of transport legacy aspects.

The commuter rail system formed the backbone of the public transport service. This was enhanced by a park-and-rail strategy incorporating 25 key stations on the network which acted as the official entry points onto the system. In combination with the three road-based park-and-ride venues, public transport became a major mover of people during the event and thus limited the concentration of traffic outside the VTOP focal points. This successfully prevented any congestion.

Road-based public transport systems were also established to complement the rail system. These included a new temporary service provider (a consortium between the existing public transport bus service provider and mini-bus taxi operators) for operating the IRT buses (used on the stadium shuttle route, airport and inner city loop services) and providing the shuttle services for the road based park-and-ride, as well as concluding an agreement with the mini-bus taxi industry to provide feeder services for the public transport system and spectators.

Numerous back office support systems were established to ensure and support the implementation and functional operation of the transport operations on the ground. The newly built Traffic Management Centre (TMC) formed a focal point for these systems as it housed key mechanisms for identifying and responding to incidents and with the Transport Information Centre (TIC) communicating on both public and private modes of transport.

The successes of the transport system were evident by the increased number of people who used the services during the event period. An estimated 1 070 000 event related passenger journeys were made to and from the CBD on the rail network. The number of people parking remotely and using public transport or dedicated shuttles through the park-and-rail and park-and-ride operation increased from an estimated 10 000 to 30 000 people per match day (3 500 to 10 000 cars) at the selected entry points. The plan of using the "Spoke and Hub" strategy proved its worth in easily allowing these large amounts of people to move to the Stadium, the V&A Waterfront, or the FIFA Fan Fest™.

An estimated 235 000 people were transported via the stadium shuttle over the eight match days, with the fan walk becoming an attraction in its own right. An estimated 581 913 ticket and non-ticket holders used the fan walk to be part of the World Cup vibe. Their combined use contributed to the success of getting people to and from the stadium so efficiently.

A total of 137 management staff and 406 support staff formed the transport related human resource team needed to manage and monitor the implementation of the plan.



Successful transport measures played a large role in the movement of fans to and from Cape Town Stadium. Photo: Bruce Sutherland, City of Cape Town

Without the combined dedication of these people along with the crucial relationships that they had created during the planning phases of the project with other disciplines such as Traffic, SAPS, Metrorail, TransPeninsula and the mini-bus taxi industry, the successful management of the transport system during the 2010 FIFA World Cup™ would not have been possible.

A very important aspect of implementing the transport plan was communicating it through various mediums to defined stakeholders and the general public. Reiterative media inserts, presentations and meetings with the key stakeholders before the World Cup kept them fully informed on items such as road closures and transport options. Real-time transport management occurred through the Traffic Information Centre (TIC) (with five foreign languages) acting as the public call centre (taking 210 000 calls during the event) and the Traffic Management Centre (TMC) which enabled the management of on-the-ground incidents.

It was evident that demand management played a role in reducing background traffic. With the closures of schools, universities and the buy-in from business to adjust their working hours, peak hour demand on the roads was noticeably reduced. This significantly helped with the management of commuters.



An aerial view of the thousands of fans who walked to Cape Town Stadium along the fan walk. Photo: Bruce Sutherland, City of Cape Town

2.5 BUDGET

The budget for hosting the 2010 FIFA World Cup™ came from various sources, and comprised a capital budget and an operating budget. The budget requirements were set out in a joint business plan by the City and the Province, which was submitted to National Government in 2006. Various national government departments provided funding in line with the national government guarantees contained in the bid documentation and host nation agreement signed with the South African Football Association (SAFA) and FIFA. To illustrate the vast budget requirements for hosting such a mega-event, Table 3 outlines the expenditure in Host City Cape Town on infrastructural developments only.

The operating cost of hosting the 2010 FIFA World Cup™ was incurred over a period of four years leading up to the event. A grant from National Government covered approximately 23,4% of the total operating cost of R368,1 million. The Green Goal programme was partly funded from this grant.

The City of Cape Town was subject to a number of audits on administrative and financial aspects by National Government, all of which reported satisfactory results.

TABLE 3: Expenditure on infrastructural developments in Cape Town

Host City Cape Town infrastructure expenditure	Expenditure
Cape Town Stadium	R4,4 billion
Access to stadium in CBD proximity	R298 million
Green Point Common and precinct	R576 million
Inner-city transport system	R42 million
CBD infrastructure and upgrades	R590 million
Local roads and sports facilities	R513 million
Major access roads to the CBD	R1,8 billion
Public transport	R4,2 billion
Total	R12,4 billion

2.6 LEGACY

The legacy of the World Cup is found in both its infrastructure and socio-economic impact (Figure 1). Cape Town now has a new world-class, multipurpose 55 000-seater stadium in arguably the most beautiful setting in the world. Since the tournament, this facility has already hosted an international soccer match and some of the biggest names in the music industry, including U2 and Neil Diamond. Also, the substantial investment in upgrading Athlone and Philippi stadia has provided world-class facilities in previously disadvantaged areas of the city.

In addition the following are legacies of the World Cup:

- The upgraded Green Point Common and the creation of the new, already well-utilised Green Point Park and sports clubs have added substantial value to this previously neglected green space in the city.
- The Grand Parade is now established as Cape Town's premier assembly area, and will serve this purpose for many years to come.
- Residents and visitors will benefit from the upgraded airport and rail stations as well as the new integrated rapid transit (IRT) bus system.
- New road infrastructure will ease congestion on some of the city's main access routes, saving time and money and benefiting the environment, as less idling on congested roads results in reduced carbon emissions.
- Cape Town International Airport was upgraded at a cost of R1,2 billion to cater for the 2010 FIFA World Cup™ traffic as well as projected demand up to 2015.
- The 2010 FIFA World Cup™ has seen a total of R14 billion in public sector investments in the city. The private sector's confidence in Cape Town as a destination is reflected in the nine new hotels that were built in the city before the event. The World Cup provided a unique global marketing opportunity. It is estimated that a cumulative viewership of more than eight billion television viewers watched the matches with the World Cup final between Spain and the Netherlands attracting more than 700 million viewers. If only a tiny percentage of those people decide to come to South Africa on holiday in the next two or three years, that will more than pay for the total World Cup bill.
- Professional workers, service providers and volunteers working before and during the event (including 2 600 workers on the stadium site at the height of construction and 2 000 volunteers working during the event) gained valuable skills and expertise.

- The Green Goal legacy opportunity was two-fold, namely investment in the environment, and increased environmental awareness that would promote a change in behaviour towards the environment.
- The first FIFA Football for Hope Centre in Africa was constructed in Khayelitsha, Cape Town, including a playing field, community centre and a life skills and HIV/ Aids awareness programme.
- The City applied preferential procurement to ensure that historically disadvantaged individuals (HDIs) and businesses as well as small, medium and micro-sized enterprises (SMMEs) benefited from the World Cup spend.

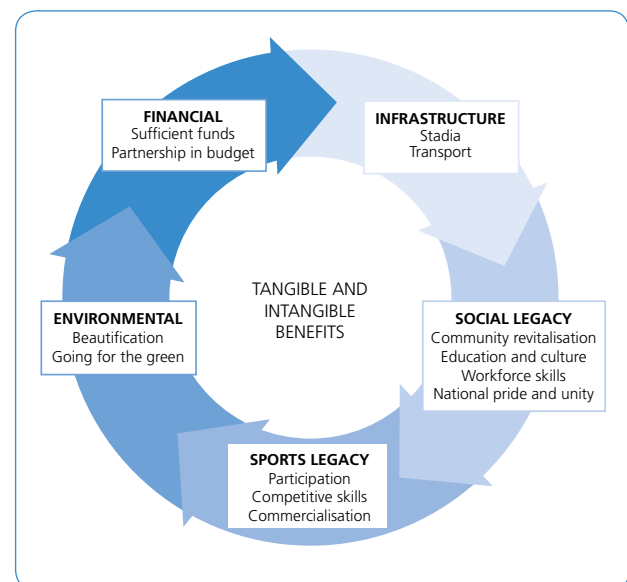


FIGURE 1: Cape Town and Western Cape legacy model

FROM WORLD CUP TO WORLD MAP THE LEGACY OF THE WORLD CUP

The World Cup is directly responsible for the positive long-term tourism percentage growth outlook for South Africa in the next five years. From television viewership and cyberspace presence, to perfect hosts of a global spectacle, the impact of the 2010 FIFA World Cup™ will go a long way to improving perceptions of South Africa and improving the country's brand value significantly.

Source:

Grant Thornton says World Cup dramatically increased national brand value for South Africa, Press release by Gillian Saunders, Grant Thornton, South Africa, 29 October 2010

THE NEW GREEN JEWELS

IN CAPE TOWN'S CROWN

The Cape Town Stadium and the adjacent Green Point Park were designed according to ecological principles, offering the Host City a unique opportunity to demonstrate to Capetonians and the world its commitment to responsible environmental management.





Energy efficient lighting illuminates Cape Town Stadium during the FIFA 2010 World Cup™ Semifinal match between the Netherlands and Uruguay on 6 July 2010.

Photo: Bruce Sutherland, City of Cape Town

3 THE NEW GREEN JEWELS

IN CAPE TOWN'S CROWN

3.1 CAPE TOWN STADIUM

The construction of the new Cape Town Stadium was the biggest single infrastructural investment for Host City Cape Town. At the time, the construction of the new stadium on Green Point Common was a controversial decision, and was delayed by public appeals as part of the EIA, but, eventually, the development of the stadium was approved along with a new layout for Green Point Common.

Preparations for construction began in March 2007. In 33 months, joint contractors Murray & Roberts and WBHO completed the project at a cost of R4,4 billion. The project architects were a partnership between GMP Architekten of Germany and two local firms, Louis Karol & Associates and Point Architects. A total of 2 600 on-site jobs were created to construct the stadium, and 1 179 artisans received training from the contractors.

For the eight World Cup matches, the stadium had a seating capacity of 68 000, including 13 000 temporary seats that were removed after the event to leave 55 000 permanent seats. The stadium is state-of-the-art and designed for comfort, safety and visibility. The venue can be evacuated in 15 minutes. The geometry of the bowl provides for the best spectator viewing with no seat further than 190 m away from the furthest corner of the pitch and as many as possible seats within an optimal viewing distance of 150 m. This feature distinguishes it from many of the world's top stadiums.

The outer façade made from polytetrafluoroethylene (PTFE)-coated glass fibre forms a concave vertical curve with horizontal undulations, giving it a scale-less appearance. It provides for protection against strong winds and heavy rainfall, while allowing natural light and ventilation and reducing noise emanating from the stadium.



Energy efficient lighting illuminates Cape Town Stadium. Photo: Bruce Sutherland, City of Cape Town

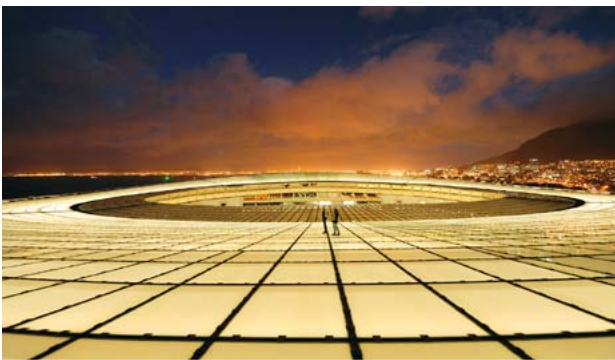
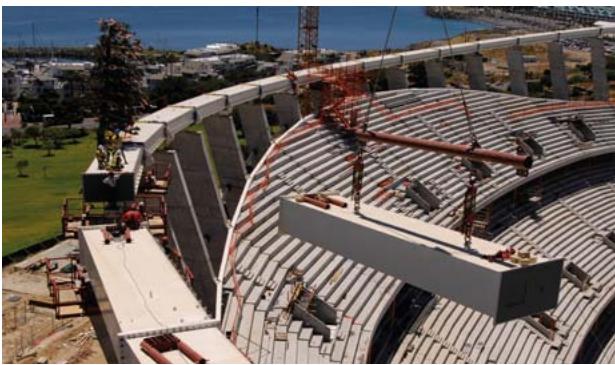
The roof is made up of an outer compression ring that rests on 72 columns, and links to the inner tension rings with a system of trusses and cables. The inner tension ring houses the lights for the playing field which removes the need for traditional high-mast lighting and keeps the roof profile clear. Three hundred and sixty 2 kW spray lights are located in the roof to form a 'ring of fire'. They are focused and have been tested to deliver at least 2 500 lux in the vertical plane. This provides for ideal high definition television coverage.

Glass panels of 16 mm thick were used to weigh the roof down and let natural light through to the stands below. The glass roof also protects spectators from harsh weather. A transparent, woven polyvinyl-chloride (PVC) mesh fabric was used under the glass roof to screen the roof construction members and mute noise. Rainwater is harvested at the two lowest points on the roof, and stored on the nearby golf course for irrigation purposes.

The construction of Cape Town Stadium was carried out according to an environmental management plan (EMP). During construction, two environmental control officers (ECOs) were on site full-time to monitor environmental compliance and advise the principal contractor and subcontractors on environmental mitigation measures. During the excavation phase, they were assisted on-site by a professional archaeologist. Method statements were approved for construction activities that dealt with environmental impacts, such as the removal of trees, pouring of concrete, excavations (in particular sensitivity to archaeological remains), dust abatement, stormwater management and waste management. Topsoil from the site was collected and retained during construction for later use in landscaping. On-site greywater and spring water was used for dust control during construction.

Cape Town Stadium was planned as a multipurpose venue to host rugby and soccer matches as well as music concerts and other major events. Its location within walking distance from the CBD and the popular V&A Waterfront makes it one of the most accessible large-event venues in South Africa.

The stadium design includes technologies that promote energy and water efficiency. Details of specific measures are included in Section 6.



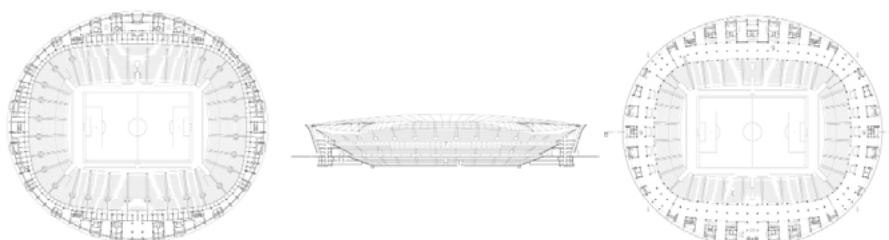
Construction and aerial views of Cape Town Stadium. Photo: Bruce Sutherland, City of Cape Town

ENVIRONMENTAL IMPACT ASSESSMENT

In terms of South African environmental legislation, an EIA was required for the construction of the proposed new stadium, the construction of Granger Bay Boulevard, the upgrade of associated electrical infrastructure, and the establishment of an urban park within Green Point Common. A scoping report was released in June 2006 and, together with the plan of study for the assessment phase, was accepted by the competent environmental authority, the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP). Following that, the assessment phase of the EIA process was initiated, which assessed inter alia socio-economic, heritage and visual impact. The results culminated in a draft environmental impact report (EIR). The draft EIR was distributed to stakeholders and interested and affected parties (I&APs) for their comment. A report was compiled to address the comments received, after which the final EIR as well as the proposed construction environmental management plan (CEMP) were submitted to DEA&DP. The ROD that authorised the construction of the stadium and related infrastructure was issued on 1 May 2007.

COMPLIANCE MANAGEMENT SYSTEM

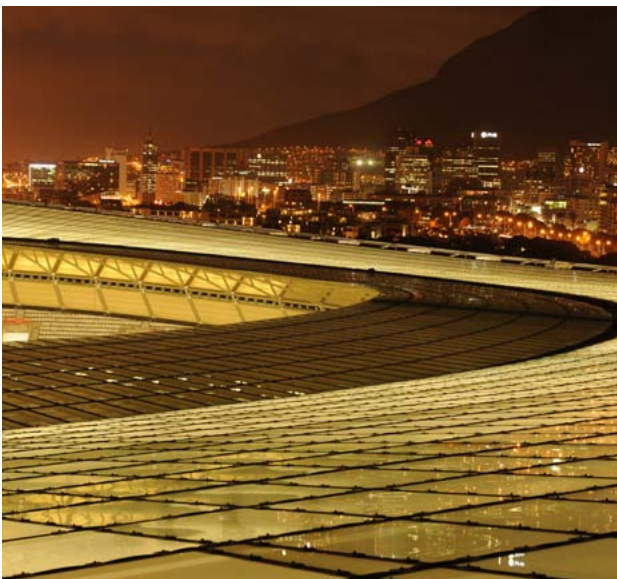
One of the conditions of authorisation for constructing Cape Town Stadium was the development and implementation of an environmental management system (EMS). In November 2009, Council adopted a customised compliance management system for the Cape Town Stadium and Green Point Common that was to ensure that the operation of these facilities complied with all relevant legislation and would meet sustainability criteria into the future.



CAPE TOWN STADIUM QUICK FACTS

95% of demolished components from the old Green Point stadium salvaged, recycled or reused

- Low-flow showerheads minimise water usage
- Water-cooled variable refrigerant volume (VRV) system used for air conditioning enabling significant energy savings
- Insulated panels behind the fabric façade reduce the need for cooling
- Taps with self-closing valves and aerators



RAINWATER HARVESTED AT TWO LOWEST POINTS ON ROOF

- **A STORAGE** tank provides back-up pumped water for pitch irrigation
- **CONSTRUCTION** carried out in accordance with Environmental Management Plan (EMP)
- **OUTER FAÇADE** allows for natural light and ventilation
- **THE BUILDING** is raked outwards to shade itself

Energy-efficient lighting including LED

Noise impact assessment carried out

The stadium was completed in 33 months at a cost of R4.4 billion



3.2 GREEN POINT PARK

Cape Town Stadium is situated on the 85 ha Green Point Common. Green Point Common is a significant open space in the heart of Cape Town, and has played a significant role in the history of the city. Green Point Common was once a seasonal vlei known by the Dutch settlers during the 18th century as “De Waterplaats” (the Foreshore). The vlei was filled in during the early 20th century and, in 1923, the Union Government granted the land to the citizens of Cape Town for sports fields and general public recreation purposes.

Before the construction of the stadium, the area had been used for various sporting and community facilities for more than a century. The first rugby and soccer matches in Cape Town were played on the Common, and the Common is still home to the oldest rugby, soccer and cricket clubs in Cape Town.

The construction of the new stadium necessitated the reconfiguration of Green Point Common, which allowed for the creation of a new 12,5 ha public park, the Green Point Park, on the western edge of the Common.

The main, tree-lined pedestrian boulevard runs between Somerset Road and the Mouille Point lighthouse and beachfront promenade.

Green Point Park was designed according to ecological principles. A biodiversity garden showcases the indigenous vegetation of the region, while spring water diverted from the slopes of Table Mountain is stored in ponds and wetlands to replace potable water for irrigation. A hydroturbine generates electricity from the spring water supply. Future developments planned for the park include a Smart Living Centre to promote sustainable living in an urban environment, an indigenous nursery, a horticultural training centre and weekend fresh-food markets. Waste separation at source and recycling are promoted.

The park was officially opened to the public on 9 February 2011.



Capetonians enjoy the new Green Point Park spring water. Photo: Bruce Sutherland, City of Cape Town

HOST CITY CAPE TOWN

GREEN GOAL PROGRAMME

Greening the 2010 FIFA World Cup™ required a huge effort that involved many partnerships. The Host City Cape Town Green Goal 2010 Action Plan was launched by the Premier of the Western Cape and the Executive Mayor of Cape Town to the tunes of the Vuvuzela Orchestra.





The Vuvuzela Orchestra against the backdrop of Table Mountain at the launch of the Green Goal Action Plan in September 2008.

Photo: Bruce Sutherland, City of Cape Town

4 HOST CITY CAPE TOWN GREEN GOAL PROGRAMME

Host City Cape Town understood that the successful implementation of the Green Goal Action Plan and programme required an integrated, consultative approach, involving a number of stakeholders. In October 2006, the City and Province produced a joint business plan for the greening of the World Cup, which included a set of high-level principles and list of projects that could be implemented as part of the programme.

The main objectives with the implementation of this business plan were to:

- green the 2010 FIFA World Cup™ event footprint; and
- leave a positive environmental legacy.

A positive legacy was pursued by considering the impact of decisions and actions in both the short and long-term; implementing activities that promote sustainability; prioritising infrastructure development that will have lasting benefit for the broader Cape Town community; raising public awareness, and encouraging behavioural change as a result of the interventions implemented.

The following principles were included in the original event-greening business plan:

- Sustainable procurement
- Sustainable construction
- Integrated waste management
- Water management
- Energy efficiency and climate change
- Air quality management
- Biodiversity conservation
- Social development
- Responsible tourism



Consul General of the Federal Republic of Germany, Hans-Werner-Bussmann, with the Executive Mayor of Cape Town, Alderman Dan Plato and Premier Helen Zille at the launch of the Green Goal 2010 Progress Report, September 2009.

- Participation, communication, education and public awareness
- Monitoring and evaluation
- Leaving a positive green legacy

To give effect to the business plan principles, Host City Cape Town, in partnership with KAS, developed a programme of consultation with stakeholders (the Green Goal workshop series) with a view to preparing a Green Goal Action Plan.

4.1 WORKSHOP SERIES 1 AUGUST 2007 TO MARCH 2008

Five workshops took place between August 2007 and March 2008, attended by national, provincial and local government, non-governmental organisations (NGOs), business, the media, the LOC, international experts and civil society. The primary objective of this workshop series was to inform and guide the completion of the Host City Cape Town 2010 FIFA World Cup™ Green Goal Action Plan, and to select a range of projects that would form the basis of the host city's greening effort. Two discussion forums, respectively looking at carbon offsetting for 2010 and the urban park around the stadium, also took place during this period.

The workshops covered the following themes:

- Green Goal principles and priorities
- Green building, the stadium, biodiversity and landscaping
- Responsible tourism

- Integrated waste management
- 'Painting the town green': Using Green Goal 2010 to persuade residents, visitors, and the FIFA family to adopt greener lifestyles

One of the challenges facing the Green Goal 2010 team was narrowing down the list of potential project ideas submitted at the workshops. A final list of 41 projects under nine themes was identified for inclusion in the Green Goal Action Plan. (A further project was added later making the total 42.)

The following criteria were used to select the projects:

- **Legacy:** Potential to provide long-term benefits to residents of the city and the province, in particular to less-advantaged groups
- **Level of completion:** Projects that were either scoped or already under way
- **Visibility:** Projects that were visible and able to capture the imagination of residents and visitors
- **Duration of project and financial feasibility:** Projects that could be undertaken and completed within the available time and budget parameters
- **Impact on global warming:** The implementation of carbon mitigation projects that reduce energy consumption and carbon emissions

The 42 projects were divided into nine themes according to their main focus areas:

1. **ENERGY EFFICIENCY AND CLIMATE CHANGE**
Minimise the carbon footprint of the 2010 event
2. **WATER CONSERVATION**
Minimise the use of potable water, and promote conservation of water resources
3. **INTEGRATED WASTE MANAGEMENT**
Avoid, reduce, reuse and recycle waste
4. **TRANSPORT, MOBILITY AND ACCESS**
Promote energy-efficient and universally accessible mobility, and minimise air pollution
5. **LANDSCAPING AND BIODIVERSITY**
Promote indigenous landscaping, and enhance biodiversity
6. **GREEN BUILDING AND SUSTAINABLE LIFESTYLES**
Promote environmental awareness, sustainable lifestyles and environmentally efficient building practices
7. **RESPONSIBLE TOURISM**
Promote responsible tourism for 2010 and beyond
8. **GREEN GOAL COMMUNICATIONS**
Communicate the Green Goal message to residents and visitors
9. **MONITORING, MEASURING AND REPORTING**
Monitor, measure and report on progress with the implementation of Green Goal



The Grand Parade was upgraded at a cost of R16,9 million and hosted the FIFA Fan Fest™ where all 64 matches were screened to as many as 25 000 fans at once.
Photo: Bruce Sutherland, City of Cape Town

4.2 WORKSHOP SERIES 2 FEBRUARY TO APRIL 2009

In 2009, a second series of Green Goal 2010 workshops took place to support project implementation and monitoring. The aim of these workshops was to fine-tune a number of key projects identified during the first workshop series; to develop strategies to raise additional funds for projects still lacking the necessary budget; to keep stakeholder groups informed of progress with respect to project implementation, and to strengthen the relationship between the City, the Province and external stakeholders and partners further.

The second series of Green Goal 2010 workshops can be outlined as follows:

- “Scoping, planning and implementing the carbon-offsetting action plan for Host City Cape Town”. Identifying and agreeing on a short list of carbon-offsetting projects for implementation, and formulating an initial action plan towards hosting a low-carbon event in Cape Town.
- “The proposed Smart Living Centre in Green Point Park”. Informing participants about Green Point Park, a 2010 legacy project adjacent to the new Cape Town Stadium, and the proposed Smart Living Centre and its activities.
- “Taking responsibility for tourism during the 2010 FIFA World Cup™”. Reviewing the projects that promoted responsible tourism in the Host City Cape Town Green Goal Action Plan, and that contributed towards the formulation of the 2010 FIFA World Cup™ Responsible Tourism Declaration by Host City Cape Town.

In early 2010, a final workshop took place to review the lessons learnt during implementation, and to share these experiences with Brazil, who are hosting the 2014 FIFA World Cup™.



Green Goal workshop in action. Photo: Sheryl Ozinsky

4.3 PROJECT IMPLEMENTATION

The Host City Cape Town Green Goal Action Plan was launched by the Premier of the Western Cape and the Executive Mayor of Cape Town on 17 October 2008. An environmental work stream with representatives from various City departments as well as Province was established to oversee the implementation of the action plan. The plan’s implementation was further managed by a dedicated Green Goal manager in the City’s event operations office. Integration with the other work streams, including those on city beautification, utilities, safety and security, transport and communications, was critical to ensure that the Green Goal objectives were included in all aspects of event operations.

