NETBALL WORLD CUP CAPE TOWN 2023

Framework for the Greening of the Netball World Cup 2023

forestry, fisheries & the environment
Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

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DISCLAIMER

The Guidelines for the Greening of Large Sporting Events (DEAT, 2010) informed the development of this document.

ACRONYMS

B-BBEE	Broad Based Black Economic Empowerment
BREEAM	Building Research Establishment Environmental Assessment Method
CEBA	Community Ecosystem Based Adaptation
CERES	Coalition for Environmental Responsible Economics
CMP	Meeting of the Parties
CoCT	City of Cape Town
COP17	Conference of Parties
CSIR	Council for Scientific and Industrial Research
CWG	Commonwealth Games
DANIDA	Danish International Development Agency
DFFE	Department of Forestry, Fisheries and the Environment
DEFRA	Department of Environment, Food and Rural Affairs
DWS	Department of Water and Sanitation
ECA	Environmental Conservation Act
ECS	Environmental Communication Strategy
EMAS	Environmental Management Audit Scheme
EMP	Energy Management Plan
EMS	Environmental Management System
ESD	Ecological Sustainable Development
ESM	Environmental Site Manager
FIFA	International Federation of Association
GDP	Gross Domestic Product
GGCS	Green Goal Communication Strategy
GHG	Greenhouse gases
GRI	Global Reporting Initiative
HOV	High Occupancy Vehicles
IAAF	International Athletics Association Federation
IBC	International Broadcasting Centre
IIEC	International Institute for Energy Conservation
IOC	International Olympic Committee
ISO	International Standard Organization

IUCN	International Union for Conservation of Nature
LEED	Leadership in Energy and Environmental Design
NBSAP	National Biodiversity Strategy and Action Plan
NEMA	National Environmental Management Act
NGO's	Non-governmental Organisations
NWA	National Water Act, Act 36 of 1998
NWMS	National Waste Management Strategy
NWRS	National Water Resource Strategy
OC	Organizing Committee or Local Organizing Committee
SANS	South African Bureau of Standards
SBAT	Sustainable Building Assessment Tool
SMME	Small, Medium and Micro Enterprise
SUDS	Sustainable Urban Drainage Systems
TBC	To Be Confirmed
TREC's	Tradable Renewable Energy Certificates
UCI	International Cycling Union
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
VOCs	Volatile Organic Compounds
NEMWB	National Environmental Management Bill
WSA	Water Services Act, Act 108 of 1997
WSSD	World Summit on Sustainable Development

GLOSSARY

Anthropogenic	Human made. In the context of greenhouse gases, emissions that are produced as the result of human activities.
Back-of-house sorting	When no recycling bins or multi-bin systems are provided for guests/delegates/visitors, and waste has to be separated behind the scenes into different waste streams, such as glass, paper and plastic. This can be done either on-site, or off-site at a material recovery facility (MRF). Compare to separation at source.
Baseline	A minimum or starting point used for comparisons.
Benchmark	A standard or point of reference against which things may be compared or assessed. Best practice is the most efficient (least amount of effort) and effective (best result) way of accomplishing a task, based on repeatable procedures that have proven themselves successful over time for large numbers of people.
Biodegradable	A substance or object that is capable of being decomposed by bacteria or other living organisms. Material that can be broken down into simpler substances (elements and compounds) by bacteria or other decomposers. Paper and most organic wastes such as animal manure are biodegradable.
Biodiesel	A diesel fuel substitute produced from renewable sources, such as vegetable oil, animal fat or recycled cooking oil. It is important that it be produced from non-food sources to ensure food security.
Carbon emissions	Carbon dioxide emissions (CO_2 emissions also referred to Carbon or Greenhouse Gas emissions) are emissions stemming from the burning of fossil fuels and the manufacture of cement; they include carbon dioxide produced during consumption of solid, liquid, and gas fuels as well as gas flaring.
Carbon equivalent	A metric measure used to compare the emissions of the different greenhouse gases based upon their global warming potential (GWP). Global warming potentials are used to convert greenhouse gases to carbon dioxide equivalents. See global warming potential, greenhouse gas.
Carbon footprint	The total impact of a person, group or event relating to the amount of carbon dioxide emitted due to the consumption of fossil fuels related to the activities of the person, group or event.
Carbon neutral	The reduction of GHG emissions where possible and compensating for the remainder of GHG emissions by investing in carbon offset projects to achieve net zero overall emissions.

Carbon offsetting	The process of calculating the greenhouse gas emissions generated by activities such as travelling and use of electricity, and then paying for those emissions through a donation to a project that reduces carbon in the atmosphere by an equivalent amount.
Climate change	The long-term shifts in temperatures and weather patterns. These shifts may be natural, but since the 1800s, human activities have been the main driver of climate change, primarily due to the burning of fossil fuels (like coal, oil and gas), which produces heat-trapping gases known as the "greenhouse effect".
Emissions	The release of greenhouse gases and/or their precursors into the atmosphere over a specified area and period of time.
Energy conservation	Behaviour that results in the use of less energy (for example switching off lights).
Energy efficiency	The use of technology that requires less energy to perform the same function.
Event greening	The process of incorporating socially and environmentally responsible decision making into the planning, organisation and implementation of, and participation in, an event irrespective of scale.
Greenhouse gas	Any gas that absorbs infrared radiation in the atmosphere. These include, but are not limited to, water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrochlorofluorocarbons (HCFCs), ozone (O_3), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6).
Greenwashing	To make false or misleading environmental claims. Greenwashing can take a variety of forms: vague language, lying or marketing claims without proof. It can be done intentionally as well as out of ignorance.
Landfill site	A scientifically chosen, designed, engineered and managed location for the disposal of waste by burying it (informally referred to as a rubbish dump).
Legacy project	The long-term effect of the event on its stakeholders and on infrastructure, environment, economy or society at local, national, and global levels. The most positive event legacy can be an enhanced infrastructure, environment, economy or society compared to the pre-event situation.
Low-carbon event	An event that is designed, organised and executed to reduce greenhouse gas emissions. The event carbon footprint needs to be measured, and some effort should be made towards

	offsetting the greenhouse gas emissions associated with the event.
Multi-bin waste system	Waste bins providing more than one option for responsible waste disposal, e.g. separation of glass, paper, plastic or tin; dry waste and wet waste, or recyclables and non-recyclables.
Net carbon zero	A state in which the greenhouse gases going into the atmosphere are balanced by removal of greenhouse gases out of the atmosphere. Or achieving a balance between the carbon emitted into the atmosphere, and the carbon removed from it.
Recycling	Collecting and reprocessing a resource so it can be used again. An example is collecting aluminium cans, melting them down, and using the aluminium to make new cans or other aluminium products.
Renewable energy	Energy that is generated from renewable resources, such as wind, solar, geothermal, bio-fuels, etc.
Renewable energy certificates (RECs)	A mechanism for purchasing green or renewable electricity in units of megawatt hours, in a manner that stimulates investment in renewable energy projects. Also referred to as TRECs.
Resource efficiency	Means using the Earth's limited resources in a sustainable manner while minimising impacts on the environment. It allows us to create more with less and to deliver greater value with less input. the management of raw materials, energy and water in order to minimise usage, and thereby reduce cost. It is not just an environmental initiative; it is also an important business process that could save your organisation a lot of money.
Separation at source	When waste is separated at the same place where delegates/ public throw it away, by providing a multi-bin system, such as for recyclables (glass, plastic, tin), paper and non-recyclables. This raises awareness and encourages participation.
Sustainable development	Development that meets the needs of the present, without compromising the ability of future generations to meet their own needs.
Sustainable procurement	Giving preference to the procurement of products and services that do not have a negative impact on the environment.

1 SECTION 1: INTRODUCTION

1.1 International Trends

Hundreds, if not thousands, of large sports events are hosted around the globe, annually. Apart from the participants, such events generally attract thousands of spectators, and in some cases, require the construction of stadiums and other specialised sporting facilities and related infrastructure, and even accommodation for the athletes. These events can, therefore, potentially have major environmental impacts if they are not planned and implemented in an appropriate manner.

Over the past decade, the integration of sustainability principles and implementation of greening programmes at international sporting events has increasingly become accepted practice and even a requirement for the bidding process. The **Olympic Movement**, for example, has since the early 1990's, begun taking the environment and sustainability into account and the concept of "Green Games" is increasingly becoming a reality.

A sustainable event is one that is designed, organised and implemented in a way that minimises potential negative impacts and leaves a beneficial legacy for the host community and all involved.

A sustainable event is one that is designed, organised and implemented in a way that minimises potential negative impacts and leaves a beneficial legacy for the host community and all involved. A gathering of a large number of people can have a potential negative impact on the air, soil, water, resources and people. This includes not only the location where the event takes place but also far beyond – participants may consume natural resources, energy and water, generate waste, create local air and water pollution, and contribute to climate change through greenhouse gas (GHG) emissions.

By taking sustainability planning into consideration, event organisers have the opportunity not only to minimise potential negative impacts but also, given the large number of stakeholders involved, concretely influence change by leaving a positive legacy and hopefully inspiring those involved to live more sustainably.

A sustainable event has environmental responsibilities such as low-emission transport and mobility, waste reduction, reuse and recycling, water and energy efficiency, exclusion of dangerous and hazardous substances and materials, climate targets, and sustainable procurement measures.

Greening Policies developed for hosting of large sporting events focus on achieving sustainability by protecting natural resources, reducing personal carbon footprint, conserving biodiversity and reducing waste.

From the number of large sporting events which have been hosted around the world, many of these events were planned and hosted as green events. The **2005 World Championships in Athletics, held in Helsinki, Finland**, was the first event in the history of the International Athletics Associations Federation (IAAF) at which environmentally friendly measures were implemented. The legacy of Helsinki 2005 was a best practice model, which has subsequently been used to provide practical guidance on how to address environmental issues at athletic events to over 211 National Athletics Associations.

The 2006 FIFA World Cup™ hosted in Germany was the first time in the history of football where environmental protection was placed at the forefront of preparations for the event. This was achieved through a project known as Green Goal, which established targets in the key areas of waste, transport, energy and water with the aim of reducing the environmental impact of the event.

Similarly, the **2006 FIFA World Cup™ hosted in Germany** was the first time in the history of football where environmental protection was placed at the forefront of preparations for the event. This was achieved through a project known as Green Goal, which established targets in the key areas of waste, transport, energy and water with the aim of reducing the environmental impact of the event. For the first time in the history of the tournament, additional GHG emissions brought about in Germany by the 2006 FIFA World Cup™, were compensated for. In the Green Goal Legacy report that was developed post the event, it was indicated that "13 of the 16 objectives were achieved."

Experience from these and other international sporting events – which have begun to provide guidance on broad principles, objectives, and strategies for the greening of such events – were taken a step further at the **United Nations Environment Programme (UNEP) 7th World Conference on Sport and the Environment held in Beijing during October 2007**, where the participants concluded with a declaration which included the following:

- Encourage all Olympic Games applicants and bid cities to demonstrate their ability to hold **carbon neutral** Olympic Games.
- Encourage sports federations to develop **technical rules** which balance their sports requirements with environmental considerations, taking into account local conditions and the need to have durable customised legacies from sports events.

- Urge sports organisations at every level to use and distribute existing expertise and tools - including **case studies, International Olympic Committee (IOC) guides and technical manuals** - to maximise the sustainability and positive environmental effects of the actions.
- Call for the policies and actions adopted, and lessons learnt, through the organisation of sports events to be **replicated** wherever possible, providing a catalyst for sustainability and minimal environmental degradation and to maximise lasting legacies for the wider community, and
- Call on all members of international and national sports communities to transform concepts, ideas and opportunities into real, **practical actions** to ensure sustainable and ecologically responsible sports events and activities. The greening of sports events is thus no longer just a concept, but a policy with international support.

Beijing's 2008 "Green Olympics" initiative distinctly echoed the trend of the Olympic Movement and the city's endeavour to improve its eco-environment through:

- Making environmental protection a prerequisite in Olympic construction and formulating strict ecological standards to guarantee enforcement,
- Adopting eco-friendly and energy-saving technologies and materials, enhancing the city's image, and promoting the development of environment related industries and,
- Raising public awareness of environmental protection and eco-friendly consumption and encouraging citizens to make Beijing a more liveable city.

The carbon sequestration programmes including waste management, cleaner transport systems and water treatment as well as new urban green belts including 580 hectares Olympic Forest Park, helped absorb 16.48 million tons of carbon dioxide in the seven years of Games preparation.

Overall, environmental protection has become an integral part of people's life since the inception of the "**Green Olympics" in Beijing.** Beijing's environmental sector has made it clear that temporary measures taken during Game time in dealing with GHG emissions will be retained after the Games. Enterprises that stopped production during Games time may not resume production until they solve their pollution problems. State environmental authorities decided to also continue to coordinate air pollution control initiatives in Beijing and its surrounding provinces, autonomous regions and municipalities, beyond the event.

Whilst Beijing focused on reducing pollution, **Vancouver** tackled their sustainable event from a carbon management perspective. They focused on knowing how much carbon was emitted during the games and how the direct GHG emissions can be reduced as offsetting the balance. Furthermore, information on how to minimise the GHG emissions was communicated with the relevant stakeholders.

In 2010, the Commonwealth Games (CWG) were held in Delhi, India. The vision of the Green Games strategy was to strive towards reducing carbon footprints to become the benchmark for the multi-disciplinary games in the future. Greening of the Games were divided into eight components, that included: Green Games Vision, Mission and Goals; Green Infrastructure; Green Ceremonies; Green Hospitality; Eco Procurement; Green Sensitisation; Greening and Offset; and Sustainability Reporting and Sustainability Indicators. To help realise this vision, activities included city forest plantations; designing Thyagaraj Stadium as a model green sporting venue and establishing a Commonwealth Garden. The Commonwealth Games incorporated a vision of Green Games and the main focus was to reduce the carbon footprint and set a benchmark for the games in the future.

The objective of the project was to develop and promote a low carbon campaign for the 2010 Commonwealth Games as a means of inducing behavioural change amongst citizens, athletes and visitors for the adoption of environmentally sustainable practices. It was asserted that the 2010 Delhi CWG would be the "greenest Commonwealth Games ever" that also left an environmental legacy beyond roads and infrastructure. The Organising Committee estimated that emissions generated for the Games, after taking sustainability measures, were 52,468.9 tCO_2e. CWG-related tree planting activities were expected to sequester 81,472.2 tCO_2e over a period of 5 years, prior to the event, enabling the mega-event to be considered 'carbon neutral.

South Africa was successful in hosting the **2010 FIFA World Cup™** event. Through the National Greening Programme, South Africa committed to integrating environmental principles into the planning and organisation of the 2010 FIFA World Cup™. The initiative was intended to sensitise the local and international football community to environmental sustainability issues and the securing of a long-term foundation for environmental concerns in national and international football.

South Africa's **Green Goal 2010 Programme** demonstrated and contributed to the search to raise awareness, minimize waste, diversify and use energy efficiently, consume water sparingly, compensate our carbon footprint, practice responsible tourism, and construct infrastructure with future generations in mind. These greening initiatives looked beyond the actual timeframe of the sporting activity and included concerns for post-event, environmental, social and economic impact of the event on the immediate and extended environment.