4.4 INSTITUTIONAL ARRANGEMENTS

4.4.1 Host City Cape Town

The environmental work stream was one of 16 work streams formed to develop and implement the World Cup operational plans. The City appointed a Green Goal manager in the 2010 operations office to oversee the implementation of the Green Goal Action Plan. Within the City, the 2010 operations office reported to a mayoral subcommittee that had been appointed to oversee the 2010 preparations. The Province’s representative in the environmental work stream also served on the Provincial 2010 Technical Steering Committee, which reported to Provincial Cabinet.

4.4.2 Local Organising Committee (LOC)

FIFA tasked SAFA with the responsibility to organise, stage and host the event. The SAFA LOC consequently appointed an environmental manager and, in consultation with the Department of Environmental Affairs (DEA), established the Environmental Forum, a substructure of the LOC's Legacy Committee. The Environmental Forum brought together representatives from the 2010 FIFA LOC, DEA, national and provincial government departments, the Department of Water Affairs (DWA), the nine host cities, and resource agencies such as the International Union for Conservation of Nature (IUCN), UNEP and the United Nations Development Programme (UNDP). The purpose of the Environmental Forum was to serve as a steering committee, planning, coordinating and monitoring national 2010 greening activities related to the stadia, fan parks, training grounds, accommodation facilities, and the networks and amenities that service and connect them. The Öko-Institut was contracted to use their experience as coordinators of the 2006 Green Goal programme in Germany to advise the South African LOC.

Five working groups were established, and action plans were developed for each of them. The implementation of the action plans required additional funding, which was not forthcoming in all instances and resulted in some action plans not being fully implemented.

The LOC developed an environmental strategy, which outlined the strategic objectives of the green goal programme, including the following:

- To establish the overall greening approach for 2010
- To coordinate key stakeholders in the implementation of the 2010 greening programme
- To green all LOC facilities, operations and events
- To guide the greening of FIFA activities and events
- To support host cities with greening activities
- To undertake 2010 Green Goal monitoring

Flowing from the environmental strategy, national minimum environmental standards, targets and a monitoring framework were developed. Two targets were adopted by host cities at national level, namely a waste reduction target, and a target relating to the use of public transport by spectators on match days.

Two stadium baseline studies were commissioned by the LOC to provide a better understanding of resource use at existing stadia. This enabled an assessment of resource savings potential, which informed the compilation of minimum environmental standards and greening targets for the 2010 FIFA World Cup™.

The LOC, with assistance from InWEnt, developed a monitoring and reporting framework, which was piloted during the FCC and used by some host cities during the 2010 FIFA World Cup™.

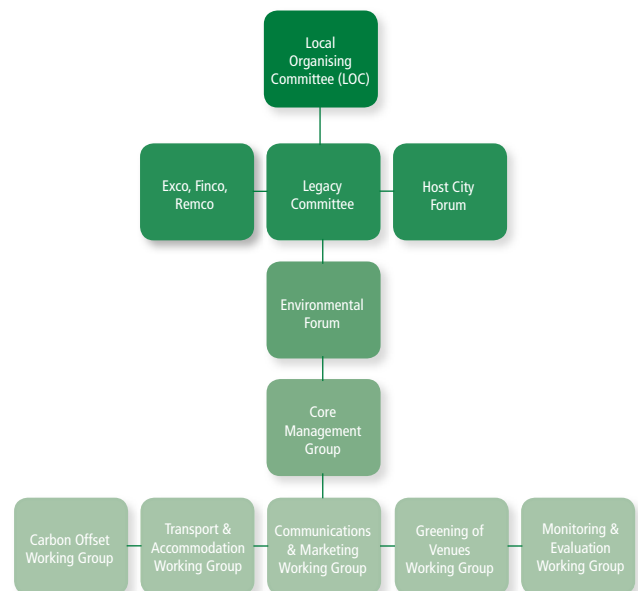


FIGURE 2: Environmental structures of the 2010 FIFA LOC

“Great experience - I have learned a lot from Green Goal. Cape Town is a great destination.”

Martin Koopman, Fan Fest visitor

4.4.3 National Department of Environmental Affairs (DEA)

DEA is the mandated custodian of environmental management in South Africa. The Department was represented on the LOC Board, and served on the Environmental Forum as well.

As part of the national greening programme, the Department in 2007 developed a business plan for greening the 2010 FIFA World Cup™, which informed the National 2010 Greening Framework published in 2008. The framework included a programme of action for environmental best practice; socio-economic development; education and awareness; monitoring, evaluation and reporting, and sustainable development to leave a positive legacy for future generations.

In conjunction with the LOC environmental forum, DEA undertook the following specific tasks:

- Provided support to the LOC
- Provided support to host cities in assessing their environmental management objectives and performance
- In partnership with the Norwegian government, coordinated the investigation of the total carbon footprint associated with hosting the 2010 FIFA World Cup™
- With support from the Danish International Development Agency (DANIDA), reviewed the greening measures taken in five World Cup stadia, with a view to developing a toolkit for designing and constructing green stadia, promoting the concept of green building, and strengthening future greening initiatives
- In partnership with UNEP and the Global Environment Facility (GEF), implemented a carbon reduction programme in six host cities, including the retrofitting of solar-powered streetlights and traffic lights, and the installation of solar-powered billboards
- In partnership with UNEP approached representatives of participating nations to offset the team's carbon footprint. Eleven of the 32 participating teams offset their carbon emissions, including Algeria, Cameroon, Cote d'Ivoire, Ghana, Uruguay, Italy, Switzerland, Chile, England, the Republic of South Korea and Serbia. The teams' carbon footprint includes international flights to and from South Africa, domestic flights and coaches to and from group matches for teams and officials, and accommodation in hotels – a total of approximately 6,050 tonnes of greenhouse gas emissions

- Developed a guideline for the greening of large sporting events – a practical toolkit to implement an event-greening programme
- Developed a training manual for the LOC environmental services volunteers, and recruited an additional 450 environmental volunteers to assist host cities to implement the national greening programme during the 2010 FIFA World Cup™
- Published six cartoon strips with environmental messages in four languages – Sotho, Zulu, English and Afrikaans – in a national newspaper, and developed animations for screening on the national public broadcaster, targeting both domestic and international audiences
- Developed a 'Green Passport', which was distributed in the host cities and at the main airports during the 2010 FIFA World Cup™
- Conducted a non-motorised transport (NMT) pre-feasibility study in all nine host cities, with the support of the German Development Bank KfW. Key projects will now be implemented as a legacy project after the 2010 FIFA World Cup™
- Assisted the LOC in producing a legacy report on the 2010 greening programme, based on host city and LOC Environmental Forum report assessments



FIGURE 3: Sample of cartoon strips published to raise awareness of the 2010 greening programme

4.5 INTERNATIONAL COOPERATION

GTZ (the German Gesellschaft für Technische Zusammenarbeit) and InWEnt (Internationale Weiterbildung und Entwicklung GmbH), which, since January 2011, both form part of the GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit), facilitated an exchange between Germany and South Africa as hosts of the 2006 and 2010 FIFA World Cup™ respectively.

InWEnt hosted two workshops aimed at building capacity for the implementation of the Green Goal programme. The first workshop shared lessons from the 2006 Green Goal programme in Germany, while the second workshop focused specifically on waste management.

In addition to the workshops, InWEnt facilitated visits from a number of specialists to share experiences and participate in workshops relating to the implementation of the Green Goal programme in Cape Town.

In May 2009, InWEnt also assisted the LOC to develop a Green Goal 2010 monitoring matrix, and facilitated a workshop on the monitoring and evaluation requirements that were to be tested during the FCC.

The Öko-Institut in Germany – the organisation that had been tasked with the development of the first Green Goal concept for the 2006 FIFA World Cup™ – facilitated a study tour in November 2008 for host city representatives to engage with members of the 2006 FIFA World Cup™ planning teams and other specialists relating to waste management, carbon offsetting, stadium EMSs, and transport for the event.

The Konrad-Adenauer-Stiftung (KAS), in turn, supported the Host City Cape Town Green Goal programme from the outset. KAS facilitated several opportunities to present the Green Goal Action Plan to German agencies in South Africa, and hosted a breakfast in November 2009 to brief ambassadors and consuls-general in Cape Town before the Final Draw. Also in November 2009, KAS facilitated a study tour for the five winners of the 2010 Impumelelo Sustainability Awards, including the Host City Cape Town Green Goal programme, to share project lessons with stakeholders in Germany.

The Host City Cape Town Green Goal Action Plan was presented at the 8th Global Forum for Sports and Environment (G-ForSE) conference in Alicante, Spain, in October 2008. The lessons from the implementation of the plan were also presented at the 9th G-ForSE meeting held in Nairobi, Kenya, from 8 to 10 November 2010.



Chancellor of Germany, Angela Merkel, accompanied by the Executive Mayor of Cape Town, Alderman Dan Plato and Premier Helen Zille during the FIFA 2010 World Cup™. Photo: Bruce Sutherland, City of Cape Town

OVERALL IMPACT

OF THE GREEN GOAL 2010 PROGRAMME

The Green Goal 2010 programme achieved many noteworthy successes, exceeding the national target for waste-to-landfill reduction and use of public and non-motorised transport.





Excellent waste management during the World Cup added to the tourist appeal and fan experience.

Photo: Rob Oettle

5 OVERALL IMPACT OF THE GREEN GOAL 2010 PROGRAMME



Host City Cape Town succeeded to reduce the environmental impact of the 2010 FIFA World Cup™ through the implementation of the Green Goal Action Plan.

Host City Cape Town exceeded the two national targets – a 20% waste-to-landfill reduction, and 50% of fans travelling to matches by public transport and on foot – and met its objectives to reduce the overall environmental impact and leave a positive legacy.

The visibility, branding and communication potential of the World Cup afforded Host City Cape Town the opportunity to create greater environmental and sustainability awareness. Using the World Cup platform, the greening campaign communicated, popularised and mainstreamed norms of sustainability among the general public, inspired behavioural change, and attempted to bring about a broader shift towards more sustainable lifestyle choices.



Fans at the match between Italy and Paraguay, Cape Town Stadium, 14 June 2010. Photo: Bruce Sutherland, City of Cape Town

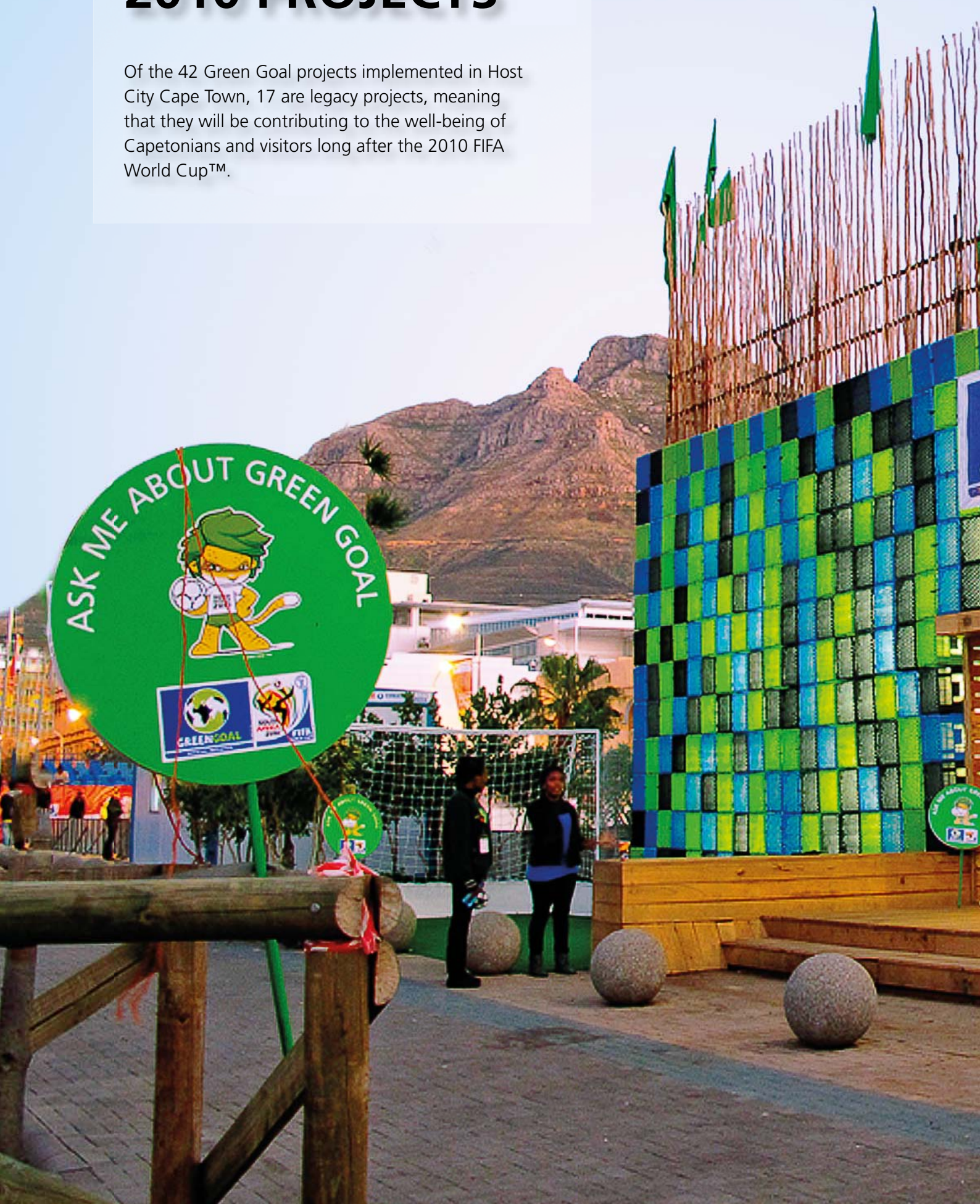
The table below summarises the quantifiable impact of the Green Goal programme, showing the overall success of the initiative in Host City Cape Town.

TABLE 4: Quantifiable impact of the Green Goal programme linked to key environmental indicators

Key data indicators	Indicator	Success	Comment
WASTE			
Overall % recycled	58%	Successful 😊	Well exceeded target of 20% reduction in waste to landfill
ACCOMMODATION			
Electricity, water and waste reduction	No indicators were set	Room for improvement 😐	No FIFA requirements to implement greening measures in the accommodation sector for 2010 FIFA World Cup™
ELECTRICITY			
Average energy saving at Cape Town Stadium	15%	Successful 😊	Energy-saving measures in Cape Town Stadium
Green electricity donated for Cape Town Stadium (MWh)	268 746		Eskom purchased 2418.71 GWh of certified green electricity, which was spread over the nine host cities
Green electricity purchased for FIFA Fan Fest™ (kWh)	145 725		Very significant measure with large impact, reducing carbon impact of FIFA Fan Fest™ to nil
WATER			
Average water saving achieved at Cape Town Stadium	27%	Successful 😊	Water-saving measures in the Cape Town Stadium
TRANSPORT			
Public transport and non-motorised transport use to match venues	53%	Successful 😊	Met national target of 50% of fans travelling to the stadium using public transport or non-motorised transport (survey showed 40% used public transport and 13% walked)
CARBON FOOTPRINT			
Offset from efficiency and renewables projects	15%	Successful 😊	Solar water heater and efficient lighting projects led to significant reductions. Bulk Eskom certificate purchase for the entire country and fan fest green electricity purchase further contributed
Offset from green electricity certificate purchase	80%		Overall almost all CO ² emissions were offset, including international travel
Total reduction and offset (incl international travel)	95%		
AWARENESS			
Proportion of fans aware of Green Goal initiatives	35%	Moderate success 😐	While this achievement is significant, an earlier launch of the Green Goal brand may have resulted in greater impact

THE GREEN GOAL 2010 PROJECTS

Of the 42 Green Goal projects implemented in Host City Cape Town, 17 are legacy projects, meaning that they will be contributing to the well-being of Capetonians and visitors long after the 2010 FIFA World Cup™.





The Green Goal Expo at the FIFA Fan Fest™ was constructed out of recycled milk crates, conveying the importance of touching the earth lightly.

Photo: Stephen Lamb

6 THE GREEN GOAL 2010 PROJECTS

6.1 PROJECTS AT A GLANCE

Of the 41* projects that were described in the Host City Cape Town Green Goal Action Plan launched in October 2008, 37 were fully implemented, three partially implemented, and one is still under way. One additional project was added after the Green Goal Action Plan was launched and was completed. Seven carbon mitigation projects were also completed.



Solar water heaters for low-income households in Darling were installed as part of Green Goal 2010. Photo: Coco van Oppens

TABLE 5: Green Goal projects summary

Target area	Project	Budget	Status
1. Energy efficiency and climate change Minimise the carbon footprint of the 2010 event	Determining the carbon footprint of the 2010 event	City: R148 500	Completed
	Identifying and implementing carbon mitigation project(s) in Cape Town/Western Cape	DANIDA: R8 million Province: R1,5 m	Completed
	Installation of energy-efficient technologies in stadia and training venues, and at the FIFA Fan Fest™ and PVAs	Included in stadia capital and operating budgets	Completed
2. Water conservation Minimise the use of potable water, and promote conservation of water resources	Identifying alternative sources of water for irrigation of Green Point Common, and implementing most feasible option	City: R25,5 million	Completed
	Installation of water-saving devices in stadia (Cape Town, Athlone and Philippi) and training venues	Included in stadia capital and operating budgets	Completed
3. Integrated waste management Reduce, reuse and recycle waste	Operational waste minimisation in stadia, the FIFA Fan Fest™, PVAs and training venues in the run-up to and during the event	Included in IWM capital and operating budgets	Completed
	Green Goal branding of recycling bins and waste minimisation signage	Included in IWM capital and operating budgets	Completed
	Recycling drop-off centres in the CBD and on the Atlantic seaboard	City: R1,14 million	Under way

* Additional project implemented after Green Goal Action Plan was launched

Target area	Project	Budget	Status
4. Transport, mobility and access Promote energy-efficient and universally accessible mobility, and minimise air pollution	Development of bicycle and pedestrian facilities	R183 million from City, Province and Department of Transport budgets	Completed and ongoing
	Development of public transport infrastructure	R1,76 billion from City, Province and Department of Transport budgets	Completed and ongoing
	CBD bicycle services	No budget required	Partially implemented
	Eco-taxis/fuel-efficiency programme	City: R153 208 SAPIA: R25 000	Completed and ongoing
5. Landscaping and biodiversity Promote indigenous landscaping, and enhance biodiversity	Indigenous gardening training programme for Green Point Park staff	Included in biodiversity showcase garden budget	Completed
	Biodiversity showcase garden at Green Point Park	City: R723 000 in addition to existing capital budget for construction of Green Point Park	Completed
	Student landscape design competition for Mouille Point beachfront and promenade	City: R20 000	Completed
	City beautification and tree-planting campaign	City: R5,2 million in addition to existing capital and operating budgets	Completed
6. Green building and sustainable lifestyles Promote environmental awareness, sustainable lifestyles and environmentally efficient building practices	Smart Living Centre in Green Point Park	City: R200 000 DANIDA: R190 000 R35 million still required for construction of Smart Living Centre	Partially implemented
	Undertaking and monitoring green review for Cape Town and Athlone stadia	DANIDA: R508 704	Completed
	Cape Town Green Map	City: R622 000 Sappi: R80 000 Cape Town Tourism: R50 000	Completed and ongoing
	2010 Green Goal volunteer training module	City: R75 907	Completed
	Green Goal soccer club competition	City: R198 013	Completed
	Soccer and environment educational poster and guide	City: R343 278 DANIDA: R52 213	Completed
	Green Goal short films	City: R30 000 Province: R26 000 DANIDA: R22 000 KAS: R20 000	Completed
	Anti-littering and waste recycling campaign	City: R60 000 in addition to existing communications budgets	Completed and ongoing
	"Drink tap water" campaign	City: R60 000	Completed
	Green procurement for 2010 events	City: R34 200 (e-ball) and R15 700 (kelp vuvuzelas) in addition to existing event budgets	Completed
	Greening of 2010 events	Included in event budgets	Completed

Target area	Project	Budget	Status
7. Responsible tourism Promote responsible tourism for 2010 and beyond	Code of responsible conduct for visitors	City: R250 000 in addition to existing Cape Town Tourism budget	Completed and ongoing
	Responsible-tourism awareness and training	City: R200 000 in addition to existing Cape Town Tourism budget	Completed and ongoing
	Environmental certification system for accommodation sector: GreenStaySA	British High Commission and United Kingdom Department for Environment, Food and Rural Affairs: R1,372 million	Completed and ongoing
	Smart Events Handbook*	City: R249 871	Completed
8. Green Goal communications Communicate the Green Goal message to residents and visitors	Green Goal workshop series 1 and 2	City: R25 000 KAS: R822 000	Completed
	Green Goal brand development and activation	City: R120 000	Completed
	Briefing for potential Green Goal funders	No budget required	Partially implemented
	Green Goal marketing and communications plan and roll-out	City: R50 000	Completed
	Green Goal ambassadors	Province: R15 000	Completed
	Green Goal website and online resources	Included in the City website maintenance budget	Completed
	Online press resources and materials	Included in existing media budgets	Completed
	Green Goal expo	City: R532 473	Completed
	Green Goal 2010 awards	No budget required	Completed
9. Monitoring, measuring and reporting Monitor, measure and report on progress with the implementation of Green Goal	Procedures and methodologies	No budget required	Completed
	Targets and baseline studies	City: R148 000	Completed
	Annual reports and legacy report	City: R100 000 KAS: R350 000 Sappi: R80 000	Completed

* Additional project implemented after Green Goal Action Plan was launched

A football game during the construction of the Cape Town Stadium.

Photos: Bruce Sutherland, City of Cape Town



PTC
1

doka doka

TEAM GREEN POINTS
10

TEAM GREEN POINTS
10

6.2 PROJECTS BY THEMATIC AREA

1 ENERGY EFFICIENCY AND CLIMATE CHANGE

One of the key overarching aims of Host City Cape Town's Green Goal effort was to ensure that the 2010 FIFA World Cup™ was a low-carbon event. This specifically related to ensuring low climate change impact through the reduction of GHG emissions. Where GHG emissions could not be avoided, they were mitigated through a range of Green Goal 2010 carbon mitigation projects. The objective of the carbon mitigation programme was to compensate for unavoidable GHG emissions, such as activities related to transport (ground and air travel), higher energy use in stadia, and visitor accommodation.

THE PROJECTS

- 1.1 **Determining the carbon footprint of the 2010 event**
- 1.2 **Identifying and implementing carbon mitigation project(s) in Cape Town/ Western Cape**
- 1.3 **Installation of energy-efficient technologies in stadia and training venues, and at the FIFA Fan Fest™ and PVAs**

PROJECT ACTIONS

1.1 Determining the carbon footprint of the 2010 event

In 2008, DEA together with the local UNDP office and the Norwegian Agency for Development Cooperation (Norad) initiated a process to design, mobilise resources for, and implement a plan of action to make the 2010 FIFA World Cup™ a carbon-neutral event. International consulting firm Econ Pöyry was commissioned to conduct a feasibility study and prepare recommendations.



Green electricity for the FIFA Fan Fest™ was purchased from the Darling Wind Farm. Photo: Bruce Sutherland, City of Cape Town

The study concluded that the estimated carbon footprint of the 2010 FIFA World Cup™ was more than 896 000 tonnes of CO² equivalent (tCO²e), with an additional 1 856 000 tCO²e contributed by international travel. The former value was more than eight times the estimated footprint of the 2006 FIFA World Cup™ in Germany, which had been stated as 100 000 tonnes in the Green Goal Legacy Report published by the German LOC. Reasons for the South African event's significantly higher footprint included the lack of high-speed rail links in South Africa, which meant that most visitors needed to fly multiple times between matches, which in turn led to much higher transport emissions. Passenger car use would also be higher. Although major efforts were being made to upgrade public transport options, the reality was that much of this travel still needed to be undertaken in passenger cars or small buses, rather than light rail as in Germany. Other reasons included the construction of five new stadia (with embedded carbon from their construction) and the fact that South Africa is a more GHG-intensive economy than many European countries, with electricity primarily being generated from coal instead of cleaner energy sources, which in turn gives rise to higher CO² emissions.

The carbon footprint of hosting the World Cup in Cape Town was estimated at approximately 150 000 tonnes (excluding international air travel to the city), representing approximately 15% of the national estimate. This excluded the carbon emissions from the FIFA Fan Fest™, fan jols and the hosting of the Final Draw, which added another 30 tonnes, bringing the total estimate for Cape Town to 180 000 tCO²e. (See Table 6 and Figures 4 and 5.)



It was estimated that it would cost between \$8 and \$14 per tonne to offset South Africa’s domestic carbon footprint related to the 2010 FIFA World Cup™. In the absence of a clear national framework pertaining to carbon neutrality, Host City Cape Town decided to follow the lead of London (host of the 2012 Summer Olympic Games), aiming to host a low-carbon event as opposed to a carbon-neutral event. While some carbon offset projects were undertaken (see next section), the focus was on seeking long-term energy efficiency within existing projects.

Cape Town’s carbon footprint shown in Table 6 below was primarily made up of the city’s proportional share of inter-city transport, followed by transport to and from match venues and venue and accommodation electricity use.