South Africa was committed to greening the 201 FIFA World Cup by focusing on the following pillars: conservation of water and energy, waste management, transport and mobility and carbon offsetting. These included:

- To be the first "carbon neutral" FIFA World Cup™ event.
- 20% reduction in waste volumes in and around the stadiums.
- 50% increase in spectators travelling to and from the stadiums on public transport.
- 20% reduction in stadium energy consumption.
- 20% reduction in stadium water consumption to relieve pressure on main water resources.

The **2014 Commonwealth Games (CWG)** were hosted in Glasgow City. For this event, the objectives were based on the concept of sustainability that aimed to promote social renewal and sustainable development, protect and enhance the physical and natural environment and also to ensure the efficient use of energy and resources, amongst measures to be undertaken in ensuring low carbon games. Techniques included low emission zones around the venues, car free venues, high technology vehicles and the use of renewable energy. Sustainable construction design of buildings for low energy use.

The **London 2012 Olympics** made notable efforts towards sustainability. Here are some key sustainability initiatives associated with the London 2012 Olympics:

- Infrastructure**:** The Olympic Park was constructed on a former industrial site, which underwent extensive remediation to restore it and create a sustainable venue. The development included sustainable buildings, energy-efficient technologies, and green spaces.
- Energy and Emissions: The London 2012 Olympics aimed to reduce carbon emissions and energy consumption. Energy-efficient designs were implemented in venues, and renewable energy sources were utilized. The Olympic Park had its own energy center powered by natural gas and biomass.
- Waste Management: Recycling and waste reduction measures were implemented throughout the event. Initiatives included waste segregation, composting, and recycling programs. The Games aimed to achieve zero waste to landfill.
- Transport: The Olympics promoted sustainable transportation options, encouraging the use of public transport, cycling, and walking. Dedicated Olympic lanes were established to facilitate efficient movement of athletes and officials.
- Legacy: The organizers emphasized the legacy of the Games, aiming to ensure long-term benefits and sustainability. After the event, facilities were repurposed, and the area underwent further development, including affordable housing and recreational spaces.

1.2 International Collaboration

International collaboration around climate change is crucial due to the global nature of the problem. Climate change affects every country and transcends national borders, requiring collective action to effectively address its impact on the environment, economy, and society. Collaboration enables countries to share knowledge, resources, and best practices, facilitating the development and implementation of more comprehensive and effective strategies to mitigate and adapt to climate change. By working together, nations can enhance their ability to reduce GHG emissions, promote renewable energy, foster sustainable development, protect vulnerable communities, and preserve ecosystems.

1.2.1 Paris Agreement

The Paris Agreement sets out a global framework to avoid dangerous climate change by limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C. It also aims to strengthen countries' ability to deal with the impacts of climate change and support them in their efforts. The Agreement is a legally binding international treaty. It entered into force on 4 November 2016. Today, 194 Parties (193 States plus the European Union) have joined the Paris Agreement.

1.2.2 UN Sports for Climate Action initiative

UN Climate Change[1] invites sports organizations and their stakeholders to join a new climate action for sport movement. This initiative aims at supporting and guiding sports actors in achieving global climate change goals.

1.2.3 Net Zero Carbon Events

The Net Zero Carbon Events[2] Pledge was launched at a special event at COP 26 in Glasgow in 2021. The Pledge invites organisations from across the events industry – venues, organisers, exhibitors and suppliers – to join this collaborative effort to drive the events sector towards net zero.

1.3 What is Event Greening?

As demonstrated by the actions taken at international events, greening means much more than planting trees in the backyard or expanding the size of the local park. In the context of a sporting event, it means **the implementation of environmentally responsible decisions through all phases of an event**. Major sports events, for example, can be highly resource intensive. Environmentally responsible decisions and actions can reduce the negative impact on the environment by conserving resources, using resources efficiently, and thereby minimising pollution. Greening also does not mean "doing good for society" at the expense of business or the city hosting the event. Significant cost reductions can, in fact, be achieved by using resources more efficiently and by minimising waste.

[1] https://unfccc.int/climate-action/sectoral-engagement/sports-for-climate-action

[2] https://www.netzerocarbonevents.org

The general public should be brought in as a key focus area, specifically with regard to the implementation of legacy projects over the longer term.

Greening an event can also attract positive media attention and raise the profile of the event, its host location and venue. An improved public image will enhance public participation in, and support for the event, minimising potential conflict and attracting further media attention. In addition, sponsors and donors often look for high profile opportunities to associate themselves with publicly supported causes. They may also be attracted by the chance to demonstrate their own environmental technologies, practises and achievements.

Important **lessons learnt** from previous sporting events where greening programmes have been designed and implemented include:

- **Commitment and buy-in** from senior management is critical.
- **Budget allocation for the environmental** activities needs to be an integral part of the general finance plan and should include allocation for education, monitoring and evaluation. Although there will be cost savings through implementation of a greening programme, some of the initiatives will require upfront funding for implementation.
- For large events **an environmental team (green team) should be established** by the Department of Sports, Arts and Culture, and supported by the Department of Forestry, Fisheries and the Environment, within the organising committee, with decision-making responsibility and its own budget. Without high level support and financial commitment, implementation action of an effective greening programme is unlikely.
- **Partnerships** between the host cities, the Local Organizing Committee (LOC), the international federation, business partners and other stakeholders is important with large sports events as they have a far-reaching effect with various role-players.

2 SECTION 2: THE SOUTH AFRICAN CONTEXT

2.1 South Africa: A sporting venue

South Africa's climate, terrain and enthusiasm makes it a popular location for hosting of large sports events, at both national and international levels. This includes the annual Comrades Marathon, 1995 Rugby World Cup, 2003 ICC Cricket World Cup (in conjunction with Zimbabwe and Kenya) and the 2010 FIFA World Cup. The Rugby World Cup Sevens was also staged for the first time in Africa in Cape Town, in September 2022.

Major sporting events are an important component of tourism, and if South Africa wishes to retain a strong share of this market, it is imperative that it takes cognisance of the international trends in greening. The purpose of this document is therefore to provide guidance to the organizers, host city, service providers and other stakeholders on how to go about greening large sports events in South Africa to ensure that environmental and sustainability considerations are routinely integrated into all such events.

The strategic approach to event greening has been informed by the Generic Principles of Greening outlined in the IUCN's (2003) Greening the WSSD: Lessons Learnt document.

The Generic Principles of Greening

- **Environmental Best Practice**. Reduce negative environmental impact by employing technologies and behavioural practices that: conserve water; use energy efficiently; minimise and manage waste and pollution; use resources sustainably; conserve biological diversity; and prevent resource loss and degradation before they occur.
- **Social and Economic Development**. Promote social and economic development through environmental best practice. Select environmental best practice options that also raise awareness, involve communities in decision-making, conserve cultural diversity, improve human health, create jobs and stimulate local economies.
- **Education and Awareness**. Communicate greening plans and progress to relevant audiences. Explain why greening is taking place and why it is beneficial to the audience. Aim to change behaviour.
- **Monitoring, Evaluation and Reporting**. Assess the effectiveness of greening activities throughout and after the greening process. Make people accountable for their actions and encourage constant learning by communicating findings.
- **Leaving a Positive Legacy**. Ensure that both the short and long-term impacts of decisions and actions are positive. Implement activities that lead to sustainability.

Source: IUCN, 2003

South Africa won the bid to host the sixteenth quadrennial Netball World Cup (NWC), previously known as the World Netball Championships, back in 2019. The Cape Town International Convention Centre (CTICC) in Cape Town, South Africa, has been identified as the preferred venue to host the Netball World Cup.

2.2 The legislative framework

Chapter 2, Clause 24 of the South African Constitution, adopted in 1996, states that

"Everyone has the right -

a. to an environment that is not harmful to their health or well-being; and

b. to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that -

i. prevent pollution and ecological degradation;

ii. promote conservation; and

iii. secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."

These provisions - recognised as being amongst the most progressive in the world - signal a clear commitment to sustainable development and provide the basis for ensuring that environmental concerns are addressed in all sectors of the economy.
They are supported by a number of other laws, including:

- National Environmental Management Act, NEMA (Act 107 of 1998)
- National Environmental Management: Biodiversity Act (Act 10 of 2004)
- National Environmental Management: Protected Areas Act (Act 57 of 2003)
- National Environmental Management: Integrated Coastal Management Amendment Act (Act 24 of 2008)
- National Environmental Management: Waste Management Amendment Act (Act 26 of 2014)
- National Environmental Management: Air Quality Act (Act 39 of 2004)
- National Water Act (Act 36 of 1998)
- National Sport and Recreation Act (110 of 1998)
- Municipal Structures Act (Act 117 of 1998)
- Municipal Systems Act (Act 32 of 2000)

2.3 Implementing Sustainable Development

South Africa has also demonstrated its commitment to the principles of sustainable development in a number of other ways:

2.3.1 World Summit on Sustainable Development

Implementation of a Greening Programme during the 2002 World Summit on Sustainable Development (WSSD) which included the following:

- eco procurement,
- recycling of waste,
- the offsetting of carbon emissions, and
- the use of green energy.

One of the outcomes of the WSSD was the compilation of event greening guidelines in a book called "Leaving a positive legacy" which was produced by the IUCN, in 2003.

2.3.2 National Framework for Sustainable Development

The development of a Framework document to outline **South Africa's National Vision for Sustainable Development**, highlights principles, analyses resource, economic and social trends, identifies strategic priority areas as well as a set of implementation measures. The UN General Assembly has adopted the 2030 Agenda with the '*Sustainable Development Goals*' (SDGs), which consists of 17 new goals (and related Targets).

The Framework document identifies a number of priority areas for strategic intervention, including:

- enhancing systems for integrated planning and implementation,
- sustaining ecosystems and using resources sustainably,
- investing in sustainable economic development and infrastructure,
- creating sustainable human settlements, and
- responding appropriately to emerging human development, economic and environmental challenges.

2.3.2.1 Priorities for South Africa

The three dimensions of sustainable development – economic, social and environmental – are profoundly interlinked. Economic growth without social inclusion or at the expense of the natural environment is as unwise as environmental protection at the expense of vulnerable groups and individuals. This is why signatories to the 2030 Agenda for Sustainable Development, in article 2 of the Preamble, commit themselves to achieving the three dimensions of sustainable development in a balanced and integrated manner.

Finding the balance between the three dimensions of sustainable development within a particular socio-economic environment is an ongoing endeavour requiring commitment from all major societal actors and will differ from country to country. This is certainly the case for South Africa.

South Africa, through its Department, Statistics South Africa, reports to the United National General Assembly on the Sustainable Development Goals (SDG's) priority indicators and targets. The Stats SA SDG 2019 Country Reports may be accessed at https://www.statssa.gov.za.

2.4 Sport and Sustainable Development

Section 12 of South Africa's National Sport and Recreation Act of 1998 states that:

- all sport and recreation activities must be conducted in such a way that the environment is not adversely affected.
- that the governing body responsible for any sport or recreational activity must lay down guidelines which are aimed at the protection of the environment.

The National Department of Forestry, Fisheries and the Environment (DFFE) has taken the lead in the development of greening guidelines for large sports events, and in particular, to ensure that global events being hosted in South Africa are green events and contribute to a green legacy.

Key imperatives worthy of consideration in greening of events can include the following:

- GHG reduction
- Energy efficiency
- Sustainable procurement
- Waste reduction and management
- Water conservation and management
- Sustainable Transport
- Biodiversity conservation
- Hospitality industry and greening initiatives
- Sustainable tourism
- Sustainable construction
- Participation, communication, public awareness, and reporting, and
- Leaving a positive Greening Legacy.

Key greening objectives include:

- Waste management: waste minimization, sorting at source, waste avoidance, recycling and re-use, redirection, composting, job creation, art from waste,
- Transport and mobility: Use of non-motorized transport, cycling and pedestrian friendly routes,
- Employment and business opportunities: waste collection and sorting, catering services, accommodation, sight-seeing, energy services,
- Water and wastewater management: Management of water usage in at venues, use of waterless urinals, use of grey water, rainwater harvesting, water recycling,
- Energy efficiency: energy efficient venue, retrofitting of streetlights with energy-efficient bulbs, solar-powered fan parks and streetlights use of energy,
- Biodiversity conservation and management: protection of fauna and flora, and natural habitats, marketing and branding of conservation areas,
- Awareness and communication: Branding of Greening: posters, greening video clip, local radio programs, schools' environmental programs, training of services providers, billboards.

Similarly, it is proposed that these objectives will be adopted in greening of the 2023 Netball World Cup.

3 Section 3: Greening the Netball World Cup 2023

3.1 Background

The Vitality Netball World Cup 2023 will be the sixteenth staging of the premier competition in international netball, which is contested every four years. The tournament will be held from Friday, 28 July to Sunday, 6 August at the Cape Town International Convention Centre (CTICC) in Cape Town, South Africa. This will mark the first time that the tournament will be held on the African Continent, and will mark the tournament's 60th anniversary, founded in 1963.

Sixteen teams will contest the 2022 title. Six teams qualify automatically: the hosts, and the top five (other) teams in the World Netball Rankings. The remaining ten places are filled via five regional tournaments, with two teams qualifying from each.

South Africa won the bid to host the sixteenth quadrennial Netball World Cup (NWC), previously known as the World Netball Championships, back in 2019. In August 2022, the mascot was revealed for the tournament, following a public competition. Designed by 11-year-old Violet Cassidy from Manchester, England. The mascot is an anthropomorphic meerkat (a burrowing member of the mongoose family) named Letsatsi, meaning "sun."

During the **2019 Netball World Cup in Liverpool** a sustainability report was compiled by the British Association for Sustainable Sport (BASIS). The event was hosted by England at the Liverpool ACC M&S Bank Arena. BASIS was commissioned by the NWC2019 to review sustainability initiatives during the planning phase and the delivery during the actual tournament.

Their key focus areas were:

- Messaging
- Sustainable transport
- Zero waste
- Sustainable materials

Data was collected around the following interventions:

- Waste management
- Energy used and carbon footprint of scope 2

Top five recommendations from the 2019 NWC:

- Early planning and engagement (they had only three months)
- Greater engagement with the venue
- Assured, strong and transparent communication
- Assess process to optimise performance Measure performance and quantify savings

Some of the success from the 2019 NWC included:

- 100% waste diversion from landfill
- Encouraged the refilling of reusable water bottles
- Reduced single-use plastic within catering
- Strong, clear and relevant signage

3.2 Greening Task Team

The Local Organising Committee has been working with the National Department of Forestry, Fisheries and the Environment (DFFE), as well as the Western Cape Government Department of Environmental Affairs and Development Planning to ensure that the event is hosted in a responsible manner.

3.3 Proposed Objectives

The following objectives are proposed for hosting a low carbon to carbon-neutral event:

- **Carbon footprint reporting:** To reduce the GHG emissions associated with the event through event greening initiatives. To measure the event's GHG emissions and offset emissions through local carbon offset projects.