TABLE 6: Carbon footprint of the 2010 FIFA World Cup™ in Cape Town

	CO ² e tons	%
Stadium	298	0,1%
PVAs	78	0,0%
Fan fest	99	0,0%
Transport to and from match venues	4 737	1,4%
FIFA fleet	124	0,0%
Travel to and from airport/transport hub and accommodation	336	0,1%
Inter-city transport (arrivals in Cape Town)	104 079	31,0%
Stadium construction materials	3 473	1,0%
Accommodation	15 197	4,5%
Electricity use in other venues and stadium precinct	764	0,2%
International travel - Cape Town share	206 288	61,5%
Total (with international travel)	335 472	100,0%
Total (no international travel)	129 184	

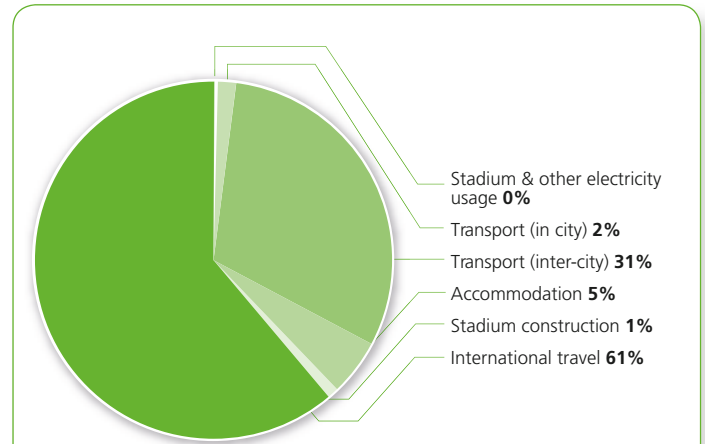


FIGURE 4: Cape Town’s carbon footprint for the World Cup event (including international travel)

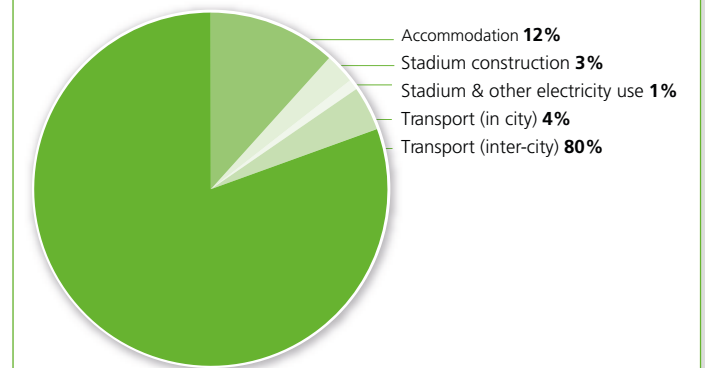


FIGURE 5: Cape Town’s carbon footprint for the World Cup event (excluding international travel)





The new water wheel at Green Point Park set in motion by spring water piped from the Oranjezicht Springs. Energy generated from the wheel will be used to power lighting in the Park. Photo: Marijke Honig

“Carbon emissions during the 2010 event will remain one of the biggest environmental challenges for Host City Cape Town.”

Extract from a speech delivered by the Premier of the Western Cape, Helen Zille at the launch of the Host City Cape Town Green Goal 2010 Progress Report, September 2009

1.2 Identifying and implementing carbon mitigation project(s) in Cape Town/Western Cape

In January 2009, the Royal Danish Embassy and DANIDA announced that they had allocated R7,5 million to the City and the Province to mitigate and offset carbon emissions emanating from the hosting of the 2010 FIFA World Cup™. A KAS-sponsored carbon offset workshop was convened by Host City Cape Town in February 2009 to review potential projects that could be implemented with this grant.

Seven projects were subsequently approved for funding, including both mitigation and offset initiatives. They are as follows:

1. Installation of LED retrofit in Green Point Stadium
2. Installation of energy-efficient floodlights and electricity submeters at Philippi Stadium
3. Retrofitting of traffic lights along protocol routes with LED lights
4. Retrofitting of streetlights along protocol routes with low-energy luminaries
5. Retrofitting of Council-owned buildings with energy-efficiency measures
6. Installation of solar water heaters for low-income households in Darling
7. Installation of a hydroelectric turbine to generate electricity from spring water in Green Point Park

The impact of some of the carbon avoidance initiatives are shown in Tables 7 to 10.

In addition to the above initiatives, carbon savings also resulted from the use of public transport and NMT options to access Cape Town Stadium and the FIFA Fan Fest™. It is estimated that 3 903 tons CO₂e was saved by the use of public transport and walking to games compared with if only private vehicles had been used.

The total amount of energy requirements during the World Cup in South Africa was estimated at 360 GWh for the accommodation sector and stadia precincts. In partnership with Eskom and its Southern African Power Pool (SAPP) partners, a total of 2 418,71 GWh of certified renewable energy was generated, imported from SAPP, and supplied to the Eskom grid as part of the total energy mix for the duration of the World Cup.



TABLE 7: Carbon mitigation initiatives in Host City Cape Town

Project	Description	Benefit of carbon reduction
LED retrofit in Cape Town Stadium	At the time of construction, fluorescent tubes were the most cost-effective and energy-efficient option to provide feeder and escape lighting in the stadium. LED technology has since become more affordable, and was consequently installed to provide emergency lighting, taking advantage of the significant energy saving over fluorescent tubes.	The installation of LED lighting on the emergency lighting circuit reduced the electricity load from 1116,9 kW to 632,9 kW. This translates into an energy saving of 56% or 2 119 482 kWh per annum i.e. 21 120 tCO ₂ e over their lifetime.
Energy-efficiency measures in Philippi Stadium	The old stadium floodlights were replaced with energy-efficient floodlights. Electricity sub-meters were installed to monitor electricity use in various areas.	The replacement of the stadium floodlights reduced the total electricity load from 315,7 kW to 126 kW. This translates into an energy saving of 12 096 kWh per annum i.e.151 tCO ₂ e over their 15 year lifetime.
Retrofitting of traffic lights	Replaced incandescent lamps with LED luminaires.	Replacement of 75 Watt incandescent with 7.5 Watt LED at 36 intersections. Average electricity costs at intersection with incandescents amounts to R13 140 per annum. Average electricity costs at intersection fitted with LED's amounts to R8 760 per annum. Average saving is 43% and 2 971 tCO ₂ e reduction for the 15 year lifespan of the product.
Retrofitting of streetlights	Replaced mercury-vapour luminaires with high-pressure sodium-vapour luminaires.	7 663 tCO ₂ e reduction for the 10 year lifespan of the product.
Retrofitting of Council-owned buildings	Energy efficiency retrofits of Durbanville, Fezeka, Ottery and Plumstead Civic Centres included solar water heating, lighting retrofit, geyser blankets, timers and controls on A/C units and power factor correction.	Anticipated monthly kWh savings of between 15% and 18%.
Darling solar water heaters	Solar water heaters were installed in 540 low-cost houses in Darling, near Cape Town.	Average saving of 900 kWh for water heating per household per annum. 1,4 tCO ₂ reduction per annum per unit over the 20 year lifespan of the product (i.e. 15 120 tCO ₂ over 20 years).
Hydro-electricity from spring water in Green Point Park	Hydro-electricity generated by the spring water flowing into the Green Point Park.	73 tCO ₂ reduction from use of hydro-electricity in Green Point Park (5 kW turbine generating 73 000 kWh/year of electricity).
Green electricity purchased for FIFA Fan Fest™	Electricity purchased from the Darling Wind Farm.	Equivalent of 145 725 kWh wind energy purchased, i.e. 145 tCO ₂ e.
Green electricity donated for Cape Town Stadium	Eskom donated hydro-electricity.	Equivalent of 268 746 MWh hydro-energy donated, i.e. 267 792 tCO ₂ e.

TABLE 8: Energy savings from energy efficient lighting in stadia

Stadium	Cape Town	Philippi
Previous load kW	1116,8	315,7
New load kW	632,9	126,0
Load difference kW	483,9	189,7
Run time	12 hrs per day	4 hrs per day
Days per year	365	24
Total savings kWh pa	2 119 482	12 096



A view of Cape Town Stadium at night. Photo: Bruce Sutherland, City of Cape Town

TABLE 9: Energy saving from retrofitting of streetlights

Location	Old luminaire (W)	New luminaire (W)	Savings per luminaire (W)	Quantity	Total savings in kW	Total savings kWh pa
Buitengragt	250	150	100	54	5,40	21 681,00
Buitengragt	400	250	150	100	15,00	60 225,00
CBD	250	150	100	300	30,00	120 450,00
Alicedale	80	70	10	264	2,64	10 599,60
Hazendal	80	70	10	349	3,49	14 012,35
Athlone main routes	400	250	150	900	135,00	542 025,00
				1 967	191,53	768 992,95



A view of Adderley Street at night. Photo: Bruce Sutherland, City of Cape Town



Lessons learnt on energy-efficiency and climate change projects

The hosting of a carbon-neutral event in a developing country such as South Africa is an expensive undertaking. The lack of public transport and renewable-energy infrastructure contributed to a significant increase in the carbon footprint, compared to events in countries where this infrastructure is already in place. In addition, South Africa is a long-haul destination, which means that international air travel significantly increased the carbon footprint. Consequently, visitors’ expected length of stay in rented accommodation was also projected to be longer, thereby further increasing the footprint.

In developing its offset projects, Green Goal 2006 in Germany excluded any carbon emissions associated with international air travel to the event, as it maintained that travel outside of Germany lay beyond the scope of the German LOC’s mandate. Yet, international air travel is by far the highest source of World Cup-related carbon emissions.

The workshop on carbon offsetting convened by Host City Cape Town in February 2009 to scope potential carbon mitigation/offset projects, identified the following lessons learnt:

- For projects to influence awareness and behaviour, they must be implemented (or at least partially implemented) by the beginning of the year of the event. Therefore, the process should start at least two years prior to the event.
- An upfront commitment to fund the offsets is needed – one cannot rely on voluntary contributions during the event.

- Projects may initially need government or donor funding.
- National governments need to partner with FIFA to implement a national carbon offset programme. This should happen early on already. (FIFA contributed 40 000 Euro for carbon offsetting during the 2006 FIFA World Cup™.)
- Use a well-established and recognised international standard, such as the Clean Development Mechanism (CDM), Gold Standard (GS) or Voluntary Carbon Standard (VCS), as this will provide credibility and integrity to the programme.
- The geographic location of offset projects should be carefully considered. Given the extent of the carbon footprint, and the imperative for an African legacy from the 2010 event, it made sense to invest in carbon-offset projects in more than one country.
- Consider project scale, as this is important for transaction costs. There is merit in doing a few large, development-oriented projects (such as energy-efficient low-cost housing) instead of various small ones.

Significant financial resources are required to offset carbon emissions through sustainable projects. In the South African context, it was therefore more feasible to aim for a low-carbon event, focusing on measures to reduce energy requirements and increasing the share of public transport to reduce carbon emissions. Grant funding through the Urban Environmental Management Programme (UEMP) of the Royal Danish Embassy acknowledged this constraint, and host cities used the grant to invest in projects that will continue to deliver long-term energy savings as opposed to carbon offsetting.

TABLE 10: Energy saving from retrofitting of traffic lights

Aspects	Old luminaire (W)	New luminaire (W)	Savings per luminaire (W)	Quantity of lights*	Total savings in kWatts	Total savings kWh pa
Traffic lights	75	7.5	60	500	10,00	87,600
Pedestrian signals	75	7.5	60	255	7,65	67,014
Arrow signals	75	7.5	60	168	5,04	44,150
					22,69	198,764

* not all lights are on at the same time

1.3 Installation of energy-efficient technologies at Cape Town Stadium and training venues, and at the FIFA Fan Fest™ and PVAs

The inclusion of energy efficient technologies was a requirement of the project briefs of the various design teams responsible for the design of the new Cape Town Stadium and upgrades to the Philippi and Athlone Stadiums.

A maximum demand of 8 MVA electricity is provided to the Cape Town Stadium from a nearby 150 MVA sub-station. Some of the main demand items are flood lighting (1 MVA), accommodation lighting (1,5 MVA), ventilation (1,5 MVA) and air conditioning (2 MVA). A total of 5 MVA permanent standby power generation is possible for essential use, including of rotary Uninterrupted Power Supply (UPS) to the flood lighting, to ensure a smooth changeover in the event of grid power failure.



Energy-efficient flood lights and sub-metering were installed in Philippi Stadium.
Photo: Bruce Sutherland, City of Cape Town

The following energy-efficiency measures were included in the Cape Town Stadium design:

- The building was designed to rake outward to shade itself, and the exterior mesh cladding allows 30% light filtration. The fabric allows for natural ventilation, while the light colour reduces thermal radiation.
- The translucent glass roof facilitates natural lighting.
- The open concourse facilitates natural ventilation, and the 5 m gap between the inner and outer skins of the façade provide for passive ventilation through a stack effect.
- A water-cooled variable refrigerant-volume cooling system is used for air-conditioning. This system is estimated to be 13% more efficient than the normal split-type air-conditioning system.
- Compact fluorescent lamps (CFLs) are used where possible. Where halogens are used, they are 45% more efficient than the standard fittings. No incandescent lamps were used.
- A building management system (BMS) allows for manual and automatic control and monitoring of air conditioning, lighting and other systems in different areas of the stadium.
- Carbon dioxide (CO²) monitors in the parking garage control the ventilation fans.
- A building management system (BMS) has been installed with centralised control over various systems, including access control, closed circuit television, fire detection, lighting, public address system and two LED screens. Through optimisation significant energy savings has been achieved.
- Light-emitting diode (LED) lighting was installed after the World Cup, which has improved the energy efficiency of the emergency lighting circuits by 98%.

See Table 11 for figures relating to electricity-saving interventions and Figure 6 for electricity use breakdown at Cape Town Stadium.

The stadium professional team conducted a detailed feasibility study to scope the installation of PV systems on the roof of Cape Town Stadium. The study concluded that, although this was technically possible, it was not financially feasible within the given budget provisions.



The architectural team also considered the use of LED lighting for the façade of the stadium. However, the LED installation would have added another R15 million to the total stadium budget, which made the intervention unaffordable at the time. However, following the World Cup, LED lighting was installed on the emergency lighting circuit, as the technology had become more affordable.

The upgrade of the two VSTs, Athlone and Philippi stadia, provided an opportunity to replace outdated lighting with energy-saving technologies. As part of the 2010 carbon mitigation strategy, the Province installed energy-efficient floodlights at Philippi Stadium. It is anticipated that the resultant energy saving will be as much as 60% per annum. Electricity submetering was also installed, which assists with the monitoring of energy use in various parts of the stadium. No mechanical/artificial ventilation is used in the upgraded buildings, and all internal areas are naturally ventilated. The existing Athlone Stadium had good natural ventilation and natural lighting, which were also incorporated into the new stands. The stadium has a BMS that allows selective switching-on of lighting in the stadium, as required. CFLs were installed during the upgrade, and feature lighting was connected to a timer or light sensor.

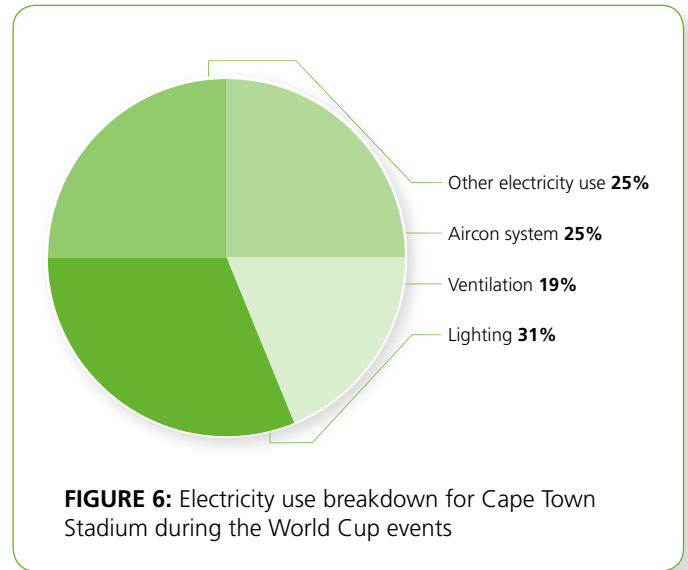


FIGURE 6: Electricity use breakdown for Cape Town Stadium during the World Cup events

TABLE 11: Cape Town Stadium electricity-saving interventions

Use category	Intervention	% Saving for technology	% Total consumption	% Saving on total consumption
Air-conditioning system	Efficient air-conditioning system	13%	25%	3,3%
Ventilation	Variable-speed fans	10%	19%	1,9%
Lighting*	Efficient lighting	26%	31%	8,0%
Total saving				13,0%

Electricity and carbon savings from the above interventions	
Total electricity consumption for event	299 400 kWh
Total CO ² emitted for event	298 tCO ² e
Total saving for event	39 281 kWh
Total CO ² reduction for event	39 tCO ² e

* note that an LED lighting retrofit was undertaken after the event, and thus savings figures will increase significantly for post-event use.

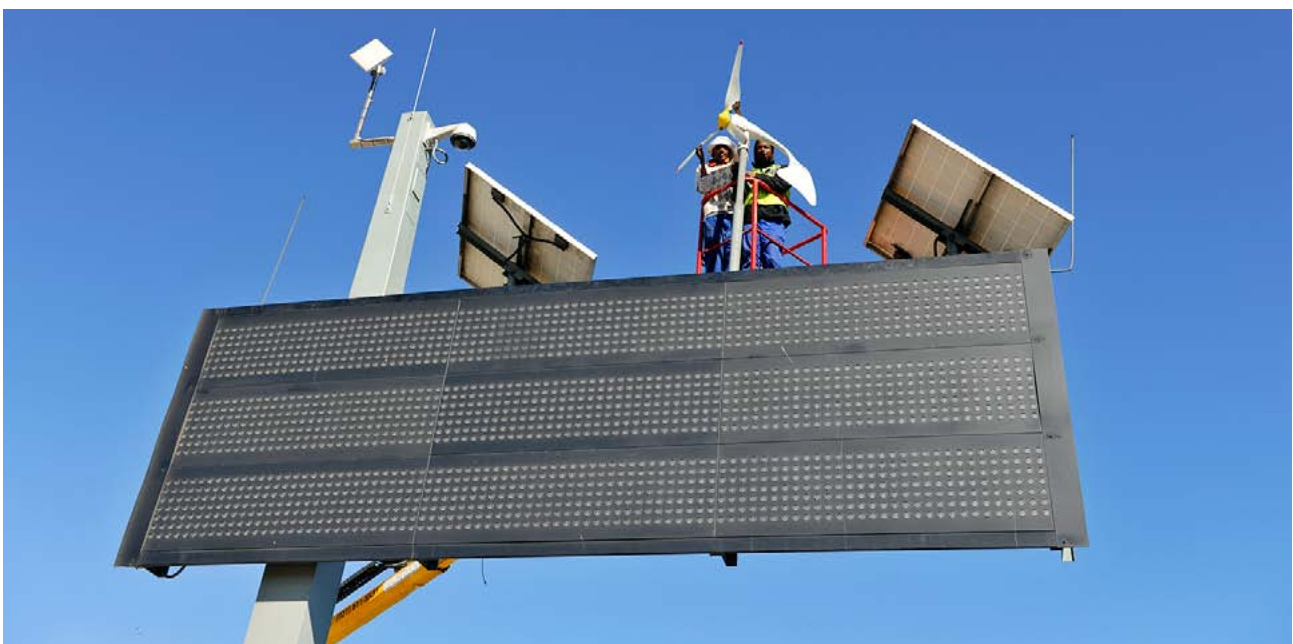
Lessons learnt on the installation of energy-efficient technologies

When building new stadia and implementing green technologies, it is important to intervene in the site selection and design phases to ensure that the facility is designed and built in line with green building principles. The work of the green review team was useful, and led to certain efficiencies being pursued. However, in practice, recommendations are often altered during the construction process, and final installation depends on timing, budget and technical considerations within a pressurised construction programme, where different priorities have to be balanced. The consideration of environmental concerns during this process requires explicit prioritisation and a dedicated budget. Some of these recommendations are likely to be considered in the legacy scenario after the World Cup.

It is interesting to note that technologies that were not readily available when the stadium construction commenced, such as an integrated solar roof and LED lighting, have since become more common and, therefore, a constant review of new technologies should be undertaken throughout the design and construction process.

Key references for energy efficiency and climate change

- ECON Analysis, in association with the Energy Research Centre, University of Cape Town. December 2006. Pre-feasibility CDM assessment for the new Green Point Stadium. Commissioned by the Provincial Government of the Western Cape.
- Econ Pöyry AB. November 2008. Carbon Footprint for the FIFA 2010 World Cup™. Oslo, Norway. Commissioned by Norwegian Agency for Development Cooperation (Norad). ISSN 0803-5113.
- Econ Pöyry AB. August 2009. Carbon Footprint of Cape Town. Commissioned by Host City Cape Town.
- Sustainable Energy Africa. March 2009. A Green Goal 2010 Workshop: Scoping, planning and implementing the carbon offsetting action plan for Host City Cape Town. Cape Town.
- Sustainable Energy Africa and Steadfast Greening. July 2008. Green Goal 2010: Guidelines, Standards and Business Plan for Greening 2010 FIFA World Cup™. Cape Town. Commissioned by FIFA Local Organising Committee (LOC) (Unpublished).
- Urban Environmental Management Programme and Green by Design WSP. 2008. 2010 FIFA World Cup™ Green Point Stadium: Environmental Performance Enhanced. Pretoria, South Africa. Commissioned by Department of Environmental Affairs and Tourism, funded by the Royal Danish Embassy, South Africa.



Solar panels on digital traffic signage help to reduce the City's energy bill. Photo: Bruce Sutherland, City of Cape Town



2 | WATER CONSERVATION

Water sustains all life on earth and, therefore, the conservation of this precious resource is a priority in water-scarce regions such as Cape Town. Water conservation and water demand management could be implemented through efficient technologies and behavioural changes. For the 2010 FIFA World Cup™, the aim was to reduce water consumption, specifically potable (drinking) water, through the use of efficient fixtures, controlled irrigation and public awareness. The use of rainwater, greywater and other non-potable sources was encouraged wherever possible, as well as the protection of water resources through the use of environmentally friendly products to clean stadia and maintain pitches. In creating new construction surfaces, the use of permeable materials for paving and walkways was also promoted.

THE PROJECTS

- 2.1 Identifying alternative sources of water for irrigation of Green Point Common, and implementing most feasible option
- 2.2 Installation of water-saving devices in stadia (Cape Town, Athlone and Philippi) and training venues

PROJECT ACTIONS

2.1 Identifying alternative sources of water for irrigation of Green Point Common, and implementing most feasible option

Following the decision to construct the new Cape Town Stadium and, as part of the project, to redesign the Green Point Common area, the need to provide a sustainable water supply for irrigation to ensure a green commonage with sports fields, a golf course and other landscapes was identified as a key element of the project.

While the use of potable water for irrigation was an option, the very high demand on the City's scarce water resources would have always placed this area under risk during times of water shortages. Therefore, in 2008, the City commissioned a feasibility study for other water sources



Water from the Oranjezicht Springs creates wetland ponds in Green Point Park.
Photo: Bruce Sutherland, City of Cape Town

for irrigation as opposed to potable water, which had been used previously. The study investigated, among other things, desalination, feasibility of boreholes, greywater treatment, rainwater harvesting, and the harvesting of spring water from the slopes of Table Mountain. The study concluded that the harvesting of spring water from the Oranjezicht Springs on the slopes of Table Mountain was the most cost-effective way to reduce the use of potable water for the irrigation of the Common. At the time, the spring water ran through the stormwater network into the sea. The spring water was not potable, and would have required treatment to meet drinking-water standards.

The total amount of irrigation water required was approximately 580,12 Mℓ/year. The flow from several springs is collected in a chamber constructed in 1853. The flow in the chamber is measured as being some 22 l/s (1 900 m³/day) to a maximum of about 39 l/s (3 370 m³/day). This year-round rate of flow is more than sufficient to meet the annual irrigation needs of the greater Green Point Park.

The decision to use spring water for irrigation influenced the redesign of the Green Point Park, allowing the optimisation of this water source through a number of water features, including wetlands, ponds, and the demonstration and use of renewable energy. The capacity of the ponds is 25 000 m³. The water ponds collect stormwater as well as provide short-term water storage. By optimising all the design elements and parameters, it was further possible to spread the peak water demand over a 24-hour period and to provide water under pressure, thereby limiting the need for pumping.

Low-flow irrigation fittings were installed to reduce flow rates and landscaping is predominantly indigenous, further reducing the irrigation demand peaks.

CAMISSA - THE PLACE OF SWEET WATERS

The history of Cape Town's establishment as a trading post and refreshment station in 1652 is directly linked to springs as a source of fresh water from the slopes of the mountain. The use of this spring was formalised in 1682, with a chamber to protect the Main Spring built in 1813. Over time, the spring water was canalised and, today, it is mostly conveyed underground through a series of pipes and stormwater drains, eventually draining into Table Bay. The harvesting of this water for irrigation purposes presented a significant opportunity to elevate the role that water played in the history of Cape Town. The Reclaim Camissa project, for example, is working to restore the historical connection between the mountain and the sea, and to develop heritage and tourist resources throughout the CBD linked to the springs and rivers on the slopes of the mountain. In the Khoisan tongue, "Camissa" means 'the place of sweet waters.'

Arcus Gibb. August 2008. Preliminary Investigation Report – Feasibility Study: the Supply of Irrigation Water to Green Point Common



Stadsfontein Spring then and now.



The Wetland Ponds at Green Point Park. Photo: Bruce Sutherland, City of Cape Town

2.2 Installation of water-saving devices in stadia

The Cape Town Stadium water supply consists of three incoming domestic mains. A storage tank provides back-up pumped water for the VIP western side. The pitch irrigation water is also drawn from this tank to help facilitate a regular turnover of water.

Roof drainage is achieved through a symphonic drainage system comprising of twelve 160 mm downpipes, concentrated at the north and south ends.