- **Carbon offset programme:** To implement a formal carbon offset programme through local initiatives to enable a low carbon event.
- **Resource Efficiency:** To optimize resource use throughout the tournament. This includes minimizing water consumption, reducing waste generation, and implementing energy- and water-efficient practices. Stakeholders are strongly encouraged to adopt sustainable practices and prioritize the conservation of resources.
- **Waste Management:** To reduce the amount of waste generated prior to, during and post the event, through waste avoidance and minimization, separation at source, recycling and re-use, redirection, composting and responsible waste disposal.
- **Sustainable Procurement:** To promote sustainable procurement of goods and services. This involves promoting the use of local products that have reduced negative environmental impact and which contribute to greater socio-economic benefits.
- **Sustainable Transport:** To encourage the use of public transport based on existing interventions in Cape Town and the co-ordination of efficient group transport requirements (busses and mini-busses). The avoidance of non-essential flights to reduce carbon emission (greenhouse gases), with preference being given to direct flights in economy class, noting any exception that may differ from the preferred option.
- **Water and wastewater management:** To ensure that water is consumed in a responsible manner, Management of efficient water usage in venues, with existing interventions such as use of waterless urinals, use of grey water, rainwater harvesting and water recycling.
- **Responsible Tourism and Accommodation:** To maximise sustainable tourism offerings by encouraging venues and accommodation establishments to comply with (or exceed) minimum environmental standards and the minimum responsible tourism standards.
- **Positive socio-economic impact:** To promote local economic development and social cohesion and benefits within the host region, through communication and awareness.
- **Monitoring and Evaluation:** To monitor and evaluate the greening initiatives so that lessons learnt are captured while learning is facilitated for the enhancement of greening of future events.
- **Positive legacy:** To ensure a legacy with a positive impact on the local people and environment, which can be sustainable in a practical way.

Achievement of these objectives will require an environmentally conscious public organisers, participants, and suppliers. Therefore, activities should be implemented in the context of awareness raising campaigns around the broader objective of sustainability.

3.4 Venue

The Cape Town International Convention Centre (CTICC) in Cape Town, South Africa, has been identified as the preferred venue to host the Netball World Cup.

The CTICC places sustainability at the heart of every event through supporting community initiatives, assisting clients to host green events and to also generate business with positive economic impact, benefitting both society and the environment as a whole. The CTICC has existing energy reduction, water saving and water management measures which will be applied to reduce the negative impact of the 2023 Netball World Cup. In addition, the ingredients for meals including fresh produce which are prepared and served at the CTICC are locally sourced.

3.5 Role-players

The following main role-players have been identified (5200 PAX) traveling from Africa, Europe, Oceania, Asia, and America.

- Participating teams from 16 countries (South Africa, Australia, Barbados, England, Fiji, Jamaica, Malawi, New Zealand, Scotland, Singapore, Sri Lanka, Tonga, Trinidad & Tobago, Uganda, Wales, Zimbabwe) with 17 people per team (12 players and 5 management officials);
- NWC board and Local Organising Committee (LOC);
- Match and technical officials;
- Local and international media; and
- Local and international spectators and invited guests.

https://netball.sport/commonwealth-games/south-africa

4 Section 4: Climate Change and Energy Efficiency

4.1 Overview

Global energy supplies are currently based primarily on fossil-fuels such as oil, gas and coal. Not only are these resources non-renewable but burning them gives rise to significant levels of pollution, including greenhouse gases such as carbon dioxide, which in turn, are the cause of climate change. Reducing energy consumption, improving energy efficiency and including renewable energy in our energy mix are therefore an important component of climate mitigation strategies.

The South African electricity mix is still dominated by coal-fired power generation which contributed about 80% to system demand in 2022 – Coal energy contributed 80.1% (176.6 TWh) – Nuclear energy contributed 4.6% (10.1 TWh) – Renewable energy contributed 13.7% (30.2 TWh) – Renewable energy contributed 7.3% (16.2 TWh) - excluding hydro – The remaining 1.6% came from diesel (3.6 TWh)[3].

Despite this, electricity supplies have been insufficient to meet demand. Therefore, this challenge has highlighted the need for both energy conservation and energy efficiency, making energy security a national priority.

South Africa has made international commitments to reduce its greenhouse gases by ratifying the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement.

4.2 Objectives

The key objectives with respect to climate change and energy are:

- Reducing the carbon footprint of the event through event greening initiatives;
- Conservation of energy and improved energy efficiency;
- Maximising the use of renewable energy resources;
- Calculation and off-setting of the carbon footprint; and
- Promotion of behavioural change.

4.3 Monitoring and Evaluation

Information about the carbon footprint and climate impact should be provided to the media and should be considered as part of the overall awareness campaign on energy and climate change.
Examples of potential indicators for Energy and Climate Change objectives as well as possible targets, are provided in Table 1, which also shows the anticipated content of a monitoring and evaluation report.

[3] https://www.csir.co.za/sites/default/files/Documents/Statistics%20of%20power%20in%20SA%202022-CSIR-%5BFINAL%5D.pdf (CSIR Feb 2023)

Table 1: Climate change and energy monitoring and evaluation indicators

OBJECTIVE	INDICATOR	TARGET	RESULT
Reduce energy consumption	% reduction in energy use from baseline study before event	TBC	TBC
Maximise the use of renewable energy	% of renewable energy (built into event facilities) of total used for the event	TBC	TBC
	% of total energy from renewable sources (off-site), e.g. TRECs	TBC	TBC
Reduce the carbon footprint	% of event-related carbon emissions offset within x years	TBC	Low carbon event
Promote behavioural change	% of respondents/staff who reported having changed behaviour as a direct result of advice provided	Based on total survey response	Based on total survey response

4.4 Carbon footprint calculation

The calculation of GHG emissions linked to the organisation and hosting of large events is important for benchmarking, showcasing good practice and managing emissions. The initial calculations (first pass estimate) are used to control emissions, identify gaps, set boundaries, and identify opportunities to reduce the overall emissions of the event.

The Carbon Footprint Report for 2023 NWC will be prepared using the Greenhouse Gas (GHG) Protocol Corporate Accounting and Reporting Standard methodology; the most widely used international carbon calculation methodology and compatible with other GHG standards such as the ISO14064.

In accordance with the GHG Protocol, clear organisational and operational boundaries will be defined and agreed to by all parties. Where appropriate, emission factors should be stated, the majority of which will be sourced from the United Kingdom's Department of Environment, Food and Rural Affairs (DEFRA, August 2022).

Table 2 begins to address the key components to be considered in calculating the carbon footprint for the 2023 Netball World Cup.

Table 2: Proposed components of carbon footprint for the 2023 Netball World Cup

Carbon Footprint Components	Emissions calculation approach
International transport	GHG Protocol
Inter-City Transport	GHG Protocol
Intra-City Transport	GHG Protocol
Energy use in Accommodation	GHG Protocol
ICC and training venues	GHG Protocol
Construction and materials	Disclaimer on sourcing footprint GHG Protocol
Accommodation	Book different.com
Electricity	Eskom Annual Electricity Emission Factor

5 Section 5: Waste Avoidance, Reduction & Management

5.1 Overview

It is recognised that waste generation is one of the major environmental problems associated with sporting events. Waste can be generated by participants and spectators through event-related activities, such as the consumption of food, as well as the wide range of supplies and materials used in hosting an event. In addition, on a larger scale, waste is produced in the construction of permanent sports facilities and the creation and disposal of temporary installations. The major challenge is to develop and implement a Waste Minimisation Strategy at the outset of the event planning process to ensure reductions in the demand for natural resources and the amount of waste generated.

In most cases, solid waste from the actual venues of large sporting events results primarily from the provision of catering services for spectators and through the production and supply of the relevant products. This includes transport and packaging materials, bottles and leftover food which accumulates in kiosks. Waste is also produced through the supply and sale of merchandise and in the media and business centres.

Cape Town International Convention Centre (CTICC)

As part of their sustainability efforts, the CTICC is committed to reducing the impact of waste generated during events hosted at the venue through maximising diversion from landfills (above 80%). During the 2019 PAGE Ministerial Conference, which was hosted at the CTICC, waste separation amenities were provided in common areas, promoting awareness on the reduction of waste. Waste was separated into various waste categories including plastic, glass, cans, organic, liquid, paper, cardboard, and wood. Furthermore, stainless steel re-usable water bottles were provided to all delegates along with water coolers to reduce the use of bottled water. The report detailing the statistics of the generated waste can be provided following the event if arranged in advance.

5.2 Objectives

The three key objectives for waste management in relation to sporting events are:

- Waste avoidance & prevention (Source Reduction);
- Reduce waste to landfill through reuse, recycle or composting; and
- Responsible disposal of non-avoidable waste to landfill.

5.3 Monitoring and Evaluation

Monitoring and evaluation of waste minimisation efforts should be undertaken. This requires appropriate monitoring systems and mechanisms to be put in place.

Examples of indicators that could be used to measure the level of success in achieving the stated objectives as well as possible targets that could be set are provided in the following Table 3.

Table 3: Sample of waste minimisation and management monitoring and evaluation indicators

Objective	Indicator	Target	Result
Waste Prevention and Avoidance	% reduction in volumes of waste in different areas of the venue (Stands, food kiosks, media centres etc.)	TBC	TBC
Minimise and reduce waste	% Use of recyclable products during the sport event	TBC	TBC
	% of recyclable products collected. (Plastics, paper, etc)	TBC	TBC
Sound Disposal	% of non-recyclable waste delivered to a licensed landfill	TBC	TBC
	% Organic material composted	TBC	TBC
Education, Awareness and Communication Strategy	% of volunteers/staff who reported having changed behaviour as a direct result of education and awareness campaigns	TBC	TBC
Job Creation	% of anticipated new jobs created as result of the implementation of the waste management strategy.	50%	40%

6 Section 6: Water Conservation and Management

6.1 Overview

Fresh water is essential for the daily life of all aquatic and terrestrial organisms, including humans. It is crucial for maintaining ecosystem health, biodiversity and the livelihoods of fishermen, farmers, foresters and those economically involved in recreation and tourism. In urban areas, water facilitates power generation and is a key raw material in mining and industry. It is also the transport medium for sanitation.

Water resources are being degraded and threatened by the impacts of population growth and the associated increase in economic activities, rural to urban migration, as well as climate change. If present trends continue, 1.8 billion people will be living in countries or regions with absolute water scarcity by 2025, and two-thirds of the world's population could be subject to water stress.

The UNEP Global Environmental Outlook (2007) reports that available water resources are continuing to decline as a result of excessive withdrawal of surface- and groundwater, as well as decreased run-off in some areas, the latter attributed to global warming. In other areas, global warming is causing more rain and flooding.

Climate change is predicted to further alter the amount and distribution of precipitation as well as transpiration rates. Sixty per cent of the world's largest rivers are greatly fragmented by dams and canals, with the present high rate of dam construction threatening the integrity of the remaining free-flowing rivers in the developing world. One-tenth of the world's major rivers no longer reach the sea all year round. Severe groundwater depletion is apparent in all regions.

Water quality degradation from human activities continues to harm human and ecosystem health. Three million people die from water-borne diseases every year in developing countries, the majority of whom are children under the age of five. The deterioration of water quality is being exacerbated by pollutants from land-based sources such as municipal wastewater and contaminated urban run-off.

Water management and protection is vital due to its vulnerability to overexploitation and pollution. This is particularly the case in South Africa which, in terms of a United Nations definition, is already water stressed, and bordering on water scarce.

6.2 Water Conservation

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

mean annual rainfall. About 20% of this runoff needs to remain in the rivers and estuaries to support natural ecosystems – the Instream Flow Requirement or 'Reserve' as provided for by the National Water Act, Act 36 of 1998.

Freshwater quality is constrained by pollution from irrigation return flows, urban drainage, and industrial and mining activities. Invasive alien vegetation also depletes available water by absorbing about 3% of the mean annual runoff, with stream flows in some areas reduced by up to 10%. Urbanisation adversely affects water quality and availability due to pollution from urban run-off and the increase in impervious surfaces. Hardening of surfaces (roofs, roads) in water catchments both reduces groundwater recharge and speeds up the water cycle by increasing peak storm flows and resulting in flooding.

Climate change has the potential to make a significant impact on the availability of water in South Africa, due to rising temperatures and increasing variability of rainfall, increasing drought in some regions and floods in others. An overall decrease in rainfall of 5-10% is expected. Development decisions need to consider the potential effects of climate change on water resources and extreme weather events.

The ecosystem and human users of water need to be considered when assessing the water requirements of South Africa and its neighbouring territories. Within the water cycle, there are complex interactions between surface and ground water and between the water and sediments, stream banks, animals, plants, and microbes in rivers, dams, and wetlands: all these have to be taken into account in water management.

The Department of Water and Sanitation (DWS) is the custodian of the nation's water resources, and aims to manage water resources so as to promote equity, sustainability, and efficiency of water use. The National Water Resource Strategy states that minimisation of water use at source is the first priority, followed by maximised re-use and recycling.

6.3 Sporting Events and Water

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

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

The South African Department of Water and Sanitation introduced a water standard termed the 'Blue Drop' status. The 'Blue Drop' indicates to users that the tap water conforms to international tap water standards and can be safely consumed. The City of Cape Town has a blue drop water status. The blue drop status encourages the use of

tap water for drinking purposes.

Cape Town International Convention Centre

The CTICC has implemented water saving and water management measures and initiatives. This includes the maximisation of rainwater storage tanks use, which capture up to 265 000 litres of water at a time, which is used for irrigation of indoor plants, cleaning and, in the winter months, provides water to the cooling towers of the central air-conditioning system. Collecting the condensate from the air-conditioning units which results in the collection of 20 000 litres of water every week for cleaning purposes at the centre. The CTICC has also installed aerators in all taps in the kitchens, staff showers and meeting suites. In addition, the centre reduces the use of washing machine by not using table cloths and offering disposable napkins and biodegradable cups to clients. The implantation of the reverse osmosis plant, which converts groundwater to potable water, caters for the daily consumption needs of the centre as it can produce 200 000 litres of potable drinking water in a 24-hour cycle. In addition, the plan has a tank storage capacity of 400 000 litres to accommodate for maximum demand scenarios. This status will significantly reduce the ecological footprint of the 2023 Netball World Cup activities.

6.4 Objectives

Given the relative scarcity of water in South Africa, there is a need to manage the increased water demand created by major sporting events, with key objectives being:

- Minimisation of water usage – reduce, reuse and recycle;
- Protection of water resources and avoiding water pollution; and
- Raising awareness and promoting behavioural change around water conservation.

6.5 Monitoring and Evaluation

Project-specific Indicators for the success of each objective will need to be identified. Examples of indicators that could be used to measure success in achieving stated water related objectives are provided in Table 4.