The following water-efficiency measures were included in Cape Town Stadium's design:

- Toilets in the VIP special-guest areas are fitted with dual-flush mechanisms.
- All taps have self-closing metering valves and aerators, and low-flow showerheads have been fitted.
- The landscaping design favours water-wise, indigenous plants.
- Rainwater and stormwater harvested off the stadium roof, pitch, podium surface and park is directed to a detention pond for reuse for irrigation.
- A natural soccer pitch with artificial matting was specified to help reduce the need for irrigation.

At the time of the green review (end 2008) the overall saving from the different interventions is estimated to have been 27% below the baseline, which is a significant achievement (Table 12).

Water-saving measures were also included in the upgrade of Athlone and Philippi stadia. Dual-flush was specified for the VIP toilets; taps were fitted with self-closing metering valves, and low-flow showerheads were installed.



Lessons learnt on water conservation projects

The use of spring water for irrigation results in a significant saving of potable water previously used for this purpose. Efficient irrigation systems will prevent the spring water from being wasted. As a legacy project of the Green Goal programme, the project also created renewed interest in the role that water had played in the development of Cape Town. A project to make the historical spring vaults and infrastructure accessible to the public and tourists is under way.

The initiatives to reduce the amount of potable water used in the new Cape Town Stadium contributed to a significant reduction in the use of potable water. An independent panel of green architects appointed by DEA recognised the applied technologies as best practice in sustainable stadia design.

However, as with the installation of energy-efficient technologies, water-saving devices must be specified in the design stage already, as it is difficult to retrofit some of these to existing buildings.

Key references for water conservation

- Arcus Gibb. August 2008. Preliminary Investigation Report – Feasibility Study: the Supply of Irrigation Water to Green Point Common. Reference number R030800196. Cape Town, South Africa. Commissioned by the City of Cape Town.
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- WORLDSPORT. July 2010. Host City Cape Town 2010 FIFA Fan Fest™ Green Goal Report.

TABLE 12: Cape Town Stadium water-saving interventions

	Baseline % of total	Baseline kℓ/year	Baseline kℓ/year	Interventions	% Saving for intervention	kℓ/year Saved (excl landscaping)
Pitch irrigation	16,4%	10 532	10 532	Hybrid pitch	50%	5 266
Hand basins	3,5%	2 276	2 276	Self-closing taps	60%	1 366
Toilets	11,0%	7 086	7 086	Dual flush in VIP toilets (not public toilets)	5%	354
Urinals	3,5%	2 218	2 218			-
Showers	0,5%	347	347	Low-flow showerheads	50%	174
Catering	2,3%	1 498	1 498			-
Cleaning	4,5%	2 900	2 900			-
External landscaping	58,2%	37 441				
Total		64 299	26 858		Total saved/year	7 160
					Overall % saved	27%

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3 INTEGRATED WASTE MANAGEMENT

Waste is a challenge during major events such as the 2010 FIFA World Cup™. The City estimated that fans would produce 0,275 kg of waste per day during the event.

Therefore, in May 2006, the City adopted an Integrated Waste Management Plan (IWMP), which subscribed to waste minimisation principles (avoid, reduce, reuse, recycle), with sending waste to landfill indicated as a last resort. The policy applied to all 2010 FIFA World Cup™ venues and events held in Cape Town.

THE PROJECTS

- 3.1 **Operational waste minimisation in stadia, the FIFA Fan Fest™, PVAs and training venues in the run-up to and during the event**
- 3.2 **Green Goal branding of recycling bins and waste minimisation signage**
- 3.3 **Recycling drop-off centres in the CBD and on the Atlantic seaboard**

PROJECT ACTIONS

- 3.1 **Operational waste minimisation in stadia, the FIFA Fan Fest™, PVAs and training venues in the run-up to and during the event**
- 3.2 **Green Goal branding of recycling bins and waste minimisation signage**

The LOC and host cities set a target of 20% for diversion of waste from landfill sites for the 2010 FIFA World Cup™. Host City Cape Town, in turn, set this as a target for the operators of the FIFA Fan Fest™, the fan walk and fan jols. All operators were required to introduce measures to avoid, minimise and recycle waste.

Examples of waste avoidance measures put in place at the various venues included the following:

- Used reusable crockery and cutlery rather than disposable cutlery and tableware in the hospitality areas of all venues.
- Used reusable plastic crates instead of single-use cardboard boxes for catering supplies in Cape Town Stadium hospitality areas.
- No promotional handouts at the entrance gates to Cape Town Stadium, the FIFA Fan Fest™ and fan jols.
- Scanned tickets at the entrance gates to Cape Town Stadium, eliminating the need for ticket stubs.
- Used dispensers for condiments and sugar at the FIFA Fan Fest™ instead of single-serving sachets.
- Used draught and soda fountains for serving soft drinks at the FIFA Fan Fest™, thereby avoiding spent glass and plastic bottles and cans.
- Made available reusable, commemorative cups at the FIFA Fan Fest™.
- Encouraged fans to drink tap water (as opposed to bottled water) at water fountains in eight locations at the FIFA Fan Fest™ as well as along the fan walk.
- Limited packaging of merchandise sold at Cape Town Stadium and the FIFA Fan Fest™.

Where waste could not be avoided, measures were taken to minimise waste or use packaging and materials that could be recycled. Examples included the following:

- Minimised packaging of food sold at kiosks, giving preference to cardboard and paper products that decompose quickly.
- Recycled polystyrene packaging used at the FIFA Fan Fest™ through a local polystyrene recycling company.
- Sold all beverages at Cape Town Stadium in recyclable PET plastic bottles.
- Restricted use of glass containers in public areas to reduce the risk of injury to the public and service providers.

A two-bin collection system for wet waste and dry recyclable waste was implemented at Cape Town Stadium, the FIFA Fan Fest™ and the fan jols, so that the dry waste could be completely separated and made available for high-grade recycling. The LOC developed appropriate signage to promote waste separation at these venues, and the LOC environmental services volunteers promoted the use of the two-bin system among fans.

The City also implemented a split-bin recycling system along the main pedestrian routes in the Cape Town CBD, including the fan walk. These dual litter bins remain in place in certain areas after the event.



The two-bin waste system implemented at key World Cup venues.

TABLE 13: Waste recycling at different World Cup venues

	Total waste generated (tonnes) (a)	Recycled waste (tonnes)	Recycled (% of total)	Operating days (b)	Kg/day generated (avg) (c = a/b*1000)	Total attendance (d)	Daily attendance (avg) (e = d/b)	Kg/pppd (f = a*1000/d)	2010 Business plan estimate	2010 Business plan estimate recycled %
Stadium	156	102	65%	8	19 500	507 332	63 417	0.31	0.5	20%
FIFA Fan Fest™	26	11	42%	25	867	558 159	18 605	0.47	0.2	20%
Fan jols	95	47	49%	13	7 308	175 469	13 498	0.54	0.2	20%
Fan walk and surrounds	340	198	58%	8	42 500	581 913	72 739	0.58	0.2	20%
Sub-total FIFA Foot-print waste	617	358	58%	30	70 174	1 822 873	168 259	0.34	n/a	20%
Event waste outside of FIFA Footprint	7 001	4 060	58%	30	233 367	1 822 873	60 762	3.84	1	20%
Total waste due to event	7 618	4 418	58%	30	303 541	1 822 873	229 021	1.33	n/a	20%



The waste recycling programme at the various venues and along pedestrian routes was largely successful. A total waste diversion and recycling rate of 58% was achieved against the 20% target set by host cities and the LOC. At the stadium itself, 65% of waste was diverted from landfill to recycling. The main recycled waste item was cardboard. At the FIFA Fan Fest™, 42% of waste was recycled, and along the main pedestrian areas in the CBD, the average recycling rate was 58%. (See Table 13 and Figures 7 and 8).

It is interesting to reflect on how much waste generated inside venues (controlled areas = 0,34 kg/pppd) will vary from waste in general areas. The initiatives put in place either through procurement policy (e.g. banning the use of certain packaging, service contracts etc.), on-site controls and on-site infrastructure (different bins, etc.) definitely made a difference (about four-fold in this instance compared to 1.33). This is all the more reason to ensure that as far as major event planning goes, the City must ensure that these measures are put in place and costed by event planners/organisers, as there is ultimately a saving for the rate payer.

The cleaning of the stadium and other event venues, including the CBD and other major party areas, started immediately after the venues had closed and the fans had dispersed. Many fans commented that it never looked the next morning as if there had been a major event in the city the day before. All waste collected from cleaning the event venues and the fan walk was also sorted and recycled where possible.

A large quantity of vinyl, PVC and polyester branding material was donated to the Cape Craft and Design Institute after the event, for use by local crafters. Various products were manufactured from these materials, including bags.



Split-bin recycling bins were placed along the main pedestrian routes in the central city.

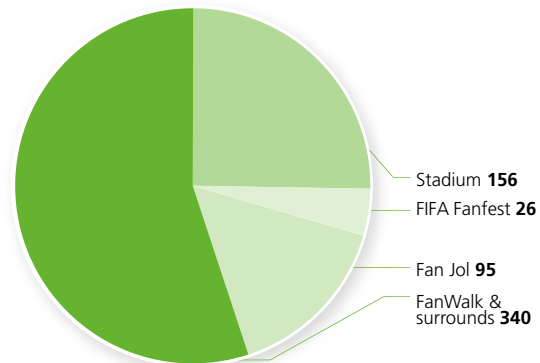


FIGURE 7: Waste generation at different venues in Cape Town during the event (by tonne)

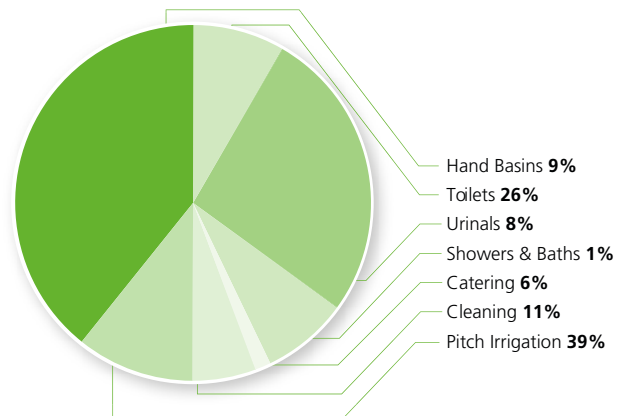


FIGURE 8: Stadium recyclable waste breakdown according to type (by weight)

“ A total recycling rate of 58% was achieved against the 20% target set by host cities and the LOC. ”



ZIBI, MASCOT OF A CITY-WIDE ANTI-LITTER CAMPAIGN

Before the kick-off of the 2010 FIFA World Cup™ the City of Cape Town obtained the sole rights to relaunch the character Zibi (an ostrich), for its waste recycling awareness campaign. Zibi is the well-loved mascot of a country-wide anti-littering campaign in the late 1970s and 80s. He put his soccer kit on to remind fans to recycle their waste in the correct bin.



3.3 Recycling drop-off centres in the CBD and on the Atlantic seaboard

Following the adoption of the City's IWMP in 2006, a need was identified for well-controlled and secure recycling drop-off facilities in the Cape Town CBD and surrounding areas. Such facilities would provide the public with an area where clean recyclable items only, such as glass, plastic, paper, cardboard and cans, could be dropped off at no charge. All recyclables would be recovered from the waste stream, and sold/donated to the manufacturing stream for reuse.

Consequently, as legacy projects of the 2010 Green Goal programme, the construction of two facilities, one in the CBD and another in Sea Point, started in 2008. At the time, it was envisaged that these facilities would receive recyclable waste from Cape Town Stadium and the FIFA Fan Fest™ during the 2010 FIFA World Cup™. However, due to delays in the permitting process, the facilities could not be launched in time.

The Sea Point recycling drop-off facility opened on 1 December 2010, while the CBD facility is scheduled to open in mid-2011.

Lessons learnt on integrated waste management projects

Host City Cape Town's IWMP for the 2010 FIFA World Cup™ was conceived three years in advance, which allowed sufficient time to schedule capital and operational works, acquire additional equipment, appoint contractors, and schedule area cleaning. Effective planning was paramount to the overall success of the event.

The assumptions of waste per person were over optimistic in all venues apart from the Cape Town Stadium; however the recycling target was exceeded at all venues.

The 2010 FIFA World Cup™ demonstrated that separate waste collection can be successful at the sites where spectators assemble, not only inside the stadium and at the FIFA Fan Fest™, but also in the direct vicinity of the stadium, at admission control areas, and along the main pedestrian routes. In fact, more waste appears to have been generated outside the venues than within their bounds.



The support of the LOC, FIFA and the FIFA commercial affiliates were critical to implement an integrated waste management system, particularly at Cape Town Stadium. The split-bin recycling system added to the cost of hosting the event. However, all parties agreed that the benefits justified the additional cost.

Waste separation played an important part in increasing fans' environmental awareness. However, fans could have been better informed about separate waste collection prior to the 2010 FIFA World Cup™, for example at the time of selling tickets, on the FIFA website, in the official fan guide, etc.

The purchase of additional equipment and the construction of two drop-off centres were legacy investments that have increased the City's capacity to separate and recycle waste, and reduce the amount of waste finally sent to landfill sites.

Throughout the World Cup one of the key success factors was the manner in which good waste management added to the general tourist appeal and fan experience.

In general, the waste avoidance, reduction, recycling and cleaning efforts of Host City Cape Town were highly successful and widely commended.

Key references for integrated waste management

- City of Cape Town. 2007. Integrated Waste Management Business Plan.
- Department of Environmental Affairs and Tourism. July 2008. National Greening 2010 Framework. Tshwane.
- FIFA Local Organising Committee (LOC). 2008. Minimum Environmental Standards for Green Goal 2010 (Unpublished).
- FIFA Local Organising Committee (LOC). 2009. Proposal for bin stickers in stadia and fan fests for Confederations Cup and World Cup. E-mail of 5 May.
- Germany. 2006. Green Goal Legacy Report 2006 FIFA World Cup™. Frankfurt.
- Host City Cape Town. July 2010. Event-Reporting Tool data report.
- Ozinsky, S., Ackermann, K. and Lamb, S. January 2009. Green Point Park and ECO Centre Business Plan. Cape Town, South Africa. Commissioned by City of Cape Town.

REUSABLE SOUVENIR CUPS

A reusable souvenir cup was available to fans at the FIFA Fan Fest™. However, the availability of the cup did not result in the anticipated reduction in waste volumes. This was partly because the purchase of a reusable cup was optional, and there was no refundable deposit if a cup was returned. Many fans did not want to pay more for the reusable cups, or did not want to carry the cups with them to the stadium, and therefore opted for a free non-reusable cup. The logistics of taking cups back, washing and reusing them were not in place as they had been in Germany during the 2006 FIFA World Cup™. The business case for reusable cups needs to be further developed for events in Cape Town and South Africa.



Dutch fans enjoy drinking out of reusable souvenir cups provided at the FIFA Fan Fest™. Photos: Rob Oettle

RECYCLING PLAN FOR BEER IN PET PLASTIC BOTTLES

To support Green Goal 2010 objectives, Anheuser-Busch advised that, during the 2010 FIFA World Cup™, they would be selling Budweiser beer in PET bottles. Anheuser-Busch Companies, Inc. contacted Coca-Cola South Africa, who put them in touch with PETCO in Cape Town and asked if PETCO would facilitate the recycling of the bottles.

PETCO asked for samples and the technical specifications of the bottle – which they shared with their contracted recyclers. The first challenge was that the bottle was brown. The market for rPET (recycled PET) in South Africa is fibre, with no demand for brown fibre. The second challenge was that the bottle was multilayered with a nylon barrier layer, which is a challenge for bottle-to-fibre recyclers. After discussions with all of PETCO's contracted recyclers (Extrupet, Hosaf and Sen Li Da), Extrupet was the only one who was able to implement a plan to recycle these bottles.

Extrupet and Anheuser-Busch looked at how the 'recycling loop' could be closed by investigating what the bottles could be recycled into. As Extrupet also recycled HDPE (high-density polyethylene) and had a division manufacturing composite 'timber' planks, the Budweiser PET bottles were blended into this process.

This was a win-win solution for all – a good example of thinking about the end of the product's life cycle upfront, and taking extended producer responsibility seriously.



PETCO supplied fibre with fibre made from recycled PET bottles. This was spun into yarn, woven into fabric (polyester/cotton mix), and made into T-shirts worn by the Green Goal team at the Green Goal Expo at the FIFA Fan Fest™. Photo: Kevin Newman.





4 | TRANSPORT, MOBILITY AND ACCESS

As a host city of the 2010 FIFA World Cup™, Cape Town leveraged significant investment in its transport infrastructure, in particular improvements in public transport and NMT.

A Host City Transport Operations Plan (HCTOP) was developed to ensure that all aspects of the event transport planning and management were addressed. Transport planning activities focused on the avoidance of unnecessary travel and the provision of feasible and safe alternatives to the use of private vehicles, thereby reducing congestion and carbon emissions. Fans were encouraged to use public transport to travel to Cape Town Stadium and the FIFA Fan Fest™. Park-and-ride facilities were available at 22 rail stations, and the City's new MyCiTi IRT bus system provided a shuttle service from three additional sites. An airport shuttle was also available, making use of new stations at Cape Town International Airport and the main transport hub at Cape Town Civic Centre in Hertzog Boulevard. The new buses purchased as part of the IRT system met the Euro 4 standard for fuel efficiency and CO₂ emissions.

To maximise the available capacity in the transport system, school and university holidays were scheduled to coincide with the event.

Suitable NMT infrastructure, including new walkways, pedestrian crossings, appropriate surfacing, sufficient lighting, etc., were put in place around the stadia to encourage walking to the venues.

Fuel-efficient driving was promoted through awareness campaigns before and during the 2010 FIFA World Cup™. Posters with tips for fuel-efficient driving were displayed at Council buildings and motor vehicle licensing centres. In partnership with the South African Petroleum Industry Association (SAPIA), an eco-driving training module was developed and piloted with 20 metered-taxi drivers, who received training on how to drive their vehicles in a more environmentally friendly and economical way.



Shuttle buses transported fans from the CBD to Cape Town Stadium.
Photo: Bruce Sutherland, City of Cape Town

THE PROJECTS

- 4.1 Development of bicycle and pedestrian facilities
- 4.2 Development of public transport infrastructure
- 4.3 CBD bicycle services
- 4.4 Eco-taxis/fuel-efficiency programme

PROJECT ACTIONS

- 4.1 Development of bicycle and pedestrian facilities
- 4.2 Development of public transport infrastructure
- 4.3 CBD bicycle services

The 2010 FIFA World Cup™ was a catalyst for significant investment in public transport and NMT facilities in Cape Town. Phase 1a of the City's new IRT system was operational in time for the World Cup and, together with rail, formed the backbone of the public transport system for the event.



Pedestrian bridges, a new IRT system and a revamped Cape Town Station are legacies of the World Cup. Photos: Bruce Sutherland, City of Cape Town

Phase 1a of the IRT system included an airport shuttle and match-day shuttle services between the stadium and the main transport hub at Cape Town Civic Centre in the CBD. New IRT main stations were constructed at Cape Town International Airport, Hertzog Boulevard and Cape Town Stadium. Bus-based park-and-ride facilities were provided at the Upper Campus of the University of Cape Town (UCT) in Rondebosch, Camps Bay High School, and Kronendal Primary School in Hout Bay. Investment in infrastructure by the City and the Passenger Rail Association of South Africa (PRASA) enabled legacy improvements to 26 railway stations to promote rail-based park-and-ride during the World Cup event. Additional parking, security and lighting were installed at these stations, and station facilities were upgraded as part of the project.

Cape Town Station was also refurbished in time for the World Cup.

The IRT system and the additional rail services on match days assisted Host City Cape Town to meet the LOC target of 50% of fans travelling to the 2010 stadia by public transport and NMT. The target was met, as a Department of Environmental Affairs survey showed that public transport was used as a main mode of transport by 40% of fans, and 13% walked. In the immediate vicinity of the stadium, fans used the fan walk and stadium shuttle service. The stadium shuttle service was used by 235 000 fans and 581 913 fans walked along the fan walk to the stadium (some without a match ticket, simply to experience the festive atmosphere).

It is estimated that all modes of Cape Town football fan transport covered a total of 36 million passenger-kilometres, allowing the movement of more than 1,3 million people. The FIFA fleet (buses and vans) travelled 354 000 km, which was responsible for about 124 tonnes of CO₂ emissions. In addition to the investment in bus and rail-based public transport, new pedestrian and bicycle lanes were constructed in the city. Waterkant Street was permanently pedestrianised between Burg Street and Buitengragt, and the sidewalk of Somerset Road was widened to accommodate a bicycle lane and additional footway. This route became the official fan walk between the CBD and Cape Town Stadium during the 2010 FIFA World Cup™. The fan walk is a permanent legacy for Cape Town, and has been well utilised for events at the stadium since the World Cup events.



Two new pedestrian bridges were constructed over Buitengragt – one at the intersection with Waterkant Street (part of the fan walk) and the other at North Wharf Square – to provide a safe pedestrian crossing over this busy route.

A new bicycle route and pedestrian walkway were constructed through the stadium precinct and around Green Point Common. This new route linked up with existing bicycle and pedestrian routes along the Mouille Point and Sea Point promenades, as well as to the CBD through the fan walk.

The establishment of a bicycle rental service to complement the IRT system is currently being scoped. A number of international models are being investigated, including systems used in Paris, Barcelona and Amsterdam. The systems all rely on customers registering to use the service. An operator will be appointed to manage the service.

Mobility for persons with disabilities was a priority for the 2010 FIFA World Cup™. Special measures and operational services were included in the HCTOP to provide transport for this market. The new IRT stations were made wheelchair-friendly, and additional measures were included in the rail station upgrade project to improve services to persons with disabilities. Special match-day shuttles were provided to take mobility-impaired persons as close to the stadium precinct as possible.

Lessons learnt on bicycle and pedestrian facilities, the development of public transport infrastructure, and CBD bicycle services

Public transport and NMT improvements are among the legacies of the 2010 FIFA World Cup™ in Cape Town.

It is a major challenge to develop a safe and reliable public transport system for an event of the magnitude of the World Cup – even more so in Cape Town, where the share of public transport as a transport mode has been declining in recent years. It is expected that the new IRT system and investment in the upgrade of rail infrastructure in preparation for the 2010 FIFA World Cup™ will play a major role to reverse this trend.

An efficient public transport system is not only required for the safe transportation of fans, but also to contribute to a significant reduction in the event’s carbon footprint. Transport already accounts for 50% of Cape Town’s energy use. New public transport and NMT infrastructure will assist in reducing this over time – an essential trend for any city looking to be sustainable and to have a smaller carbon footprint in the future. To put it in perspective: Compared to single-occupant private vehicles, fans consumed a tenth of the energy by taking the train, and about a quarter by taking a bus.

During the 2010 FIFA World Cup™, many South Africans for the first time switched their mode of transport from private vehicle to bus or train. Although additional event train services were scheduled, these were inadequate for the large numbers of fans. Safe, efficient and reliable public transport can form the backbone of a major events transport plan, provided that sufficient capacity is available. This positive public transport experience may increase the use of this travel mode in the future.



CAPE TOWN FAN WALK

The Cape Town fan walk was one of the talking points of the World Cup experience. It was based on the highly successful Berlin fan mile and the inner-city fan experience in Cologne. The fan walk served a practical purpose: It ran from Cape Town Station, a major public transport hub, to the stadium, thus providing a real alternative to car-based access to the stadium. Initially, the fan walk was conceptualised as a back-up to the shuttle service. However, after two matches, it became the preferred option. The fan walk concept was incorporated into the City's 2010 transport planning process from January 2007, thus allowing ample time for design, planning and implementation. The City committed sufficient capital budget to make the route permanently pedestrian-friendly. Measures included the provision of pedestrian priority areas and cycle lanes, lighting, dual-bin waste receptacles, outdoor furniture, trees, and directional and interpretive signage. The two most significant improvements were the pedestrian bridge over Buitengragt and the Green Point circle underpass, which both ensured a safe crossing over two of Cape Town's busiest roads.

The fan walk provided an opportunity for locals, including those without tickets, to participate in the World Cup. During the World Cup, a programme of entertainment by local emerging artists contributed to the festive atmosphere along the route, and local delicacies, such as vetkoek, rotis and biltong, were for sale.

In retrospect, the fan walk was one of the most important legacies of the World Cup in Cape Town, not only achieving local participation, but also contributing to Host City Cape Town's achievement of the Green Goal target of 50% of fans accessing the stadium by public transport or on foot. The fan walk remains in place as the main pedestrian and cycle route to Cape Town Stadium, and is activated for major events, with additional road closures and entertainment.



The fan walk is one of the legacy projects of the World Cup.
Photos: Bruce Sutherland, City of Cape Town



4.4 Eco-taxis/fuel-efficiency programme

The original intention had been to facilitate the establishment of a fleet of low-emission, energy-efficient, eco-friendly metered taxis operating in the CBD for 2010 and beyond. These taxis are already available in many cities, including London, Dublin, Auckland and Taipei. Eco-taxis have low fuel consumption and energy-efficient technology, thereby reducing emissions that harm the environment.

After engagement with various stakeholders involved in the authorisation of metered-taxi services in the Western Cape, it became clear that, within current government mandates and the legislative framework, it would be difficult to achieve. The licensing of metered taxis was demand-driven, responding to requests from the private sector, rather than supply-driven, whereby licences are offered to those who qualify.

The focus of this project then shifted to the development of an eco-driving training module for metered-taxi drivers in Cape Town. The Province and the City partnered with SAPIA to develop a training module that could be included in the compulsory professional driver training course offered to metered-taxi drivers. The eco-driving training aimed to promote fuel-efficient driving habits, which would reduce harmful vehicle emissions. As part of a pilot project, 20 drivers received theoretical training, and their eco-driving was monitored during practical sessions. Based on the outcome of the pilot project, the Province requested the Transport Education and Training Authority (TETA) to incorporate and accredit the eco-driving training course content as a core unit standard module of the professional-driver National Qualifications Framework (NQF) (level 3) training.

An eco-driving campaign took place during Transport Month, October 2009, and again during Environment Week in June 2010 to encourage Province and City staff to apply innovative and proactive measures in driving and vehicle maintenance in order to reduce carbon emissions. In addition, posters with eco-driving tips were displayed in Council and Province buildings as well as vehicle licensing centres.

The Province and City departments responsible for air quality management and transport have since adopted this initiative as part of their ongoing management interventions.

Lessons learnt on the eco-taxi project

From various engagements with authorities responsible for overseeing taxis, it became clear that this was a very complex industry, with many role players and issues to consider. In addition, the industry had become increasingly regulated, with more clearly defined roles and responsibilities.

The original proposal to offer new permits for environmentally friendly taxis (eco-taxis) could not be accommodated within the current legislative mandate of provincial and local government. The norm had been for government to respond to taxi operator applications from the private sector. Government was not in a position to offer licences based on certain criteria, such as the environmental features of the vehicle. In fact, it was pointed out that there were no emission standards for metered taxis operating in South Africa. The only criteria for the vehicles related to roadworthiness. The permit was issued to the operator/driver, not to the vehicle. That allowed old vehicles with high potential for carbon emissions to operate alongside new vehicles with better emission profiles. Province raised this issue with the Department of Transport (DOT), and requested a review of the policy and the incorporation of emission standards into the permitting process.

Key references for transport, mobility and access

- City of Cape Town. November 2008. Host City Transport Operations Plan Version 3.
- City of Cape Town. June 2009. Cape Town's Integrated Rapid Transit System (brochure).
- Department of Environmental Affairs. 2010. 2010 National Environmental Volunteer Project Survey: Western Cape Provincial Report.
- Sustainable Energy Africa. April 2009. A Green Goal 2010 Workshop: Taking responsibility for tourism during the 2010 FIFA World Cup™. Cape Town.



5 | LANDSCAPING AND BIODIVERSITY

Cape Town is situated in the Cape Floristic Kingdom, one of the world’s richest biodiversity hot spots, and is home to the greatest non-tropical concentration of plant species in the world. In addition, the city borders the Cape Floristic Kingdom World Heritage Site, which includes Table Mountain, the city’s best-known landmark.

Steps were taken to ensure that the activities associated with the World Cup event did not have a negative impact on biodiversity or the natural environment.

Landscaping projects in and around key venues prioritised indigenous species over exotics. City beautification projects linked to the event, such as tree-planting and urban regeneration projects, were encouraged. An indigenous biodiversity showcase garden was included in the new Green Point Park adjacent to the stadium. The showcase garden raises awareness of the unique plant species in the city, and demonstrates indigenous horticultural and gardening practices.

THE PROJECTS

- 5.1 Indigenous gardening training programme for Green Point Park staff
- 5.2 Biodiversity showcase garden at Green Point Park
- 5.3 Student landscape design competition for Mouille Point beachfront and promenade
- 5.4 City beautification and tree-planting campaign



A visitor studies the signage in the Biodiversity Garden at Green Point Park. Photo: Marijke Honig

PROJECT ACTIONS AND RESULTS

- 5.1 Indigenous gardening training programme for Green Point Park staff
- 5.2 Biodiversity showcase garden at Green Point Park

Green Point Park adjacent to Green Point Stadium is a brand-new public park and a legacy project of the 2010 FIFA World Cup™. The park was developed according to ecological principles, with energy and water efficiency, multipurpose spaces and indigenous landscaping incorporated into the design.

A biodiversity showcase garden of indigenous, water-wise plants that displays the region’s biodiversity and demonstrates responsible environmental gardening/ horticultural practices was established. The availability of spring water from the Oranjezicht Springs presented an opportunity to develop a wetlands landscape. This area not only captures and manages water quality and flows, using reed beds and vegetation, but also provides habitats for small frogs and insects.





A combination of interpretive signage and educational art provides the visitor with a range of messages about the value of biodiversity.

An educational booklet was developed to enhance the educational value of the garden. The Cape Town Stadium visitor centre offers tours of the biodiversity garden and Green Point Park.

The biodiversity showcase garden is a legacy project of the Green Goal 2010 programme, and was selected as one of the City's ICLEI Local Action for Biodiversity projects. It was one of the focus areas of the City's campaign to promote biodiversity awareness during 2010, the International Year of Biodiversity. In lieu of a training programme for landscapers, ongoing hands-on training is provided to the staff of the landscape contractors responsible for maintaining the garden.

Lessons learnt on the indigenous gardening training programme and biodiversity showcase garden

It is fortunate that the biodiversity showcase garden was planted and landscaped at the same time as the remainder of Green Point Park. The garden is integrated with a series of wetlands and water ponds, and interpretive signage enables users to appreciate that Cape Town is one of only three cities in the world that ranks as an urban biodiversity hot spot.

The combination of interpretive signage and educational art provides the visitor with information in a fresh and exciting way. The themes were carefully selected to be relevant to biodiversity conservation in the urban context.

The staff members of the park's landscaping contractors were trained on how to care for the garden. However, due to staff turnover, this cannot be a once-off, but will need to continue as an annual programme.



Green Point Park has become a popular attraction amongst Capetonians. Photo: Marijke Honig

PEOPLE & PLANTS
Plants that heal
Our biodiversity is a rich medicinal resource

Nearly all the medicines we use today has come from plants. Growing here is a selection of Cape plants that are used for healing. Some have been used for centuries, and their healing properties are well known. What about the plants we don't know, which haven't yet been tested? Cape biodiversity is full of unexplored potential – there are plants that could change our lives.

Plante wat genes
 Almost all the medicines we use today has come from plants. Growing here is a selection of Cape plants that are used for healing. Some have been used for centuries, and their healing properties are well known. What about the plants we don't know, which haven't yet been tested? Cape biodiversity is full of unexplored potential – there are plants that could change our lives.

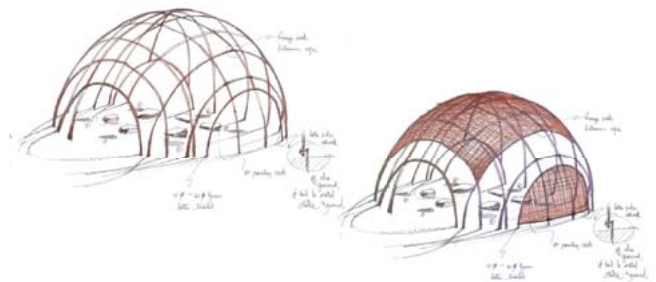
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 Almost all the medicines we use today has come from plants. Growing here is a selection of Cape plants that are used for healing. Some have been used for centuries, and their healing properties are well known. What about the plants we don't know, which haven't yet been tested? Cape biodiversity is full of unexplored potential – there are plants that could change our lives.

Wildcats, blousatie and koosgood are popular for treating colds and chest problems.

Several South African plants have been commercialised by pharmaceutical companies: Devil's claw used to relieve joint pain and arthritis; Hoodia used to lose weight; Cancer bush used to treat cancer; African wormwood; White oil essential for treating coughs and sinusitis.

CAUTION Always speak to a trained medical professional before using any medicine.

Interpretive signage in the Biodiversity Garden provides visitors with messages about the value of biodiversity. Photo: Marijke Honig



5.3 Student landscape design competition for Mouille Point beachfront and promenade

In April 2008, a competition was launched for landscape design and architectural students from UCT and the Cape Peninsula University of Technology (CPUT) to show how they would transform the Mouille Point beachfront and promenade, located along the main protocol route leading to Cape Town Stadium, ahead of 2010. The brief required the students to create a safe, spacious and aesthetically pleasing inner-city recreational area, allowing for a diversity of uses. The students were also required to include 2010 Green Goal principles, such as biodiversity, green building, mobility, efficient water use, and waste minimisation and recycling, in their designs.

A panel of judges, including representatives from the City, Province, CPUT, OVP Landscape Architects and the Cape Town Partnership, reviewed the submissions. The winners were announced on 8 May 2008, with Scott Masson (UCT) and Marica Fick (CPUT) winning the top prizes.

The upgrade of the promenade will continue after the World Cup.

Lessons learnt on the student landscape design competition

The Mouille Point student landscape design competition was the first 2010 Green Goal project to be completed. At the time, it was important to show that the Green Goal programme was on track, and that it was contributing to the greening of the 2010 FIFA World Cup™ in Cape Town. The competition increased the media profile of the 2010 Green Goal programme, and focused politicians and senior officials' attention on this initiative.

The initiative highlighted the role that interns could play in advancing individual Green Goal projects. Interns working in the City Environmental Resource Management Department compiled the background documents, discussed the details with the students, arranged the judging, and organised the launch function. The project provided the interns with valuable work experience and skills in project management, communications and events management.



Water features and planting trees enhanced the CBD for the World Cup.
Photo: Bruce Sutherland, City of Cape Town

5.4 City beautification and tree-planting campaign

Cape Town and the Western Cape's image and appearance during the 2010 FIFA World Cup™ were the city and region's calling card – not only for fans visiting Cape Town, but also for the millions of people around the world who followed the tournament on television. By signing the HCA, Host City Cape Town agreed to render the city as attractive as possible for the 2010 FIFA World Cup™. City beautification related to enhancing the visual appeal of the city, and also included the screening of construction sites visible from event locations, and limiting construction works in key event areas.

As a Green Goal 2010 legacy project, the city beautification programme aimed to meet the following goals:

- To improve and maintain existing assets.
- To invest in beautification of previously undeveloped areas.
- To create a vibrant and exciting atmosphere in the city ahead of the 2010 FIFA World Cup™.
- To promote excellent design and creativity.
- To promote a spirit of community and civic engagement through involvement in local beautification programmes.
- To gain maximum financial advantage and media exposure through opportunities created by city decoration and beautification.



A detailed scoping exercise was undertaken between January and April 2009 to identify and map areas where improvements and maintenance had to be prioritised ahead of the 2010 FIFA World Cup™. The maps and detailed description of issues were presented to the City's executive management team, for consideration and action. A number of new projects were initiated, including landscaping and tree-planting projects along the protocol routes and in the vicinity of the VSTs in two of Cape Town's previously disadvantaged areas. More than 2 000 new trees were planted, including 50 mature trees that had been donated by a prominent Cape Town businesswoman, which were planted outside Athlone Stadium.

A local NGO, Abalimi Bezekhaya (Xhosa for 'Planters of Home'), planted 100 indigenous trees at Philippi Stadium, one of the official training venues, to commemorate the number of days before the kick-off of the 2010 FIFA World Cup™ in South Africa. Abalimi Bezekhaya is an urban agriculture and environmental action association operating in the socio-economically neglected townships of Khayelitsha, Nyanga and surrounding areas on the Cape Flats of Cape Town.

The city beautification programme offered communities the opportunity to be involved in preparing the city to host the 2010 FIFA World Cup™. Four community beautification and clean-up campaigns with the youth and community members, facilitated by local NGOs, not only benefited the environment, but also created a sense of anticipation and ownership of the World Cup event.

Lessons learnt on city beautification and the tree-planting campaign

The scoping of the 2010 beautification project highlighted the opportunity for legacy investment in the city's open spaces and visible infrastructure. The city beautification work stream was one of the largest 2010 work streams, involving a host of City departments, role players from Province, and other stakeholders. The work stream members accepted the challenge of city beautification with enthusiasm, excited to be part of the process to prepare the city to host the World Cup event. The support provided by a Dutch international intern to scope the extent of the 2010 city beautification programme was invaluable. The site visits and mapping formed part of the intern's final-year thesis to qualify for a degree in Engineering and Urban Design.

The fact that landscaping formed part of almost all of the infrastructure upgrade contracts issued before the World Cup resulted in dozens of newly landscaped areas, also in previously disadvantaged areas.

Although the tree-planting campaign did not materialise as had been intended, the project initiated through the city beautification programme resulted in a significant number of new trees planted in Cape Town – a city mostly devoid of mature trees due to the climate and high water table in many areas.

Key references for landscaping and biodiversity

- City of Cape Town. January 2009. Announcement of Mouille Point promenade student design competition.
- City of Cape Town. April 2008. Submissions received from Cape Peninsula University of Technology and University of Cape Town students for the landscape design competition for Mouille Point beachfront and promenade.
- City of Cape Town. August 2009. Draft 2010 City Beautification Plan.
- FIFA. November 2008. City Beautification Guideline.
- OVP Landscape Architects. August 2009. Detailed design of Green Point Park.
- Ozinsky, S., Ackermann, K. and Lamb, S. January 2009. Green Point Park and ECO Centre Business Plan. Cape Town, South Africa. Commissioned by City of Cape Town.



Bus shelters were decorated with colourful images from the Green Goal 2010 soccer and environment poster, created by Capetonians.

6 GREEN BUILDING AND SUSTAINABLE LIFESTYLES

Even before the World Cup, increased awareness of environmental issues linked to impending resource constraints and global warming concerns in the Western Cape had led to a drive for urgent action at both local and provincial level.

The platform provided by a major event such as the 2010 FIFA World Cup™ was therefore leveraged to influence the behaviour and sustainability choices of participants, spectators and the public. This included constructing greener and more resource-efficient buildings, and promoting a healthy and environmentally sound lifestyle.

THE PROJECTS

- 6.1 Smart Living Centre in Green Point Park
- 6.2 Undertaking and monitoring green review for Cape Town and Athlone stadia
- 6.3 Cape Town Green Map
- 6.4 2010 Green Goal volunteer training module
- 6.5 Green Goal soccer club competition
- 6.6 Soccer and environment educational poster and guide
- 6.7 Green Goal short films
- 6.8 Anti-littering and waste recycling campaign
- 6.9 "Drink tap water" campaign
- 6.10 Green procurement for 2010 events
- 6.11 Greening of 2010 events



Architectural rendering of the proposed Smart Living Centre in Green Point Park.

PROJECT ACTIONS

6.1 Smart Living Centre in Green Point Park

The proposed Smart Living Centre in Green Point Park is a 2010 Green Goal legacy project expected to deliver substantial value to Cape Town. Once completed, the Smart Living Centre will educate and inspire residents and visitors to adopt sustainable living practices. The Centre will demonstrate environmentally friendly construction, and will embody the principles of 'treading lightly' on the earth.

The Centre will provide a tangible and enjoyable learning experience for young people and adults through hands-on workshops, interactions with living plants and animals, seminars, lectures and guided tours.

The following could be associated with the Smart Living Centre:

- A worm farm
- Organic and farmers' markets
- Indoor and outdoor play areas for children
- A public art pavilion and outdoor art
- A recycling drop-off centre and demonstration area
- A bicycle rental facility



A business plan and draft fundraising strategy were developed in 2008, and a KAS-sponsored workshop to discuss the Centre and its programmes was convened on 27 March 2009. A wide range of stakeholders attended and expressed support for the project.

The architects responsible for the upgrade of other buildings in Green Point Park were appointed to prepare conceptual design drawings of the Centre. Their brief called for the design of a 'green building' that was a demonstration of sustainable building practices in its own right. The footprint of the Centre was finalised, and the detailed design was translated into artist's impressions to be used for fundraising purposes.

An intern from Germany scoped the environmental education programme that could be offered by the Centre, focusing on messages and contents not already covered by other environmental education facilities in Cape Town.

Lessons learnt on the proposed Smart Living Centre

The Smart Living Centre is potentially an anchor element within Green Point Park, and a legacy project of Green Goal 2010. Approval in terms of environmental and planning legislation is currently being obtained, and more public consultation will follow to ensure broad buy-in. Significant capital funding is required to construct and equip this Centre to offer a world-class urban environmental education experience to visitors and residents. Local institutional arrangements made securing funding from sponsors a challenge, but this has changed recently, and the Centre is now likely to be funded through a combination of government, sponsor and grant funding.

6.2 Undertaking and monitoring green review for Cape Town and Athlone stadia

In 2007, DEA, through the UEMP funded by DANIDA via the Royal Danish Embassy, commissioned a review of the greening status of the FIFA World Cup™ stadia (four official match stadia and one training venue). The aim was to establish how 'green' the stadium designs were, and to provide the design teams with the opportunity to enhance the green aspects of their designs. The review, which included both Cape Town and Athlone stadia, was carried out using the Council for Scientific and Industrial Research's (CSIR) sustainable-building assessment tool.

Representatives from the City and the professional teams responsible for the design of the stadia met with the review team to brief them on the design of the stadia as well as measures that had been taken to make the stadia more sustainable from an environmental, social and economic perspective.

The professional teams reviewed the draft report produced for each stadium before it was finalised. The findings from the reports were published in two booklets.

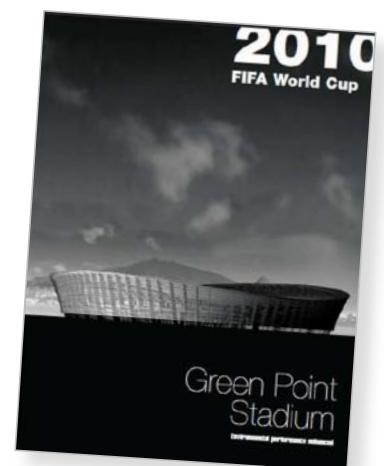
The review team concluded that the overall sustainability of both stadia was good and well balanced across the three measured areas. Some cutting-edge interventions in Green Point Stadium were noted, including the water-cooled variable refrigerant-volume air-conditioning system, used for the first time in a stadium application in South Africa.

Lessons learnt on the green review of Cape Town and Athlone Stadia

Although the purpose of the review was to determine whether the stadia designs were in line with green building principles, the review team also shared considerable insight and knowledge with the stadium professional teams. The host cities that participated in the review of the 2010 World Cup stadia (Cape Town, Durban, Rustenburg and Polokwane) all felt that it would have been more beneficial if this specialist knowledge had been available during the conceptual design stage of the stadia, as, by the time the review took place, most stadia were already designed and under construction.

While it was an academic exercise for most of the stadia, in the case of Cape Town Stadium, some of the recommendations from the review were indeed implemented.

The final report of the Cape Town Stadium review was shared with the professional team responsible for the Philippi Stadium upgrade and, as a result, two best-practice energy-saving interventions were included in the stadium refurbishment, also funded by the UEMP 2010 carbon mitigation grant.



6.3 Cape Town Green Map

The primary objective of the Cape Town Green Map is to inform Capetonians and visitors of opportunities to experience and support Cape Town's wealth of natural resources and sustainable 'green' living options. The Green Map provides a fresh view of the city's environment, and showcases 'hot spots' and locations of ecologically sensitive areas and activities in and around Cape Town. Included in the map are nature reserves, ecotourism sites, organic and farmer's markets, recycling drop-off centres, etc.

The map provides an overview of the wealth of sustainable options available, and motivates behavioural change. It further provides an incentive to the city's commercial sector to become more environmentally aware and adopt 'green' and/or sustainable practices and operating procedures.

The Cape Town Green Map was launched on 5 June 2009 at a carbon-neutral 'virtual' function hosted on personal computers, laptops and mobile phones. The media were invited to register upfront to receive their green media pass, which provided up-to-the-minute news feeds on the day of the launch. The project has continued to grow from strength to strength with the number of listings having exceeded the 400 mark.

The Cape Town Green Map is available in an online interactive version, accessible to the general public and visitors alike, on www.capetowngreenmap.co.za. A printed version of the map is also available.

The Cape Town Green Map is based on the Open Green Map System (<http://www.greenmap.org>), thereby benefiting from Greenmap.org's resources and mapping technologies. Cape Town joined over 350 Green Map cities in 50 countries on the Greenmap.org website.

Lessons learnt on the Cape Town Green Map

The Cape Town Green Map is a legacy project of Host City Cape Town's Green Goal 2010 programme. The project built up a valuable track record and goodwill, having produced two print map editions and maintained a successful web presence. The services of a specialist mapping and communications team were commissioned to create the print and online versions of the Green Map. The team's creative approach was invaluable in creating a world-class map and web presence, and establishing it as a source of environmental information in the city. Green Goal funding will ensure a further print run of the map after the 2010 FIFA World Cup™, after which third-party sponsorship will again be considered.

The image shows a comprehensive Green Map for Cape Town. At the top left, there's a logo for 'CAPE TOWN GREEN MAP' with the website URL www.capetowngreenmap.co.za. Below the logo, there's a section titled 'THE GREAT GREEN OUTDOORS' which describes the city's location and its natural resources. To the right of this is a map of Cape Town with various green spots marked. Below the map, there are several sections: 'CITY NATURE RESERVES' listing various reserves like 'Table Mountain National Park' and 'Silvermine'; 'PARKS & GARDENS' listing parks like 'Company's Garden' and 'Marianne Park'; 'TRANSPORT' listing transport options like 'City Transport' and 'Bicycle Beach'; 'WASTE & RECYCLING' listing recycling centers; 'FRIENDS OF NATURE' listing environmental groups; 'BEACHES BLUE FLAG BEACHES' listing beaches like 'Kleinmond Beach'; and 'CITY SHARK SPOTTERS PROGRAMME' listing shark spotting activities. At the bottom, there are logos for various organizations like 'sappi', 'Green Map System', and 'Open Green Map System'.

Cape Town Green Map Informed fans about the numerous 'green' living options available in the city.



6.4 2010 Green Goal volunteer training module

The LOC identified 16 functional areas for volunteers, including in the field of environmental services. The LOC appointed 1 200 volunteers in Host City Cape Town, including 12 environmental services volunteers tasked to inform spectators of the environmental management initiatives implemented in the stadium precincts where they had been deployed. The environmental services volunteers received in-depth training to equip them to assist with recycling and waste management during the 2010 FIFA World Cup™, and informing local and international fans of the Green Goal programme.

Host City Cape Town also appointed 504 volunteers to assist with the logistical operations of the 2010 FIFA World Cup™. An environmental awareness training module was developed for these volunteers, incorporating contents from the City's Basic Environmental Awareness Training (BEAT), the Smart Living training modules for adult learners, and the DEA training course on event-greening guidelines. Six host city volunteers were assigned full-time to the Green Goal expo at the FIFA Fan Fest™, where they received specific training to assist with the Green Goal awareness programme.

DEA also trained 32 volunteers in each host city to support the Green Goal programmes. In Cape Town, the DEA volunteers assisted at the Green Goal expo at the FIFA Fan Fest™, and administered questionnaires during face-to-face interviews with fans. All the volunteers at the Green Goal expo were issued with a badge that encouraged fans to ask them about the Green Goal programme. They also walked among the fans with signage that created awareness of the Green Goal programme, and invited fans to visit the Green Goal expo.

The volunteer programme was one of the legacy programmes of the World Cup event, having aimed to equip volunteers with valuable work experience and the skills to serve at future major events. The imparting of environmental knowledge about the Green Goal 2010 programme, the city and the region was part of this legacy. The environmental awareness training module will be used for volunteer training for future major events in Cape Town and the Western Cape.



Lessons learnt on the Green Goal volunteer training module

Host City Cape Town took the important decision that all volunteers, regardless of where they had been deployed, had to receive basic environmental awareness training to equip them to answer general questions about Cape Town and environs. The inclusion of environmental services in the functional areas of all volunteers was an early success of the national Green Goal programme.

The LOC recruited environmental services volunteers for the FCC and the 2010 FIFA World Cup™, who contributed significantly to keeping the stadium environments litter-free by assisting spectators to recycle waste in the bins provided. Host City Cape Town gained valuable insight into the FCC volunteer programme, and applied it in the conceptualisation of the volunteer programme for the World Cup.

6.5 Green Goal soccer club competition

6.6 Soccer and environment educational poster and guide

The "Making Connections" soccer and environment project was conceptualised by the team responsible for the City Local Agenda 21 programme. The City partnered with a local NGO, Youth Unlimited, to develop the poster and conceptualise the messages. The poster was successfully piloted as an environmental education tool at a Manenberg youth football tournament in 2006.

The 2010 Green Goal soccer and environment educational programme targeted Grade 7 learners of schools participating in the City's Youth Environmental Schools (YES) programme. The poster was updated with new messages and a 2010 FIFA World Cup™ 'look and feel'. A teacher's guide, containing suggestions on how to integrate the soccer and environment poster and concepts with the Grade 7 curriculum, was also developed.

An educational programme, including an interactive theatre production, was developed using concepts from the poster and booklet, and was rolled out to 38 schools in Cape Town. During two teachers' workshops, educators were trained to use the booklet and poster in their lesson plans.



Twenty-four schools that participated in the soccer and environment educational programme participated in a Green Goal soccer and environment tournament on World Environment Day, six days before the kick-off of the World Cup, on 5 June 2010. Zakumi, the official 2010 FIFA World Cup™ mascot, visited and helped to hand out the prizes to the winners.

Lessons learnt on the soccer and environment educational poster and guide

Leveraging the opportunity provided by the 2010 FIFA World Cup™ to promote environmental awareness, and to educate and inspire learners about sustainability, was one of the key legacy objectives of Green Goal 2010. The World Cup created the platform to use soccer as a theme, and to publish an educational poster, which, together with an environmental education programme, aimed to raise awareness and change behaviour among Grade 7 learners. An interactive theatre production made use of concepts from the poster to support the message of environmental protection. The contents of the educational booklet were integrated with the school curriculum, so that teachers could utilise it as part of the syllabus.

6.7 Green Goal short films

A five-minute DVD promoting the Green Goal 2010 programme was developed and screened for the first time at the Green Goal Action Plan launch in October 2008. After that, the DVD was screened at various meetings and exhibitions, including Soccerex 2008 and 2009. Three short films on water conservation, waste reduction and recycling, and Green Goal 2010 in general were made and screened during the World Cup on the large-format screen at the FIFA Fan Fest™, at the Green Goal expo and at the fan jols.