Table 4: Sample of water monitoring and evaluation indicators

Objective	Indicator	Target	Result	Comment re success
Minimising water usage	% reduction in water use from baseline study before event	TBC	TBC	Very successful due to water fittings retrofit and behavioural change
	% of non-potable water used at venue (greywater, rainwater, treated effluent) of total water used for event	TBC	TBC	Moderately successful. Challenges: high cost of water storage units
Raising awareness and promoting behavioural change	% of water savings attributed to behaviour change	TBC	TBC	Very successful due to enthusiastic response from venue cleaning and catering staff. Competitive spirit was encouraged through an award scheme

7. SECTION 7: SUSTAINABLE TRANSPORT

7.1 Overview

Road transport has been identified as the primary source of transport-related CO_2 emissions in South Africa, contributing 91.2% of total transport GHG emissions. The heavy reliance of the sector on fossil fuels contributes significantly to total GHG emissions for the country. Vehicle exhaust emissions in South African cities are reported to be increasing. It is predicted that pollutants will increase each year if emission controls are not put in place. South Africa experienced an increase of transport-related CO_2 emissions from 439,640.02 kilotonne in 2019 to 451,957.09 kilotonne 2020. This has caused a negative impact to the quality of air. The resulting decline in air quality would affect many outdoor sports events such as running and cycling and would impact on general visibility in host cities.

In addition, the activity that produces the most carbon emissions and consumes significant amounts of energy at major events is, typically, transport. During the 2018 3rd PAGE Ministerial Conference, air travel was the largest contributor towards the overall carbon footprint. Further impacts related to hosting of large events include, massive traffic congestion and disruption in cities, and associated air pollution. Coordinated planning of transport for an event is essential to establishing an efficient system. Such coordination requires a single decision-making authority and a well-developed Operational Plan well in advance of the event. During the 3rd PAGE Ministerial Conference, the LOC strategized and developed a transportation plan were shuttle services, buses and Green cabs were arranged to shuttle participants between the airport and the CTICC. The use of single occupancy vehicles was discouraged for the event.

The City of Cape Town in partnership with Cape Town Tourism, South Africa Rail Commuter Corporation, PRASA (Metrorail), (Southern African Tourism Services Association) SATSA and the private sector has developed eco-friendly tourism products to ensure more sustainable and responsible transport & access. These includes the MyCiti bus service, city maps and pedestrian signage, Southern Line Tourism Route, Green Cabs, the City's Park – and –Ride programme and Cycle routes (which includes cycling lanes and routes).

7.2 Objectives

The key objectives with respect to transport are:

- Minimisation of transport needs
- Promotion of public transport
- Reduction of pollution from transport.

7.3 Strategies

Recommended strategies for each of the objectives outlined earlier are as follows:

7.3.1 Minimisation of transport needs

- Where airline travel is unavoidable, suggest airlines with good environmental policies for participants and provide opportunities for participants to offset their travel related carbon emissions (see section on Climate Change and Energy for information on carbon offset projects).
- Select event venues and accommodation facilities that are near each other.
- Promote pedestrian and cycle routes and networks between point A to point B to discover the best.
- Promote the cycle routes to cover the best routes to get you from Point A to Point B.
- Time events during off-peak hours to avoid congestion.

7.3.2 Promotion of public transport

- Raise awareness about the merits of public transport amongst staff, participants and public. Provide information about available routes.
- Promote behavioural change towards the use of public transport through choosing facilities that are accessible to each other and to airports and train stations, via public transport.
- Create 'park and ride' facilities at transport hubs.
- Create incentives for using mass transportation (e.g. make event tickets valid on local public transport and use special offers to encourage people to use public transport).
- Use volunteers or trained staff in key stations/areas to assist people in finding their way to the games and related events/services.
- Create incentives for car-pooling by reducing parking costs for multi-passenger vehicles.
- Provide adequate signage and information:
  - Provide extensive directional signage (at transport hubs, event venues), published information brochures and dedicated information assistants (often volunteers), using a common, recognisable signage theme.
  - Mount comprehensive travel orientation displays at stadium precincts and fan parks.
  - Locate venues for sports fans e.g. (Fan festivals and Fan Parks) in central areas close to public transport.

7.3.3 Reduction of pollution from transport

- It is advised that the use of energy efficient and low emission technologies and fuels will reduce pollution from the transport sector:
  - Use vehicles that utilise alternative fuel sources such as ethanol, biodiesel, LPG, electric or hydrogen where available. Use fuel blends, unleaded petrol, low-sulphur diesel for regular vehicles.

- Install particulate filters on bus exhausts.
- Purchase, or retrofit, vehicles with catalytic converters.
- Showcase alternative vehicular technologies at events.
- Use non– motorized transport, e.g. rickshaws, bicycles.
- Provide walking and cycling routes and supply maps of these. Provide secure bicycle parking at venues.
- Provide clear and reliable information on alternative transport methods in various media, particularly the internet.
- Vehicles should be made subject to national emission standards.

7.4 Monitoring and Evaluation

Project-specific indicators to evaluate the success of each objective will need to be identified. Examples of indicators and targets that relate to transport could be set, as illustrated in Table 5.

Table 5: Sample of indicators for transport monitoring and evaluation

Objective	Indicator	Target	Result
Minimising transport needs	% of spectators that used non-motorised transport	TBC	TBC
Promoting public transport	% of spectators that used public transport to reach stadium	TBC	TBC
Reducing pollution from transport	% of reduction in measured particulates during games	TBC	TBC

8 Section 8: Biodiversity Conservation

8.1 Overview

South Africa is one of the world's most biologically diverse countries and contains three globally recognised biodiversity hotspots; the Cape Floristic Region, the Succulent Karoo, and Maputaland-Pondoland - an area shared with Mozambique and Swaziland. In keeping with international commitments to conserve this biodiversity, South Africa has put national legislation in place, and a National Biodiversity Strategy and Action Plan (NBSAP) have been developed.

South Africa's biodiversity provides an important basis for economic activity and development. The tourism industry, including nature-based tourism and sporting events, other industries such as fishing, horticultural and agricultural industries based on indigenous

species, aspects of our film industry, and medicinal applications of indigenous resources, are all dependent on these resources. Conservation of biodiversity plays a crucial role in achieving the national Sustainable Development goals, including poverty reduction and enhanced human well-being.

Biodiversity plans that identify significant or sensitive ecosystems or habitats, critical ecological processes, and priority areas for conservation have also been developed at both provincial and local levels. A biodiversity plan for the Western Cape province serves as an integral part of spatial development plans and frameworks, and informs future bioregional planning efforts.

8.2 Sporting Events and Biodiversity

The principal negative impacts on biodiversity associated with sporting facilities and events relate to their location and layout, including the design and management of facilities. In general, sporting events should avoid impacting negatively on any areas identified in biodiversity plans, as well as on any protected areas. Event greening should aim to minimise the threats to biodiversity from such things as habitat destruction, insensitive location and layout of development, the introduction of invasive alien species, pollution to air, water and land and climate change.

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

8.3 Objectives

The key objectives for sporting events with respect to biodiversity are:

- Conservation of biodiversity;
- Promotion of urban greening
- Protection of important and sensitive urban ecosystems; and
- Raising awareness about the natural heritage of the host city/country/region.

8.4 Monitoring and Evaluation

Project-specific indicators to evaluate the success of each objective will need to be identified. Examples of indicators that relate to Biodiversity Conservation as well as targets that could be set to monitor performance, are provided in Table 6.