Lessons learnt on the Green Goal short films

Audiovisual media are a powerful way to reach and inspire target audiences. Time on the big screens at the FIFA Fan Fest™ and the fan jols was reserved for the screening of the Green Goal short films.

To document the Green Goal programme effectively, new footage should be regularly obtained. Filming should start as early on in the process as possible.



6.8 Anti-littering and waste recycling campaign

The City has ongoing anti-littering campaigns as part of the Solid Waste Department's communications strategy. These were extended to incorporate the 2010 FIFA World Cup™. The character Zibi (the rubbish-eating ostrich) was used to assist with a public awareness campaign promoting a split-bin system for wet and dry waste in the Cape Town CBD, along the fan walk, at the FIFA Fan Fest™ and fan jols. The campaign targeted residents and visitors before and during the World Cup, and aimed to prevent littering and promote recycling in event areas.

In addition, the Province's 2Wise2Waste campaign, launched in December 2006, was rolled out to fan jols and base camps in the province as part of the 2010 FIFA World Cup™ preparations. The volunteers who had received training in the Green Goal programme assisted the Province-supported fan jols by raising awareness of waste separation and anti-littering actions at these venues.

The LOC also developed recycling signage, which was placed on the bins in the split-bin waste system at the FIFA Fan Fest™.

6.9 "Drink tap water" campaign

Every year since the Blue Drop awards were conceived in 2008, the City has been awarded Blue Drop status by the Department of Water Affairs (DWA). Blue Drop status indicates that consumers can safely drink water from the taps in Cape Town.

To provide access to clean, safe drinking water for all the soccer fans along the fan walk and at the FIFA Fan Fest™, water fountains were designed and installed. A short film was produced promoting the drinking of water from fountains, which was screened on the big screen at the FIFA Fan Fest™.

The water fountains will now be rebranded and used at other events and along the fan walk to coincide with major events in Cape Town Stadium.



Fans were encouraged to drink tap water from fountains at the fan fest and fan walk. Photo: Rob Oettle

Lessons learnt on the "Drink tap water" campaign

The installation of the water fountains at the FIFA Fan Fest™ and along the fan walk was welcomed by residents and fans. The fountains were well utilised, despite the fact that the 2010 FIFA World Cup™ was held in winter, when there is traditionally a demand for warm drinks.

The water fountains were designed to be reused at other events and along the fan walk.

The secondary message of the campaign, i.e. that drinking tap water could reduce the energy and waste created by bottled water production, was underplayed because of sensitivities around FIFA's commercial affiliates.



6.10 Green procurement for 2010 events

6.11 Greening of 2010 events

The City's Events Policy, adopted in October 2008, contains event-greening principles aimed at promoting environmentally and socially responsible events in the city. The principles are applicable to events in their entirety, including planning, construction, operations, management, decommissioning, and ongoing maintenance of events, events infrastructure and facilities.

Event-greening and green procurement criteria were included in the tenders for the event operators of Cape Town Stadium, the FIFA Fan Fest™, fan jols, the FIFA Fan Fest™ media centre, the fan walk and the Final Draw pre-event. A scoring mechanism was developed, which served as a basis for other operational tenders for the 2010 FIFA World Cup™. Workshops were arranged with the operators to discuss practical tips on how to implement event-greening at their respective venues and events.

Green Goal promotional items, including lapel badges, water bottles, note pads, goodie bags, and the peak caps and cotton golf shirts worn by the Green Goal team during the 2010 FIFA World Cup™, were manufactured in South Africa. In addition, PETCO sponsored Green Goal-branded long-sleeved T-shirts made from the fibre of recycled plastic bottles. Where possible, promotional items were sourced from SMME companies and suppliers.

Green Goal functions, including the launch functions of the Green Goal Action Plan and Green Goal Progress Report, were held at venues that subscribe to event-greening principles. The catering at these functions was vegetarian with fresh seasonal produce, and tap water instead of bottled water was served.

All Host City Cape Town Green Goal 2010 publications, including the Green Goal Action Plan and Progress Report, Green Goal brochure, two editions of the Cape Town Green Map and the Smart Events Handbook, were printed on Sappi Triple Green paper. Triple Green paper is made from chlorine-free sugar cane fibre sourced from local suppliers and obtained from sustainable and internationally certified afforestation, using independently audited chains of custody for incoming fibre. This paper was also used for the printing of the Final Draw and 2010 FIFA World Cup™ host city and media guides.



Split-bin waste recycling at the FIFA Fan Fest™. Photo: Rob Oettle

EXAMPLES OF EVENT-GREENING MEASURES IMPLEMENTED AT 2010 FIFA WORLD CUP™ VENUES

- No handouts of leaflets or souvenirs at the gates
- Separation of wet and dry waste at source at all venues
- Recycling of dry waste from all venues
- Making available reusable souvenir cups at the FIFA Fan Fest™
- Reusable cutlery and crockery in all VIP catering areas
- Tap-water fountains installed at the FIFA Fan Fest™ and along the fan walk
- Green-electricity certificates purchased from the Darling wind farm for the FIFA Fan Fest™
- Green-electricity certificates from hydropower installations donated by Eskom for use in Cape Town Stadium



Lessons learnt on green procurement and the greening of 2010 events

The lack of a comprehensive green procurement policy for South Africa was a challenge, although municipal legislation provided for environmental criteria to be included in tenders, as long as these were supported by a defensible scoring system. The City's scoring system is being refined and, once approved, can be applied to the procurement of goods and services for future events. Specific measures, such as the purchasing of green/renewable energy, should be implemented in future to improve the greening of events. In Cape Town, it is possible to purchase wind energy from a facility on the city's doorstep.

FIFA published a host city events guide, documenting the rules and procedures for host city events. It was disappointing that the events guide made no mention of event-greening as a requirement for host city events. It was left up to the host cities themselves to implement event-greening at their various events.

Host City Cape Town did extensive research on biodegradable plastics and composting to determine whether they would be a feasible alternative for conventional plastics. It was found that, without dedicated composting facilities, biodegradable plastics actually contaminate the industrial plastics recycling streams. Biodegradable cups, containers and cutlery should be used only when they can be kept in a separate waste stream and composted after the event.

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Zibi, the rubbish-eating ostrich assisted with a public awareness campaign.

KELPVUVUS: A SYMBOL FOR AN ECO-FRIENDLY WORLD CUP

Kelpvuvus, soccer blow horns made of sea kelp, were Cape Town's contribution to football culture. Eco-friendly and custom-crafted, the Kelp Environmental Learning Project, or simply KELP, creates opportunities for employment, social upliftment and environmental education. Based at the Kommetjie Environmental Action Group at Imhoff Farm in Kommetjie, and founded by Adam Carnegie, KELP employs as many as six formerly unemployed men and women, who collect kelp from local beaches, dry them in the sun, and then carve them into vuvuzelas. Unlike plastic vuvuzelas, Kelpvuvus are made from a sustainable resource, and do not harm the environment. Probably the most notable kelp vuvuzela is that blown by the whale crier in Hermanus, who walks around the town blowing his vuvuzela to inform locals and tourists alike where the whales are to be found. The Green Goal 2010 programme supported this project by purchasing Kelpvuvus for its communication campaign.



Eco-friendly kelp vuvuzelas made from an abundant natural resource, were a feature of the Green Goal Programme. Photo: Cape Town Green Map



Fans leaving Cape Town Stadium after a match. Photos: Bruce Sutherland, City of Cape Town



7 RESPONSIBLE TOURISM

Cape Town is one of the most beautiful places on earth, and attracts visitors from across the globe.

A more mindful approach to tourism that respects the natural and cultural environment and contributes in an ethical manner to local economic development is essential. Cape Town and the Western Cape are leaders in the move towards responsible tourism. Therefore, a KAS-sponsored Green Goal workshop entitled "Taking responsibility for tourism during the 2010 FIFA World Cup™" was held on 20 April 2009 to explore responsible-tourism objectives for the World Cup and beyond.

In December 2009 the City approved the Responsible Tourism Policy and Action Plan which set the scene for the tourism approach to be taken during the World Cup.

Responsible tourism was an integral part of the tourism development plan for the 2010 FIFA World Cup™. The development and marketing of tourism packages that emphasised environmentally friendly and socially responsible activities, for example, hiking trips in natural areas or township tours providing economic opportunities to disadvantaged communities, were promoted. Accommodation facilities were encouraged to improve their environmental footprint and provide guests with technical, organisational and behavioural options for a more resource-efficient stay. Activities focused on effective resource management (energy, water and waste) and the promotion of socially responsible investment, benefiting local communities.

Local communities and visitors were made aware of their responsibilities for example, communities to ensure a clean city and be friendly to visitors and visitors to ensure that during their stay they acted in a responsible manner.

THE PROJECTS

- 7.1 Code of responsible conduct for visitors
- 7.2 Responsible-tourism awareness and training
- 7.3 Environmental certification system for accommodation sector: GreenStaySA
- 7.4 Smart Events Handbook



Crafters making beaded South African flags. Photo: Bruce Sutherland, City of Cape Town

CAPE TOWN DECLARATION NOW THE WORLD'S DEFINITION OF RESPONSIBLE TOURISM

The 2002 Cape Town Declaration on Responsible Tourism in Destinations defines responsible tourism as tourism that:

- minimises negative economic, environmental and social impacts;
- generates greater economic benefits for local people, and enhances the well-being of host communities;
- improves working conditions and access to the industry;
- involves local people in decisions that affect their lives and life chances;
- makes positive contributions to the conservation of natural and cultural heritage, embracing diversity;
- provides more enjoyable experiences for tourists through more meaningful connections with local people, and a greater understanding of local cultural, social and environmental issues;
- provides access for physically challenged people; and
- is culturally sensitive, encourages respect between tourists and hosts, and builds local pride and confidence.

TOURISM IMPACT OF THE 2010 FIFA WORLD CUP™

- A total of 309 554 foreign tourists arrived in South Africa for the primary purpose of attending the 2010 FIFA World Cup™. African land markets accounted for 32% of total foreign tourists, followed by Europe with 24% and Central and South America with 13%.
- A total of 59% of arrivals for the World Cup were first-time visitors to South Africa.
- The total expenditure in South Africa by tourists who came specifically for the 2010 FIFA World Cup™ was R3,64 billion. Foreign tourists spent an average of R11 800 in South Africa for the duration of their trip, compared to the annual average spend of R9 500 in 2009.
- Europeans spent the most in South Africa during this period. Most tourists spent their money on shopping, followed by accommodation and food and drink. These tourists' average length of stay was 10,3 nights.
- A total of 79% of tourists stayed in paid accommodation, with 21% staying with friends and family.
- Tourists from Australia and North America stayed the longest.
- Gauteng, which hosted the majority of the matches, was the most visited province during the event, with 223 039 foreign tourists, followed by the Western Cape (108 384) and KwaZulu-Natal (83 819).
- In addition to FIFA's official media programme, Cape Town Tourism hosted more than 520 members of the media from 16 countries, representing major newspapers, broadcasters and online platforms, exposing them to the city's environment and responsible-tourism programmes.
- A total of 89% of tourists said they would consider visiting South Africa again in the future, while 96% said they would recommend the country to their friends and relatives.
- Total awareness of South Africa as a leisure destination increased by 9% following the event.
- The intention to visit South Africa in the short-term increased by 35% following the event.

PROJECT ACTIONS

7.1 Code of responsible conduct for visitors

The City's Tourism Department and Cape Town Tourism (CTT) jointly developed a code of responsible conduct for visitors and tourism product owners/operators, building on the Cape Town Declaration of 2002, when the first International Conference on Responsible Tourism in Destinations was held in Cape Town, with the ratified Cape Town Declaration becoming the global definition for responsible tourism.

An abridged version of this code was included in the 2009 official Cape Town visitor's guide, and responsible-tourism tips for travellers were featured in the 2010 official visitor's guide as well as in the 2010 official fan's guide.

A Responsible Tourism Policy and Action Plan was approved by the City in 2009 followed by the signing of a responsible tourism charter by the City and major tourism associations also in 2009.

A responsible-tourism DVD, "Taking Responsibility for Tourism", was commissioned by the Tourism Department specifically for the World Cup to convey to visitors the approach taken by Destination Cape Town, and was screened at the Green Goal expo at the FIFA Fan Fest™, raising awareness of the issue.

Lessons learnt on the code of responsible conduct for visitors

As the 2009 winners of the "Best Destination" category of the Virgin Holidays Responsible Tourism Awards, Cape Town has been recognised internationally by the tourism sector as a leading destination in adopting and practising responsible tourism. A programme is in place to make Cape Town a truly responsible destination, and to ensure that key stakeholders have appropriate levels of awareness and understanding of responsible tourism. The City and its partners in the tourism industry have recognised the role of responsible tourism in achieving the triple-bottom line outcomes of sustainable development, i.e. economic growth, environmental integrity and social justice.





The opportunity to use the platform of the World Cup to promote the message of responsible tourism to both local and international fans was an important one. Subsequent to the World Cup, the events industry developed a Smart Events Handbook to encourage and guide event organisers in hosting sustainable events in Cape Town.

7.2 Responsible-tourism awareness and training

CTT together with the City’s Tourism Department presented a responsible-tourism awareness and training course to the industry as part of a service excellence programme. The training was based on the contents of the City’s Smart Living Handbook, and was implemented before and during the 2010 FIFA World Cup™.

In addition, the City coordinated a clean-up and awareness campaign, ‘Operation Green’, in four areas, mobilising learners and local NGO’s. The campaign focused on waste and how to be a responsible citizen in ensuring that the City was litter-free and welcoming to visitors.

Lessons learnt on responsible tourism awareness and training

The Responsible Tourism Awareness and Training workshops were successful in that the tourism industry was engaged around service excellence and responsible practise ahead and during the World Cup. The training programme is ongoing as part of the City’s Responsible Tourism approach.

The ‘Operation Green’ campaign was successful and communities felt proud to be part of the clean-up campaign in preparation for the World Cup.

7.3 Environmental certification system for accommodation sector: GreenStaySA

GreenStaySA is an online information resource and certification system that supports the move towards improved environmental performance in the accommodation sector. It provides guidance and support to facilities that wish to improve their environmental footprint and operate in an environmentally responsible manner. All accommodation establishments, however small, may use the GreenStaySA tools and resources to improve their environmental footprint.

The tools and resources that have been developed include the following:

- A self-assessment tool to assess current environmental performance
- A technical manual to assist accommodation establishments in the implementation of environmental interventions

GreenStaySA has its origin in a pilot project initiated in 2004 under the “Cleaner Production” programme of the DEA&DP. Nine accommodation establishments participating in the pilot were audited for energy and water consumption and management as well as waste management. During the pilot project, a need for a certification programme was identified. The development of such programme was subsequently funded by the DEA&DP and the British High Commission. Certification of tourism businesses under GreenStaySA commenced in 2010. It is envisaged that GreenStaySA will merge with a prominent South African responsible-tourism certification body in order to strengthen access to the tourism industry.

Responsible-tourism training workshops were convened by the DEA&DP and GreenStaySA throughout the Western Cape.

Currently, SEA and the DEA&DP are working together with the National Department of Tourism, the Tourism Grading Council of South Africa (TGCSA) and other responsible-tourism certification authorities to develop and implement a national standard for responsible tourism as well as an accreditation system for the certification agencies in South Africa. These standards are being approved through the South African National Standards public participation process, and will be launched in 2011.



After transport, the accommodation sector accounted for most of the World Cup's carbon footprint. A survey conducted by South African Tourism indicated that, of the approximately 309 000 international visitors, 79% used hotels, guest houses or bed-and-breakfasts for overnight accommodation. With another approximately 300 000 guest nights in the form of event organiser and team accommodation, this resulted in a total of approximately 525 000 guest nights being spent in the host city. The estimated resource implications of these guest nights are shown in Table 14 below.

TABLE 14: Impact of accommodation on resource use

	Per guest night	Total
Energy kWh	29*	15,250,994 kWh
Water kℓ	0,7**	368,127 kℓ
Waste tonnes	0,00073**	385 tonnes
CO ² tonnes from electricity use		15,197 tCO ₂ e

* From Econ Pöry carbon footprint report based on study of 47 South African hotels

** From Green Globe environmental benchmarking system

Lessons learnt on GreenStaySA

A very small proportion (fewer than 500) of tourism enterprises in South Africa are currently accredited with responsible-tourism schemes, compared to 8 457 in the country that have a star rating from the TGCSA. Although the low level of uptake by tourism enterprises in South Africa is not unusual when compared to global experience, it is an indication that responsible-tourism certification is not yet mainstreamed in South Africa.

The delays in rolling out GreenStaySA or any significant adoption of green certification for the 2010 FIFA World Cup™ were due to the National Department of Tourism's ongoing process to formalise minimum standards for responsible tourism.

FIFA and its hospitality provider, MATCH, did not require the accommodation establishments signed up with them to demonstrate that they had a greening programme. Phasing in this requirement over time could lead to the accommodation sector in host countries becoming more proactive in improving their environmental performance.



GreenStaySA brochure for the greening of the accommodation sector during the World Cup.



7.4 Smart Events Handbook

Host City Cape Town produced a Smart Events Handbook to guide event organisers, venue staff and suppliers in planning and implementing events in a sustainable and responsible manner. The handbook provides an overview of event-greening and contains practical tips for implementation. It can be used for a range of events, such as meetings, conferences, exhibitions and applied equally to large sporting events and to small community initiatives.

The handbook was developed in consultation with partners and key role players in the events industry and was endorsed by a number of industry bodies and networks.

The Smart Events Handbook was published during the 2010 FIFA World Cup™ to take advantage of the media opportunity presented by the event. A copy of the Smart Events Handbook can be downloaded from www.capetown.gov.za/smartlivinghandbook.

Lessons learnt on the Smart Events Handbook

The Smart Events Handbook is endorsed by a wide range of organisations active in the events and conference industry. The handbook has been widely distributed as a result of the buy-in of these industry bodies and networks such as the Event Greening Forum.

It is not yet known how widely the document is used, but early indications are that event organisers are starting to apply some of the suggestions and clients, including City departments, are using the handbook to evaluate venues for functions and inform specifications for service providers assisting to organise events.

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The FIFA Fan Fest™ on the Grand Parade at full capacity. Photo: Bruce Sutherland, City of Cape Town



Fans were encouraged to learn about the greening of the World Cup, through exhibitions and educational theatre. Photos: Bruce Sutherland, City of Cape Town

8 GREEN GOAL COMMUNICATIONS

All role players, including the broader public, visitors, service providers and industries, needed to be encouraged to participate actively in all aspects of the greening of the event. A clear outreach strategy had to be drafted to ensure that all event-greening stakeholders were aware of their roles regarding greening implementation. Also, an educational and public awareness campaign had to be developed to raise awareness and facilitate behavioural change among fans and local residents.

The World Cup provided an exceptional platform to increase awareness of Cape Town's unique environment and the initiatives that had been put in place to make the World Cup a sustainable event.

Information on the objectives, milestones and implemented projects orientated audiences to the Green Goal programme. It also provided a context, placing the 2010 environmental programme within the existing communications framework of the City's Integrated Development Plan as well as the City and Province's various policies and strategies aimed at environmental protection.

Promoting permanent and positive behavioural change towards the environment was another Green Goal objective. The platform of the 2010 FIFA World Cup™ was therefore used to profile international and local environmental challenges, and to promote activities to address these challenges in Cape Town.

A KAS-funded workshop on Green Goal communications in Host City Cape Town was held in March 2008. A further workshop in the same month, also funded by KAS and coordinated by the LOC, was held in Johannesburg for all the host cities.

Tools such as a Green Goal website, logo, newsletter, brochures, exhibition and DVD were used to inform fans about the greening initiatives.

The media were an important stakeholder, and regular media interaction helped spread the message of the status of the Green Goal project implementation.



The key objectives of the Host City Cape Town Green Goal 2010 communication and awareness plan were as follows:

- To raise the profile of Cape Town and the Western Cape as responsible hosts of the 2010 FIFA World Cup™.
- To raise awareness of measures taken to host the event in an environmentally sustainable way.
- To use the 2010 FIFA World Cup™ platform to demonstrate how residents and visitors could live a more sustainable lifestyle.
- To align messages communicated by various stakeholders involved in Green Goal 2010.
- To facilitate media coverage of the Green Goal 2010 programme in Cape Town/the Western Cape.
- To build on the growing awareness of environmental issues and sustainable development globally, but particularly in African countries.
- To encourage behavioural change among football fans.
- To encourage corporate responsibility among private-sector suppliers, governments and municipalities.
- To provide a model for replication at other major sporting and cultural events.

THE PROJECTS

- 8.1 Green Goal workshop series 1 and 2
- 8.2 Green Goal brand development and activation
- 8.3 Briefing for potential Green Goal funders
- 8.4 Green Goal marketing and communications plan and roll-out
- 8.5 Green Goal ambassadors
- 8.6 Green Goal website and online resources
- 8.7 Online press resources and materials
- 8.8 Green Goal 2010 expo
- 8.9 Green Goal 2010 awards

PROJECT ACTIONS

8.1 Green Goal workshop series 1 and 2

Green Goal workshop series 1 and 2 were completed from 2007 to 2009. For more details, refer to Section 4 of this Report.

Lessons learnt on the Green Goal 2010 workshop series

The first Host City Cape Town Green Goal workshop series invited stakeholders to work with local government to agree on the priorities for the 2010 FIFA World Cup™ event-greening programme. The workshop series ensured consultation with a wide range of stakeholders before decisions were made on principles, objectives and projects. The second Green Goal workshop series was more focused and aimed to advance the implementation of specific projects. The carbon offset workshop, as an example, informed the final selection of carbon mitigation projects to be funded from the UEMP 2010 carbon interventions fund. The workshops led to buy-in from senior management of the City and the Province, and increased political support.



- 8.2 Green Goal brand development and activation
- 8.4 Green Goal marketing and communications plan and roll-out
- 8.5 Green Goal ambassadors
- 8.6 Green Goal website and online resources
- 8.7 Online press resources and materials

One of the key legacy opportunities presented by the 2010 FIFA World Cup™ is the platform that the event provided to leverage international and local media attention, which, in turn, led to behavioural change in favour of the environment. This will have the long-term benefit of reducing the consumption of scarce resources, such as water, energy and biodiversity, as well as reducing the amount of waste ending up on landfill sites.

A Green Goal communications and awareness plan was compiled in line with Host City Cape Town's 2010 FIFA World Cup™ communications strategy. The plan identified key messages, target audiences and channels of communication.

The LOC released the official Green Goal logo only six months before the start of the 2010 FIFA World Cup™. The official mark, owned by FIFA, was subject to FIFA's guideline for the operation of the Green Goal programme and utilisation of the Green Goal logo. Any application of the logo had to be preapproved by FIFA. Host City Cape Town developed an internal guideline for the use of the Green Goal logo with the host city logo and its creative elements.

A Host City Cape Town Green Goal website was created at www.capetown.gov.za/fifaworldcup. It was regularly updated and served as an online resource for people who wished to learn more about the event-greening programme in Host City Cape Town.

Other communication channels and resources used to promote the Green Goal programme and its key messages included the following:

- Green Goal brochure
- Green Goal expo
- Publications (including Green Goal Action Plan and Green Goal Progress Report)
- Media releases
- Regular radio slots and television interviews
- Media partnerships with three major daily newspapers
- Features in City newsletters
- Features in industry magazines
- Big screens at the stadium and FIFA Fan Fest™/fan jols
- Official speeches
- 2009 and 2010 official tourist guides
- Official event guides for the Final Draw and 2010 FIFA World Cup™

A photographer and videographer were appointed to document Green Goal activities during the 2010 FIFA World Cup™, both in the lead-up to the kick-off and throughout the tournament at the FIFA Fan Fest™, fan walk and fan jols. A short video was produced after the 2010 FIFA World Cup™ that captured the excitement of the event, and showcased the greening measures that had been undertaken to make the 2010 FIFA World Cup™ an environmentally sustainable event.



Green Goal 2010 brochure.



Maintaining a good relationship with the media and stakeholders was a priority of the Host City Green Goal programme. Positive media coverage resulted from the launch of the Green Goal Action Plan and Progress Report. Green Goal featured prominently as part of the media partnership between the City and two local media houses that covered host city activities between January and June 2009. Articles focusing on the green technologies in Cape Town Stadium, the development of the Green Point Park spring water irrigation project, integrated waste management, city beautification, eco-driving training, the solar water heater carbon mitigation project and the proposed Smart Living Centre were published. During the World Cup, a communications consultant was appointed to assist with media releases in respect of the Green Goal programme and its activities. This resulted in coverage in print media, on radio, the internet and television.

The Host City Cape Town Green Goal programme was featured twice on the South African Broadcasting Corporation's Countdown 2010 television programme as well as on the environmental programme 50/50.

The virtual launch of the Cape Town Green Map attracted significant media attention, and the project manager and Green Goal team members were interviewed on radio and television. The project team used the local media to invite NGOs and communities to register their environmental projects and products on the Cape Town Green Map. Innovative new media, such as Sony Fevacasters, were used to feature various aspects relating to the preparations of the event in South Africa. In Cape Town, the new stadium and its green technologies were featured to an exclusively online audience. The FIFA Fan Fest™ made extensive use of Facebook and Twitter to communicate the upcoming events and the vibe around them.

Three Green Goal DVDs were regularly broadcast on the big screen at the FIFA Fan Fest™. A Green Goal DVD, produced by the LOC, was also screened at Cape Town Stadium before the start of each match. Green Goal brochures, copies of the Cape Town Green Map and other Green Goal marketing materials were available during the 2010 FIFA World Cup™ at the various information kiosks in the city and at the Green Goal expo at the FIFA Fan Fest™. Over a period of three years, more than 70 Green Goal presentations were made to stakeholders and the media. The Host City Cape Town Green Goal programme was also presented at the G-ForSE conference in Alicante, Spain, in October 2008, and in Nairobi, Kenya, in November 2010.



Lessons learnt on Green Goal brand development and activation, Green Goal marketing and communications, Green Goal ambassadors, and the Green Goal website and online resources

The 2010 World Cup provided a platform for the environmental message to be presented to a wide audience. At a national Green Goal communications workshop in 2008, the host cities agreed with the LOC that a national Green Goal 2010 visual identity (logo) would be designed and promoted ahead of and during the World Cup, and that national 2010 Green Goal ambassadors would be appointed to represent the 2010 greening programme. Both these initiatives were launched very late by the LOC, resulting in insufficient marketing and awareness of the Green Goal brand. The lack of FIFA involvement as well as the low-key integration of Green Goal with overall LOC World Cup communications meant that valuable communication opportunities had been lost. Nonetheless, by keeping the media informed of Host City Cape Town Green Goal projects, some media space for Green Goal was achieved.



The media's focus on the 2010 greening programme manifested in the following ways:

- Until approximately four months before the event, the media and the general public had been content just to know that there was a greening programme for the 2010 FIFA World Cup™. They were not really interested in the details. However, questions did arise with regard to progress towards reaching stated goals and the legacy that the initiative would leave behind.
- From approximately four months before the event (or just after the 2010 Winter Olympics in Vancouver, which probably was the greenest Olympic Games to date), attention turned to South Africa as the next host of a major international sporting event. Suddenly, the general media wanted to know whether we were ready, what visitors could expect when they came to South Africa/ Cape Town, what the event cost, what the legacy of the event was, etc. The environmental media asked about the event's carbon footprint, the environmental impact, the green status of the stadia, and the event-greening plans and programmes.

Social media networks, such as Facebook and Twitter, provided instant access to a large audience interested to follow the World Cup and related activities. The ability of instant video uploads onto sites such as YouTube provided further opportunities to share information with a large international audience at a very low cost. The Green Goal programme had not reached out to this new audience until just before the World Cup, when Green Goal messages started to appear on the Facebook and Twitter sites of CTT and the FIFA Fan Fest™, and theme-specific videos were uploaded onto YouTube.

Host City Cape Town also established a website shortly after it had been announced as a host city of the 2010 FIFA World Cup™. Comprehensive information on the Green Goal programme was included in the website, which served

as background information for the media and the many students and researchers who did research on the World Cup and the Green Goal programme. Documents could be downloaded, which saved on the printing of hard copies.



8.3 Briefing for potential Green Goal funders

Host City Cape Town was fortunate to attract two partners, KAS and Sappi, as Green Goal contributors. Additional support and sponsorships were received from the following organisations:

- DANIDA via the UEMP
- Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ)
- InWent – Capacity Building International, Germany
- Öko-Institut, Germany
- UNEP
- Coca-Cola ZZ
- SAPIA
- Murray & Roberts/WBHO
- Polyoak Packaging
- PETCO
- WORLDSPORT
- Eskom



8.8 Green Goal 2010 exhibitions

The Host City Cape Town Green Goal programme was featured at a number of national exhibitions, including the Tourism Indaba in Durban and Soccerex in Johannesburg in both 2008 and 2009. Green Goal content was featured as part of the host city exhibition during the Final Draw at the CTICC in December 2009, and the Host City Cape Town Green Goal Progress Report was approved by FIFA for distribution at the Final Draw. The host city displays at the Final Draw and at Cape Town Stadium during the 2010 FIFA World Cup™ promoted Cape Town and the Western Cape as responsible-tourism destinations.

A portable Green Goal exhibition was procured and used at the 2010 biodiversity expo as well as a number of other smaller expos in Cape Town before the 2010 FIFA World Cup™. The exhibition was used at a Germany/South Africa expo in June 2010 and, in the FIFA Fan Fest™ media centre for the remainder of the World Cup period. For four months following the event, the exhibition was displayed in the Cape Town Stadium visitor centre.

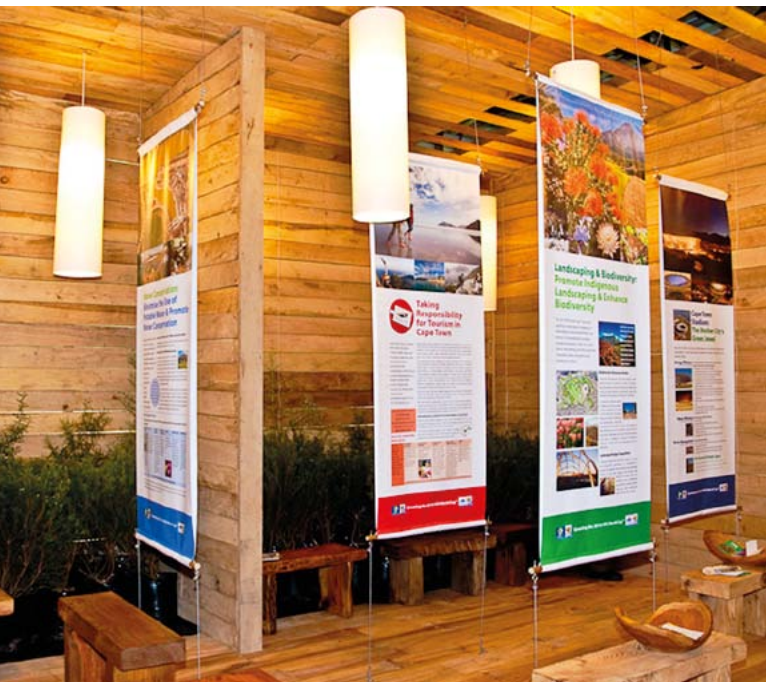
FIFA made extensive use of a new product, X-board (Xanita board), which is manufactured in Cape Town, for the production of temporary furniture in the Final Draw venue and in the stadia during the FCC and 2010 FIFA World Cup™ matches. The board is lightweight with a printable laminate surface; is entirely recyclable, and can be reprocessed into pulp, achieving cradle-to-cradle ecological benefits. Host City Cape Town used X-board as part of an exhibition to support the fuel-efficiency campaign.

For the duration of the World Cup, Green Goal projects were showcased in a specially designed and constructed Green Goal expo at the FIFA Fan Fest™ on the Grand Parade. The expo was designed to inform soccer fans about the Green Goal programme, encourage visitors to enjoy the World Cup activities in a responsible manner, and motivate fans to apply green living practices in their daily lives. The expo structure had been specifically designed to demonstrate the use of materials that were recycled, reusable, reclaimed, or newly purchased but earmarked for reuse afterwards, so as to produce zero waste after deconstruction.



The Green Goal Expo at the FIFA Fan Fest™ on the Grand Parade during the World Cup. Photos: Stephen Lamb





Large posters at the Green Goal Expo showcased the Green Goal 2010 projects.
Photo: Arne Purves

“ Nice to see that things are being done with the environment in mind and that saving the earth is just as important as football. ”

David Davey, Fan Fest visitor



Lessons learnt on the Green Goal exhibitions

The portable Green Goal exhibition was widely used at events in the months leading up to the 2010 FIFA World Cup™, and its installation in the FIFA Fan Fest™ media centre during the event increased the media’s exposure to the Green Goal message. Elements from the portable exhibition were on display at the G-ForSE conference in Nairobi, Kenya, in November 2010 as well as the Brazil Ministry of Sport 2014 FIFA World Cup™ and Sustainability seminar held in Rio de Janeiro in December 2010.

The Green Goal 2010 expo at the FIFA Fan Fest™ successfully showcased the City’s Green Goal campaign. This was measured by visitors’ responses to the stand (both written and verbal), which were overwhelmingly positive from both locals and tourists. Many visitors (especially locals) asked questions such as ‘What can we do?’, ‘Is the City going to carry on with this after the World Cup?’ and ‘Where can we find out more?’

The expo was a unique physical creation, and the flags and interesting look of the expo made it easy for people to find. People were intrigued by the stand, praised it, and were delighted to learn about what the City had done to green the World Cup. Locals were amazed and proud of what the City had done. It was a much talked-of stand, and people often returned to it or used it as a landmark meeting place at the FIFA Fan Fest™. In many ways, it was quite iconic.

However, it was difficult to measure the extent of information visitors absorbed, and the messages they took with them. Also, it is difficult to ascertain whether the programme of activities will promote long-term behavioural change. The programme objectives centred on enlightening, educating, motivating and encouraging. One can only hope that some meaningful information was received and that, in time, behaviour will change.

Pamphlets and information brochures were available at the stand. However, it is debateable as to how effective these were. Sometimes, visitors just collected the brochures without engaging with the stand at all. Some days, no printed materials were put out on the stand; then, it was found that visitors engaged more in conversation and with the information presented in the stand itself. However, most people welcomed printed materials. Therefore, it was difficult to achieve the right balance between materials and actual engagement with the stand.



THE GREEN GOAL 2010 EXPO AT THE FIFA FAN FEST™

The form of the Green Goal 2010 expo structure was a cube clad in a matrix of 1 450 multicoloured plastic milk crates containing 17 400 empty milk bottles, all tied to a scaffolding frame. Low-energy lighting illuminated the crates from behind, turning them into a glowing 'jewel box' by night. Local references to indigenous plants, fynbos smells, colours and quiet spaces enticed visitors to experience the Green Goal expo posters inside. A 'forest' of bamboo flags waved in the wind, announcing the Green Goal 2010 expo from afar.

The expo housed visual information (ten 2,4 x 0,8 m posters) as well as two flat-screen monitors for the screening of Green Goal videos produced for the World Cup on the topics of drinking tap water, recycling waste and Green Goal projects in general.

Environmental services volunteers from the City, volunteers trained by DEA, together with permanent City and Province employees and interns staffed the expo. Fifty-six people worked to manage the stand throughout the World Cup, from early in the morning until late at night. A programme of educational and awareness activities included the fans scoring green goals with a 'waste monster' as the goalkeeper.

Three provincial soccer ambassadors, David Byrne (former South Africa U-23 player), Sivuyile 'Sugars' Qinga (former Seven Stars captain) and Joanne Solomons (former Banyana Banyana striker) visited the expo, interacted with the youth, and scored green goals for the environment against the waste monster.

In total, approximately 15 000 people visited the expo for the duration of the World Cup.



An educational theatre group helped to raise awareness of the environment and Green Goal at the FIFA Fan Fest™ on the Grand Parade. Photo: Stephen Lamb

8.9 Green Goal 2010 awards

The Host City Cape Town 2010 FIFA World Cup™ Green Goal Action Plan and workshop series won a silver Impumelelo Sustainability Award. Over 250 applications from across South Africa were received.

Host City Cape Town and KAS were instrumental in bringing the opportunity of a National 2010 Sustainability Award to the attention of the Impumelelo Awards Trust. The Impumelelo 2010 Sustainability Award was consequently launched in May 2009, with KAS as a headline partner and Danny Jordaan, LOC CEO, as the guest of honour. The Cape Town Green Map, a legacy project of Green Goal 2010, made the top-100 cut.

Host City Cape Town's Green Goal programme also received a certificate for "Best-Practice Model for Environmental Sustainability" from KAS at the SA-German Chamber of Commerce and Industry gala dinner on 10 July 2010.

More recently, the 2010 FIFA World Cup™ Host City Cape Town Green Goal programme was awarded the International Olympic Committee (IOC) Sport and Environment Award. Nominated by FIFA, the award recognises the efforts of the Host City to mitigate negative environmental impacts of the World Cup and to maximise the positive environmental and social legacy.

Lessons learnt on the Green Goal 2010 awards

There are clear benefits to ensuring a Green Goal awards programme. This motivates local authorities and their implementing partners, and creates awareness of event greening and its importance.

Key references for Green Goal communications

- City of Cape Town. February 2009. Draft Green Goal 2010 marketing and awareness plan.
- City of Cape Town. 2009. Cape Town – 2010 FIFA World Cup™ Host City. Ready to Welcome the World. Official 2010 FIFA World Cup™ site. www.capetown.gov.za/fifaworldcup.
- Columns and features in Cape Times, Cape Argus and Die Burger. Impumelelo Awards Trust. April 2008. 2010 Sustainability Award.
- Impumelelo Awards Trust. November 2010. Impumelelo Magazine.
- FIFA Local Organising Committee (LOC). April 2008. Communications Action Plan for FIFA 2010 World Cup™ (Unpublished).
- Sustainable Energy Africa. October 2008. 2010 FIFA World Cup™ Host City Cape Town Green Goal Action Plan.



Green Goal 2010 Coordinator, Lorraine Gerrans (fourth from left) at the IOC 9th World Conference on Sport and Environment held from 30 April – 1 May 2011 in Doha, Qatar. Photo: Qatar Olympic Committee



9 MONITORING, MEASURING AND REPORTING

To assess the effectiveness of the Green Goal 2010 projects, and to ensure accurate reporting of progress and results, a comprehensive monitoring strategy was developed. This strategy relied on the development of both an efficient system for collecting information, and the establishment of baseline data against which pre-set targets could be measured. The effectiveness of the greening projects and their impact were evaluated on an ongoing basis. The first set of results was published in the Host City Cape Town 2010 FIFA World Cup™ Green Goal Progress Report, while this Host City Cape Town 2010 FIFA World Cup™ Green Goal Legacy Report presents the final results.

THE PROJECTS

- 9.1 Procedures and methodologies
- 9.2 Targets and baseline studies
- 9.3 Annual reports and legacy report

Monitoring, measuring and reporting actions

The Host City Cape Town Green Goal projects were documented and tracked by means of project management methodologies. Monthly reports and scorecards were produced, which documented progress and key decisions, and highlighted issues and areas of risk. The Host City Cape Town 2010 FIFA World Cup™ Green Goal Progress Report, published in September 2009, provided a summary of the status of each project, and highlighted lessons up to that point. This Host City Cape Town 2010 FIFA World Cup™ Green Goal Legacy Report will serve as a guide for the hosting of future major events in Cape Town as well as to hosts of future FIFA World Cup™ tournaments and other major events worldwide.

The lack of baseline environmental information for a major event such as the FIFA World Cup™ was identified as a challenge early on. The LOC commissioned baseline energy, water and waste studies during rugby matches at Ellis Park Stadium in Johannesburg and Loftus Versfeld Stadium in Pretoria, and these were augmented by a baseline study commissioned by Host City Cape Town during the Manchester United/Kaiser Chiefs football match at Newlands



DEA volunteers conducted more than 2 000 face-to-face interviews on greening the World Cup. Photo: Sheryl Ozinsky

Stadium on 19 July 2008. The baseline studies informed the development of minimum greening standards and a monitoring and evaluation matrix created by the LOC. The monitoring matrix guided the development of the Green Goal component of Host City Cape Town's integrated event-reporting tool.

The integrated event-reporting tool was the first of its kind for a South African city, and added substantial value to the monitoring and reporting initiatives of Host City Cape Town during the 2010 FIFA World Cup™. The monitoring tool made provision for the monitoring of the environmental impact of the event in terms of energy and water use, waste generated and recycled, and emissions into the atmosphere from transport and energy sources.

The City commissioned a visitor survey during the 2010 FIFA World Cup™. This survey collected data on visitors, consumer behaviour, attendance, demographics, and perceptions of Cape Town and South Africa. Questions relating to the event's perceived impact on the environment and visitors' perceptions of responsible tourism were included in the questionnaire.

In addition, the DEA volunteers in Cape Town and the Western Cape conducted more than 2 000 face-to-face interviews, using a questionnaire developed by the DEA. The transport work stream also used host city volunteers to monitor the use of public transport, which information was captured in the event-reporting tool.

Monitoring, measuring and reporting results

Results that enabled the monitoring and assessment of the event's impact were both qualitative and quantitative. To quantify the impact, data on energy use, water consumption and waste generation as well as transport trends, modes and distances were tracked. This was no small task, but with preplanning and use of the integrated event-reporting tool, most of the information could be collected.

For qualitative monitoring, information on the experiences of the Green Goal team as well as other staff involved in event implementation was gathered by means of interviews or descriptive reports submitted, which was documented under each individual project description. The DEA questionnaire also contributed to the qualitative assessment. Both the quantitative and qualitative assessment results were included under the individual project sections, and a summary assessment is provided in Section 5 of this Report.

Lessons learnt on project monitoring, measuring and reporting

In general, the data collection systems that had been established for the Green Goal 2010 programme were adequate, and enough data were collected to quantify consumption and impact, including CO₂ emissions. This was largely due to the preplanning that had been undertaken. However, there were some inconsistencies in the data, which led to a measure of uncertainty in the results. A more integrated system of data collection and checking would have been useful (for example, including a cross-check between the event assessment tool and the individual venue operators' reports – which were not always consistent).

The reporting matrix developed by the LOC succeeded to some degree to standardise the information collected by all host cities. However, because of the lack of submetering of energy and water use at Cape Town Stadium and other venues, a detailed venue-specific breakdown of the use of these resources could not be provided. Retrofitting of submeters is possible in Cape Town Stadium and will be considered as part of future upgrades to the stadium.

Low-energy lighting illuminated the Green Goal Expo at the FIFA Fan Fest™ turning it into a glowing jewel box by night.

Photo: Stephen Lamb





GREEN GOAL 2006 AND 2010

IS THERE PROGRESS?

Host City Cape Town enthusiastically embraced the Green Goal concept, as initiated in Germany for the 2006 FIFA World Cup™. Host City Cape Town's performance was thus assessed against the Green Goal 2006 Legacy Report to ascertain whether Host City Cape Town advanced on the Green Goal path in 2010.





A public art installation in the Cape Town CBD of 200 trees wrapped in a rainbow palette of coloured cotton fabric by Cape Town artist Strydom van der Merwe, enhanced key pedestrian routes.

Photo: Bruce Sutherland, City of Cape Town

7 GREEN GOAL 2006 AND 2010

IS THERE PROGRESS?

Host City Cape Town enthusiastically embraced the Green Goal concept, as initiated in Germany for the 2006 FIFA World Cup™. Overall indications are that Cape Town performed well in implementing the programme, but, given the environmental imperatives facing the world and the huge impact of such an event, it is important that the Green Goal concept be further strengthened and developed with each World Cup.

It is important to note that the Green Goal concept cannot be transferred from one host country to another in its entirety. The initiative needs to be adapted to suit the political and socio-economic parameters of the host country. For example, in a developmental context, the social component may need to be emphasised more.

Host City Cape Town's performance was thus assessed against the Green Goal 2006 Legacy Report to ascertain whether Host City Cape Town advanced on the Green Goal path in 2010. Although the programme varied in detailed implementation, with Host City Cape Town placing more emphasis on ensuring that the event contributed to social development, the overall thematic design in 2006 was relatively similar to Cape Town's approach, as can be seen from the 2006 Green Goal principles in Table 15.



Patriotic fans during the World Cup. Photo: Bruce Sutherland, City of Cape Town

TABLE 15: Green Goal principles for the 2006 FIFA World Cup™

Water
Careful treatment of potable water is the focus of attention. This includes reducing the consumption of potable water, the use of rainwater, well water and surface water instead of potable water, allowing rain to infiltrate naturally, and reducing contamination of wastewater and groundwater.
Waste
Waste should be avoided to the greatest extent possible. Unavoidable waste should be recycled in an environmentally favourable manner, and non-recyclable waste should be properly disposed of.
Energy-saving
Energy-saving potentials will be exploited during the World Cup through modern technical and organisational measures, wherever these are possible and economically feasible. The energy required for the efficient organisation of the World Cup will be produced as far as possible by environment-compatible means.
Transport
Transport during the 2006 FIFA World Cup™ should be environmentally favourable and efficient. Activities should be focused on the avoidance of unnecessary transport and a marked shift to public means of transport, as well as on the efficient and ecological design of the existing transport system.

Approach to monitoring and evaluation

Monitoring is often heavily influenced by practical constraints, including the availability of information and the allocation of resources to information collection (which can be very demanding). The 2006 FIFA World Cup™ Green Goal programme faced a number of these practical constraints. Based on this experience, Host City Cape Town adopted the approach of assessing the impact based on resource savings and other interventions implemented, and the expected savings resulting from these, rather than collecting huge amounts of detailed baseline data and extensive monitoring of exact resource consumption at numerous points, which would not have been feasible.

Comparing the achievement of targets

Table 16 shows that Host City Cape Town compared well with the overall 2006 Green Goal achievements, despite the lack of a set framework and targets provided by the South African government. The German government played a strong role in 2006 in facilitating and setting guidelines and standards. Strong support for the event-greening initiative from the host city's LOC and national government is essential, and was one of the shortcomings in the 2010 Green Goal programme.

TABLE 16: Comparison between Host City Cape Town Green Goal 2010 and Germany Green Goal 2006 environmental achievements

2006 FIFA World Cup™ Green Goal targets	Actual 2006 achievements	2010 FIFA World Cup™ Host City Cape Town Green Goal achievements
Energy efficiency: To reduce energy consumption in World Cup stadia by at least 20% through the efficient use of energy.	13% - target not achieved	South Africa set no targets in this respect. Cape Town Stadium achieved an estimated 13% electricity saving.
Renewable energy: To provide an efficient supply of energy for the 2006 FIFA World Cup™ from renewable energy sources, as far as possible.	Target achieved. All stadia, the international broadcasting centre and associated hospital-ity energy were covered by renewable purchases	South Africa set no targets in this respect. Renewable energy was purchased for the FIFA Fan Fest™. Eskom donated renewable energy for all host city stadia, including Cape Town Stadium.
Waste reduction: To use packaging-free and multi-use systems in all areas, as far as possible, to reduce quantities of waste. To reduce the quantity of waste in and around stadia by 20%.	17% - target considered achieved, given the existence of certain other unquantifiable savings	A total of 58% of waste generated was diverted away from landfill to recycling, and waste reduction measures were implemented. (National 2010 target was 20% waste diversion from landfills.)
Public transport: To increase the share of public transport journeys to World Cup stadia to 50%.	52% - target achieved. Local public transport was generally well utilised	Target was achieved, as the main mode of transport used to travel to matches was public transport for 40% of fans, with 13% walking. (National 2010 target was 50%.)
Water: To protect potable water resources by reducing water consumption at stadia by 20%. Further objectives included the use of rainwater, i.e. 20% of remaining stadium water requirements were to be covered by rainwater, well water and surface water.	18% - target considered achieved, given the existence of certain other less quantifiable savings	South Africa set no targets in this respect. Cape Town Stadium is estimated to have achieved a 27% water use reduction.
Climate neutrality: To avoid or reduce the formation of climatically harmful GHG emissions during the 2006 FIFA World Cup™ as far as possible. Unavoidable incremental GHG emissions in Germany were to be compensated by capital investment in climate protection projects elsewhere.	Target achieved. Remaining carbon emissions were offset in two offset projects – one in India and another in South Africa	South Africa set no targets in this respect, but the country (via Eskom) purchased a substantial amount of 'green electricity' which offset the majority of the event carbon emissions. Cape Town did not aim for a carbon-neutral event which would have been more appropriate as a national programme – but a low-carbon event instead. Carbon mitigation projects were initiated that are set to result in carbon savings in future. All of the above measures combined reduced or offset almost all event emissions. This was a significant achievement.

Is there progress?

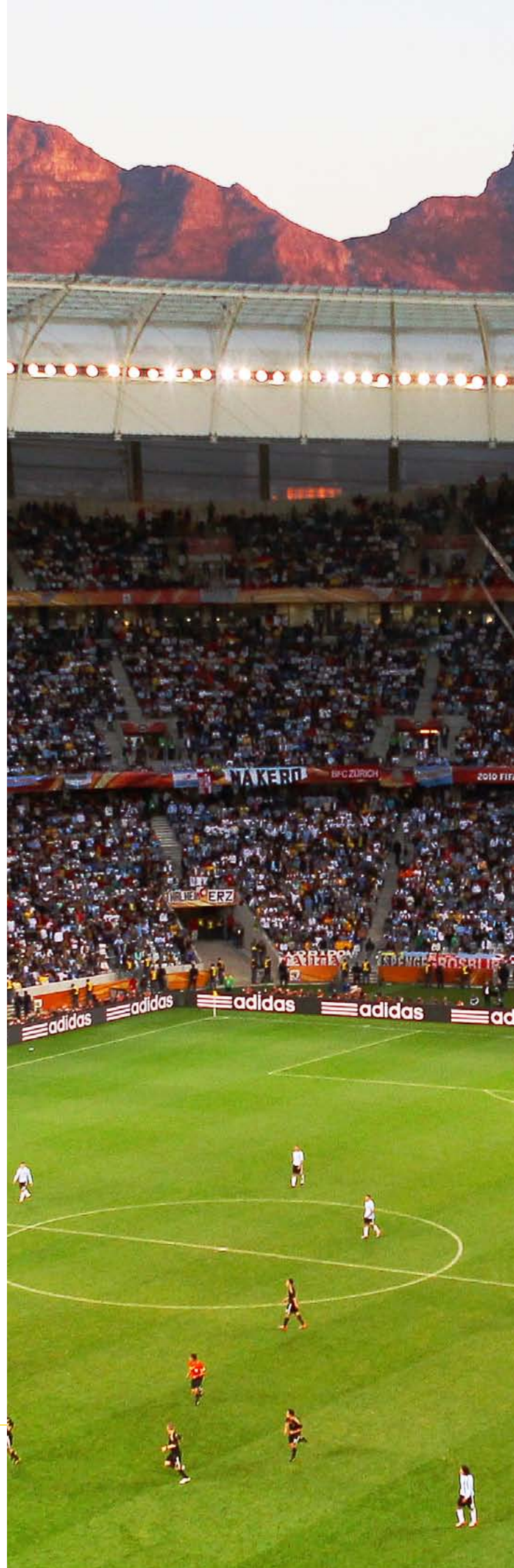
In general, Host City Cape Town performed well compared to the 2006 Green Goal achievements in Germany. In particular, Host City Cape Town can demonstrate clear outcomes, impact reduction and event legacies as a result of the implementation of the Green Goal 2010 programme.

However, whereas the German government appointed the Öko-Institut, an independent environmental consulting firm, to play a leading role in the greening of the 2006 FIFA World Cup™, South Africa had no such dedicated capacity to drive this agenda at national level, and the Green Goal programme was largely left to the host cities to implement, few of which had the required capacity. In addition, FIFA itself still does not appear to place any great emphasis on environmental performance in the World Cup, and does not require host nations to provide a guarantee to meet minimum environmental performance criteria. Finally, when comparing the 2006 Green Goal programme to that of 2010, it should be remembered that Germany is a relatively well-resourced country and, thus, for any city in South Africa to have a comparable level of achievement is highly commendable.

“ When comparing the 2006 Green Goal programme to that of 2010, it should be remembered that Germany is a relatively well-resourced country and, thus, for any city in South Africa to have a comparable level of achievement is highly commendable. ”

A view of action showing Table Mountain at sunset during the 2010 FIFA World Cup™ Quarterfinal match between Argentina and Germany at Cape Town Stadium on 3 July 2010.

Photo: Clive Rose, Getty Images





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LESSONS LEARNT

CHALLENGES AND RECOMMENDATIONS

Greening cannot be a nice-to-have add-on of the FIFA World Cup™, but must be fully integrated with the entire event-planning process from the outset. Only then will there be an actual platform for environmental concerns in national and international football, which will aid those planning future FIFA World Cup™ tournaments.

8 LESSONS LEARNT

CHALLENGES AND RECOMMENDATIONS

Since 2006, when Host City Cape Town produced the first business plan for greening the 2010 FIFA World Cup™, many lessons were learnt. One of these was that greening cannot be a nice-to-have add-on of the FIFA World Cup™, but must be fully integrated with the entire event-planning process from the outset. Only then will there be an actual platform for environmental concerns in national and international football, which will aid those planning future FIFA World Cup™ tournaments, such as Brazil in 2014, in their greening efforts.

The 2010 FIFA World Cup™ accelerated efforts to improve environmental quality and provide new perspectives on environmental protection. Prior to the World Cup, the authorities in Cape Town and the Western Cape had policies and programmes in place to reduce, reuse and recycle waste, promote energy-efficient and universally accessible mobility, incorporate indigenous landscaping, enhance biodiversity, encourage responsible tourism and create environmental awareness. However, the World Cup added impetus to these plans, and fast-tracked implementation.

Host City Cape Town was fortunate to have learnt from the programme initiated by the German government, as hosts of the 2006 FIFA World Cup™, and developed the 2010 Green Goal programme after having reviewed the work of the Öko-Institut. The fact that the Öko-Institut and 2006 FIFA World Cup™ host cities had been willing to share their experiences meant that the legacy and knowledge gained from 2006 became the standard for 2010. This implied that the learning curve was less steep and that the progress made in 2010 has hopefully contributed to a cycle of continuous environmental improvement into the future. This also confirmed that there is no real reason for any major event not to be sustainably green.



Fans accessed the fan walk via newly built pedestrian bridges. Photo: Jeremy Jowell

Implementation of the 41 Host City Cape Town Green Goal 2010 projects took place through a range of channels. In some cases, projects tied in with existing initiatives undertaken by the City, Province or National Government in preparation for 2010. In other cases, the City or Province made specific budget allocations for Green Goal 2010 project implementation. Also, some projects were implemented through partnerships with donors, business, NGOs and civil society.

Of the 41 Green Goal 2010 projects implemented in Host City Cape Town, 19, or 50%, were legacy projects, still contributing to the well-being of residents after the 2010 FIFA World Cup™.

Certain key overall Green Goal 2010 lessons, challenges and recommendations are summarised in Table 17.



TABLE 17: Key Green Goal 2010 lessons, challenges and recommendations

Lessons learnt	Challenges	Recommendations
Event greening must be integrated with the planning process from the start, and must be a priority work stream at national level.	Greening cannot be a nice-to-have add-on programme, but should be a key component of hosting a major event, integrated with other event logistics at the highest level.	Event-greening needs to be fully integrated with the event-planning process, from the initial bid through to the closing ceremony. The 2010 Green Goal programme was designated as a secondary work stream at national level, falling under the legacy work stream. Ideally, the programme should be elevated to a full-fledged work stream so as to receive better support.
Securing FIFA buy-in for the environmental dimension of the World Cup is critical.	There seemed to have been a lack of leadership, enthusiasm, involvement and funding from FIFA for the 2010 greening programme. The HCA included only a vague clause on environmental protection. There was no binding Green Goal clause in the FIFA HCA that provided the political and legislative framework that such an initiative requires.	Event-greening criteria should be included in FIFA's requirements and agreements/contracts for hosting the event. This will ensure that funds from national government departments (such as treasury) are made available for the greening programme.
Greening needs to be planned well in advance.	Greening plans and the roles and responsibilities of different players need to be established well in advance if greening is to be adequately implemented.	Resources need to be allocated timeously so that they do not have a negative effect on the planning, implementation and monitoring of the Green Goal projects. It is also important that the timing of different processes be synchronised, i.e. many of the host cities had their action plans in place when guidance started to come from national level and/or the LOC. The early appointment of a full-time Green Goal coordinator, with technical and administrative support staff, is fundamental to the success of the programme.
Political champions are necessary.	Greening of events requires the support of the political leadership. Fortunately, Green Goal 2010 had the support of both the City and the Province, with the Mayor and Premier launching both the Green Goal Action Plan and the Progress Report. There also was a good working relationship between the City and Province's staff and the Green Goal project manager.	Obtain the political leadership's support and buy-in for the greening programme.
Capacity building and training are required for effective event greening.	There was, and continues to be, a lack of understanding about what the implementation of a green event entails. Lack of capacity (skills) also manifested as a problem when projects were put out to tender in terms of higher costs for scarce skills, reduced availability of these skills (i.e. causing delays), and fewer tenders submitted. Also, there was a significant risk that under-capacitated individuals and teams would not be able to deliver on projects up to an appropriate standard or within the required time frame.	Capacity building is required, specifically among local authorities and provincial governments' non-environmental line function departments, officials, the stadium operator and other service providers, so that they can provide appropriate services that take environmental considerations into account. Hands-on experience during live events can further develop the skills and experience required for successful event-greening.
An appropriate budget should be allocated for event-greening.	Where funding was allocated to the building of the new stadium and transport and other infrastructure, the financial constraints remained high, and greening elements were not necessarily given priority. A lack of or insufficient funding caused delays and gaps in implementation, thereby compromising delivery.	An appropriate budget needs to be provided for greening initiatives. Where it is possible to implement new green technologies, the full life-cycle costs should be analysed rather than just the capital investment.

Lessons learnt	Challenges	Recommendations
Engagement with donors and funders is necessary.	To secure the required finances to deliver a full-scale greening effort and implement legacy projects, donor assistance is required. Host City Cape Town was fortunate to have secured the participation of KAS and Sappi as Green Goal 2010 contributors early on already.	Active engagement with donors and other funders early on in the process is vital. In Host City Cape Town's case, the Green Goal Action Plan and Progress Report were used to secure additional funding for projects.
Institutional arrangements across spheres of government and agencies, and coordination and synergy among the host cities and with the LOC and national department tasked with environmental affairs, are essential.	Coordination of Green Goal projects among the host cities is necessary to manage a coordinated set of Green Goal implementation plans. This proved especially important in Green Goal communications (such as recycling signage) to ensure consistent messaging. There were huge discrepancies in implementation between very active municipalities, such as Cape Town and Durban (eThekweni), and less proactive host cities, like Rustenburg and Bloemfontein (Mangaung), many of whom lacked the resources to devise and implement a substantial greening programme. Roles and responsibility matrices for waste management and city beautification were never finalised.	Synergy between the national department tasked with environmental affairs, the LOC as well as all host cities is crucial to ensure optimal Green Goal activation (branding, carbon offset, and negotiations with FIFA and FIFA suppliers and sponsors). Roles and responsibility matrices should be finalised well in advance to allow all parties to formulate implementation plans and allocate budgets accordingly.
Partnerships and consultation with stakeholders are very important.	An environmental initiative for a major event like the FIFA World Cup™ cannot be achieved by a few government departments or the LOC and host cities alone, but requires the commitment of all stakeholders, from international governments to FIFA, national teams, sponsors, NGOs, schools, business, sports clubs and society at large.	Sound partnerships between municipalities and NGOs, business, sponsors, communities, sports clubs and civil society are critical. Regular consultation with and involvement of key stakeholders are very important. Establishing a more ambitious, participatory grassroots process at an early stage will provide impetus and buy-in for the projects, as well as contribute to the implementation and monitoring of the programme. Create space for serious consideration and debate of the environmental costs and benefits of hosting such a mega-event in the first place.
The public and international visitors' buy-in must be obtained.	A coordinated and compelling Green Goal communications plan, targeting the public and international visitors, needs to be driven by the LOC and the national department tasked with environmental affairs, with inputs by the host cities.	It is important to launch the Green Goal brand timeously to create awareness of Green Goal objectives and to influence behavioural change. Appoint 'green ambassadors' (local and international) to help spread the environmental message.
Focus on fewer achievable projects, and complete them well.	Undertaking too many projects in a short space of time and with limited resources is risky.	Be realistic in terms of the number of projects that should be implemented. Host City Cape Town implemented 42 projects, but could have limited these to fewer projects with more time and resources allocated.
The monitoring and verification approach should be understood upfront.	In the 2010 case, baseline data collection proved expensive and time-consuming. In some cases, baseline data were not even available, as facilities had been newly built.	Assess resource use and the impact of Green Goal interventions (percentage savings) on energy, carbon, water and waste, rather than collecting detailed data against an estimated baseline. Report on actions taken and results achieved, lessons learnt and recommendations for future events.
A long-term legacy must be ensured.	The challenge was to look beyond the tournament and ensure a long-term legacy. Host City Cape Town, for example, had to think how a large empty stadium could act as magnet for employment generation after the World Cup.	Ensure clear articulation of the links between the 'hard' legacy of the stadium and other built infrastructure, and the 'soft' economic and social regeneration targets.

"Die Kaap is weer Hollands" – The Cape is Dutch again! Dutch fans turn Cape Town orange ahead of their Semifinal against Uruguay on 6 July 2010. The Afrikaans expression relates to the occupation of the Cape by the Dutch in 1652.

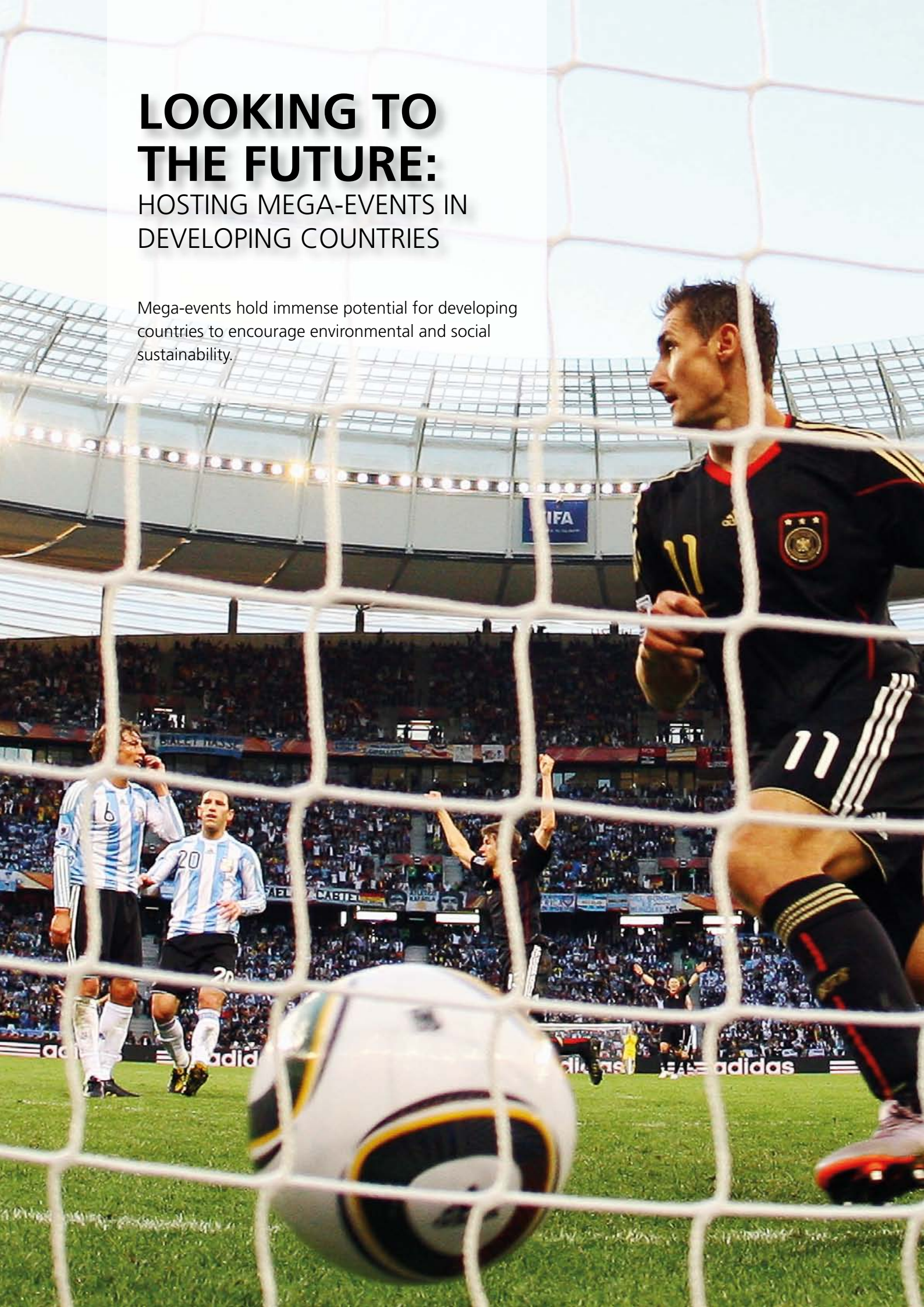
Photo: Bruce Sutherland, City of Cape Town



LOOKING TO THE FUTURE:

HOSTING MEGA-EVENTS IN DEVELOPING COUNTRIES

Mega-events hold immense potential for developing countries to encourage environmental and social sustainability.





Miroslav Klose of Germany scores the second goal during the 2010 FIFA World Cup™ Quarterfinal match between Argentina and Germany at Cape Town Stadium on 3 July 2010.

Photo: Paul Gilham, Getty Images

9 LOOKING TO THE FUTURE: HOSTING MEGA-EVENTS IN DEVELOPING COUNTRIES

The hosting of mega-events, such as the FIFA World Cup™, has a tremendous impact on cities. However, for developing countries in particular, there are further concerns regarding the impact of such events that need to be considered. These are the economic impacts – such as the huge investments in infrastructure that may be needed for the event, but should also be constructed in a way that serves the country well in the longer term – and the social benefits, particularly for the poor – such as what the poor stands to gain from such huge resource allocations and whether these allocations could be better directed both to meet the needs of the event and promote the poor's welfare. Supporters of mega-sporting events claim that these events attract hordes of wealthy visitors, and lead to lasting economic benefits for the host regions. For this reason, cities and countries compete vigorously for the right to stage these events and, more recently, developing countries too have started to bid. The specialised infrastructure and operating expenses required to host these events, however, could be extremely high, and it is not at all clear whether either the long-term or short-term benefits are anywhere near large enough to cover these costs. In fact, independent researchers nearly unanimously find that bolstered projections of the economic impact exaggerate the true economic impact by a wide margin.

The most important issue for developing countries is not successfully hosting mega-events, but rather the promotion of social, economic and environmental sustainability through these events, especially in cities. Cities are the most resource-intensive nodes on the planet. In South Africa, for example, they consume approximately half of the country's energy, yet occupy only 4% of the land area. Also, cities are often beset with social problems linked to slums, inadequate service delivery and unemployment. Given cities' challenges, resource injections linked to mega-events need to be skilfully directed to support cities in their quest for sustainability.



Green Goal Soccer and Environment Tournament, World Environment Day, 5 June 2010.
Photo: Rob Oettle

Host countries' direct government expenditure on the World Cup tournament is significant. Expenditure on infrastructure can leave a positive legacy but must be balanced against the immediate developmental needs of the country. The indirect benefits can also be significant. The World Cup has showcased South Africa to an international audience of approximately 8 billion viewers and introduced the country to non-traditional markets such as Latin America, Eastern Europe and Asia. Host countries' tourism and business sectors can take advantage of this additional exposure during and after the event.

It is important to also assess the socio-economic impact of these mega-sporting events. These events offer an unprecedented opportunity for nation building and nation "branding". If this unique marketing opportunity is capitalised on, it can result in a change of perceptions of the host nation or city, setting it apart and winning the trust of investors and tourists.

“ No effort should be spared to use such a high-profile international media event to feature social and environmental issues, as it constitutes a rare awareness-raising opportunity for the host country and the world. ”

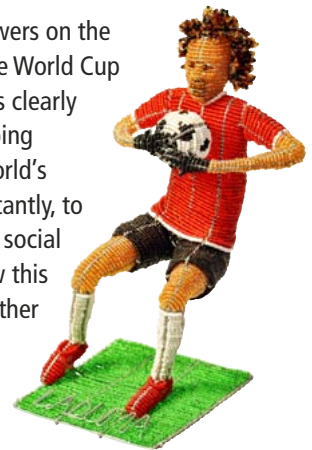
Doing it differently in developing countries

Clearly, many aspects of the World Cup have been of great benefit to South Africa. The investments in public transport – a sorely lacking feature in South African cities – are one of the most significant. However, we need to consider how the tournament could have benefited the country more, given the dire needs for development in the country. So, how could developing countries organise and run such an event differently so that their development agendas are best supported? Here are some considerations:

- Consider using only local stadia that are better matched to local fans rather than exceptional events, and rely more on FIFA Fan Fests™ and PVAs. There should be less focus on a few huge venues that cannot be filled after the event, and more on numerous dispersed, accessible, 'local-sized' venues.
- FIFA relies on big multinational sponsors. Is it possible to draw more local business into the event – as sponsors as well as suppliers of goods and services – so that local business too benefits?
- Many of the jobs created by the infrastructure projects of the World Cup in South Africa were temporary, such as for construction workers on the stadia. Is there a way to create more sustainable jobs through World Cup projects, or at least develop certified skills that are of more sustained value to workers and the economy?

- FIFA derives significant profits from the World Cup. Could a larger proportion of such profits be invested back into the host country, and could FIFA contribute financially to a greening programme?
- No effort should be spared to use such a high-profile international media event to feature social and environmental issues, as it constitutes a rare awareness-raising opportunity for the host country and the world. Currently, FIFA does not emphasise environmental or social sustainability, and the resulting low media profile of issues such as global warming sends a misleading message to the world about the gravity of these and other critical issues.

While we may not have all the answers on the appropriate approach to hosting the World Cup and other mega-events, such events clearly hold immense potential for developing countries – not only to draw the world's attention to them, but, more importantly, to encourage their environmental and social sustainability. However, exactly how this potential is to be realised needs further attention and debate.



Making soccer balls out of recycled plastic bags at the Green Goal Soccer and Environment Tournament, World Environment Day, 5 June 2010. Photo: Rob Oettle

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Pedro Espi-Sanchez of the Vuvuzela Orchestra heralds in the end of the 2010 FIFA World Cup™.

Photo: Bruce Sutherland, City of Cape Town



**CAPE
TOWN**
lve it! Love it! LOUDER!

2010 FIFA WORLD CUP™ QUICK FACTS

32 teams
64 matches
10 venues
9 host cities
8 matches in Cape Town Stadium
15 000 FIFA volunteers
More than 300 000 visitors to South Africa

- More than 1,8 million fans visited the Cape Town Stadium, FIFA Fan Fest™, four fan jols, and fan walk during the World Cup.
- Overall, 507 332 spectators watched the games at the stadium, 581 913 fans walked the fan walk, 558 159 people converged on the FIFA Fan Fest™, 135 878 caught the MyCiTi shuttle service and 175 469 people watched the games at the City's four fan jols
- 9 new hotels were constructed in Cape Town
- R12,4 billion total investment in infrastructure
- World Cup produced 148 216 jobs of which 68 013 were directly created by the World Cup
- 120 000 fans accommodated in the Long Street Festival and surrounds during the Final Draw
- The FIFA Final Draw was transmitted to 199 territories (53 in Africa, 48 in the Americas, 29 in Asia, 52 in Europe and 17 in Oceania). The City of Cape Town events were covered by BBC television and radio, CNN, Sky News and Sport, El Jazeera English TV, ARD German TV, CNBC Africa and others



Basic information

Days of World Cup: 11 June to July 11, 2010	31
Total number of World Cup matches in Cape Town	8
Number of Semifinal matches in Cape Town	1

Stadium information

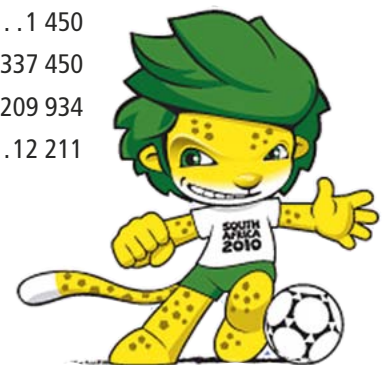
Design capacity of stadium for World Cup	68 000 max
Capacity of stadium reduced after World Cup	55 000 max
Number of spectator tiers	3
Number of high-definition replay screens	2
Grass type of playing surface drained, reinforced to FIFA requirements.	rye grass
Maximum noise level measured inside the stadium during match.	97 dB
Noise level measured outside the stadium.	65 dB
Average mass of solid waste produced in stadium during match	19 486 kg
Total number of beers sold in stadium during World Cup	223 788
Total number of soft drinks sold in stadium during World Cup	153 039
Stadium cost	R4,4 billion

Attendance

Total attendance at stadium for all 8 World Cup matches	507 332
Total attendance at FIFA Fan Fest™ (Grand Parade)	558 159
Total attendance at fan walk (Grand Parade to stadium)	581 913
Total attendance at fan jols (public viewing areas)	175 469
Maximum attendance at stadium at a single match	64 100
Total attendance at all city Facilities during World Cup*	1 822 873

Transport

Total number of people using special Metro Rail World Cup service in City	1 070 000
Total number of people using shuttle service during match days.	235 000
Total number of people using contracted minibus-taxi services.	31 000
Total number of people using facilities provided for disabled during World Cup	1 450
Total number of people using all modes of transport provided for World Cup	1 337 450
Total number of calls handled by the Transport Information Centre.	209 934
Maximum number of calls handled in a day by the Transport Information Centre.	12 211



■ Economic Impact

Maximum number of people employed on stadium construction	2 600
Number of directly created jobs by World Cup	68 013
Number of indirectly created jobs by World Cup	80 203
Total number of jobs created directly and indirectly by the World Cup	148 216
Total value of contracts related to World Cup awarded by the City	R 6,8 billion
Percentage by value of contracts related to World Cup awarded to SMMEs	35%
Total public capital investment into city infrastructure.	R 12,4 billion
Total public operational expenditure on World Cup.	R 364 million

■ Safety and Security

Total number of incidents logged during World Cup	546
Total number of incidents logged resulting in a patient requiring medical care.	35
Total number of incidents logged which involved serious injury or fatality	0

■ Financial Impact

Estimated final capital cost of stadium	R 4,4 billion
Estimated city share of stadium cost	R 1 060 million
Estimated total City capital expenditure on World Cup related infrastructure	R 2 637 million
Estimated total City operating expenditure on World Cup event	R 278 million

32 TEAMS PARTICIPATED IN THE 2010 FIFA WORLD CUP™



LIST OF TABLES

T 1	Total attendance of Cape Town Stadium for the duration of the 2010 FIFA World Cup™	21
T 2	Total attendance of all venues in Cape Town for the duration of the 2010 FIFA World Cup™	21
T 3	Expenditure on infrastructural developments in Cape Town	24
T 4	Quantifiable impact of the Green Goal programme linked to key environmental indicators	43
T 5	Green Goal projects summary	46
T 6	Carbon footprint of the 2010 FIFA World Cup™ in Cape Town	51
T 7	Carbon mitigation initiatives in Host City Cape Town ...	53
T 8	Energy saving from energy-efficient lighting in stadia ..	54
T 9	Energy saving from retrofitting of streetlights	54
T 10	Energy saving from retrofitting of traffic lights	55
T 11	Cape Town Stadium electricity-saving interventions	57
T 12	Cape Town Stadium water-saving interventions	61
T 13	Waste recycling at different World Cup venues	64
T 14	Impact of accommodation on resource use	90
T 15	Green Goal principles for the 2006 FIFA World Cup™..	106
T 16	Comparison between Host City Cape Town Green Goal 2010 and Germany Green Goal 2006 environmental achievements	107
T 17	Key Green Goal 2010 lessons, challenges and recommendations	113

LIST OF FIGURES

F 1	Cape Town and Western Cape legacy model	25
F 2	Environmental structures of the 2010 FIFA LOC	37
F 3	Sample of cartoon strips published to raise awareness of the 2010 greening programme.....	38
F 4	Cape Town's carbon footprint for the World Cup event (including international travel)	51
F 5	Cape Town's carbon footprint for the World Cup event (excluding international travel).....	51
F 6	Electricity use breakdown for Cape Town Stadium during the World Cup events	57
F 7	Waste generation at different venues in Cape Town during the event (by tonne).....	65
F 8	Stadium recyclable waste breakdown according to wtype (by weight).....	65



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