Table 6: Sample of biodiversity monitoring and evaluation indicators

Objective	Indicator
Biodiversity conservation	Area of invasive aliens removed.
Urban Greening	Increase in area of indigenous vegetation + survival after 1 year.
	Number of trees planted.
Urban Ecosystems	Additional % area of City protected and managed to provide habitat for priority ecosystems.
Raising awareness about the natural heritage	Number of participants that entered competitions/visited exhibitions during the event based on predicted figures

9 SECTION 9: SUSTAINABLE TOURISM: HOSPITALITY INDUSTRY AND GREENING INITIATIVES

9.1 Overview

The service sectors such as tourism have traditionally been behind in embracing the concepts of eco-efficiency. However, tourism is the largest and fastest growing industry in the world, and thus environmental impact, as well as the opportunity to do things differently, is substantial. A sustainability report published by the 2020 Tokyo Olympics revealed that climate change and resource management had been incorporated into the planning and delivery of the games. As part of the sustainability measures, sustainable tourism as well as greening of hospitality were included in the Tokyo Olympics report.

South African tourism industry has emerged to maturity, and its rapid growth is fuelling the national economy (GDP contribution now larger than gold), little headway has been made in terms of either understanding its impact on the environment or, better still, minimising and monitoring this impact.

The outbreak of Corona Virus - 2019 (COVID-19) has negatively impacted the global hospitality sector. Due to the lockdown and travel restrictions imposed during the COVID-19 Pandemic, the tourism industry was heavily impacted upon in South Africa. Compared to the number of tourists who visited South Africa in 2019, there has been a decrease of 72,6%, in 2020.

While there is an increasing presence of accreditation systems internationally, within South Africa there are still relatively few players working in this area, and efforts have not been coordinated. It is in the tourism industry's interests, and in national interest, that a green accreditation system is consistent, and that a proliferation of different systems or approaches is avoided.

International experience shows that such proliferation is usually not advantageous to all involved, leading to lower brand recognition and industry buy-in. Recent work studies in the South Africa Tourism and hospitality industry confirms that there are substantial opportunities for improving environmental and sustainability profile in a cost-effective manner, and that knowledge of sustainability is generally lacking amongst hotels and other hospitality establishments.

An important national motivation for the hospitality industry was the 2010 FIFA World Cup™ in South Africa. Efforts to improve the environmental profile of the 2006 event in Germany through the "Green Goal" programme showed that hospitality is one of the three big focus areas for such initiatives – with transport and stadia being the other key areas.

9.2 Responsible Tourism and Accommodation

In preparation to the hosting of the 2011 Conference of Parties 17 (COP17/CMP7), eThekwini Municipality identified the need to engage the private sector on the provision of "responsible" accommodation and meeting facilities as less than 5% of 500 accommodation facilities in the greater Durban area were certified/graded under one of the three prominent "responsible" or "green" tourism certification bodies in South Africa. The eThekwini Municipality created awareness and promoted the adoption of "responsible tourism" approaches for the hospitality sector by raising awareness of the "National Minimum Standard for Responsible Tourism", which has been published by the South African Bureau of Standards (SANS 1162).

Similarly, prior to hosting of the 3rd PAGE Ministerial Conference in 2019, all 18 hotels in the PAGE delegate information document were sent a digital questionnaire to determine their sustainability practices. Although there was a low response rate, six accommodation establishments were found to have environmental policies. For the 2023 Netball World Cup, a desktop study on accommodation establishments' carbon footprint have been conducted. the Responsible Accommodation Campaign may be revived which may include the following initiatives.

Five accommodation establishments have been identified to host the players, team management, media and technical officials and board members.

Table 7: Accommodation establishments and associated emission factors

No.	Hotel Name	Emission Factor (www.bookdifferent.com)
1.	The Westin Hotel Cape Town	28.2 kg CO_2 per room night
2.	Southern Sun the Cullinan	14.8 kg CO_2 per room night
3.	Sun Square	23.1 kg CO_2 per night
4.	Stay Easy	26.7 kg CO_2 per night
5.	Southern Sun Waterfront	23.2 kg CO_2 per night

The emission factors presented in Table 7 will guide the carbon footprint calculation for the players, support staff and officials presiding over the matches.

10 Section 10: Sustainable Procurement

10.1 Overview

Eco procurement is one of the most powerful tools for enabling change, because it is linked to a specific action and decision making at a specific point. Through clear procurement guidelines, decisions can be made to avoid or reduce wastage through smart purchasing or appointing the right service providers. Purchasing energy efficient

appliances will reduce the need for energy use over the long-term. Procurement can also be used to support the local economy in a proactive way and to encourage social upliftment through supporting fair-trade products.

From planning through to the implementation of large sporting events, there are many opportunities to consider the principles of eco-procurement in a range of ways, which can make a significant difference over the long term. Whether it is the construction of a new venue or the appointment of service providers for catering or even the agreements with sponsors, there are many ways to ensure that environmental concerns are considered in procurement decisions. From energy and water, through to transport; all these elements are "procured" and can be influenced in a positive way.

To be effective, it does, however, must be supported from a strategic perspective and included into the main agreements around sponsorship and service providers for the event.

Procurement in South Africa has a strong focus on Local Economic Development and support of Broad Based Black Economic Empowerment (BBBEE) which is driven by legislation and regulation. An integral part of the BBBEE Act of 2004 is the balanced scorecard, which measures companies' empowerment progress in four areas:

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

Procurement decisions need to consider two particular issues over and above the BBBEE requirements: 1) Environmental issues such as energy efficiency, water conservation and waste reduction; and 2) Prioritisation of goods manufactured locally - firstly within the region where the event is being hosted and secondly within South Africa.

10.2 Objectives

The key objectives with respect to eco procurement at large sports events are to:

- Ensure a clear strategy and labelling of products and services;
- Promote Local Economic Development;
- Reduce the negative impact of catering;
- Reduce the negative impact of clothes, gear and other merchandise;
- Promote sustainable sponsorship; and

- Promote transparency in procurement decision-making.

Green procurement criteria for products

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

When assessing how green a product is, consider all aspects of the product's life cycle, including the acquisition of materials, manufacturing, distribution, use, maintenance, and disposal. Also calculate the total annual cost of the product across its lifetime to identify value for money.

The following question should be asked when assessing products:

Certification:

- Has the product been certified by a credible institution? Does the national government in the host region or an internationally recognised specialist in the field support the certification? If not, what are the requirements for certification? Why has the product not been certified?

Acquisition of materials:

- Were natural resources used in the product harvested in a sustainable manner?
- Were other materials used produced in an environmentally responsible manner?
- Were materials purchased from small, medium or micro enterprises?

Manufacturing:

- Were products from threatened plants or animals, or resources from threatened environments used to manufacture the product?
- Were recycled materials used to manufacture the product?
- Were production methods, energy, water and resource efficient?
- Were production methods designed to minimise waste and pollution?
- Was the use of toxic and hazardous materials minimised?
- Was hazardous waste disposed of safely?
- Were the staff informed about environmental practices in place?
- Do manufactures comply with human health standards and pro-active employment equity?

Distribution:

- Is packaging minimised?
- Can packaging be reused or locally recycled by the end user?
- Do manufacturers accept packaging for reuse or recycling?
- Is packaging made of recycled materials?
- Is the transport strategy designed to minimise waste and pollution and use energy efficiently?
- Are transport suppliers small, medium, or micro enterprises?

Use and Maintenance:

- Does the product have a long lifespan?
- Are clear operating and maintenance instructions available?
- Can the product be easily, and cost effectively maintained and repaired?
- Can the product be upgraded easily?
- Is the product designed to use resources efficiently?
- Is the product designed to minimise waste?
- Is the product less polluting than its competitors?
- What is the payback period of the product?

Disposal:

- Is the product or its parts reusable? Can it/they be sold?
- Is the product recyclable or biodegradable? Is it recyclable locally?
- Can the product be returned to the manufacturer for reuse or recycling?
- Does the product contain any banned or restricted substances?
- Does the product contain hazardous materials requiring special disposal?
- Do disposal methods include small, medium or micro enterprises?

10.3 Monitoring and Evaluation

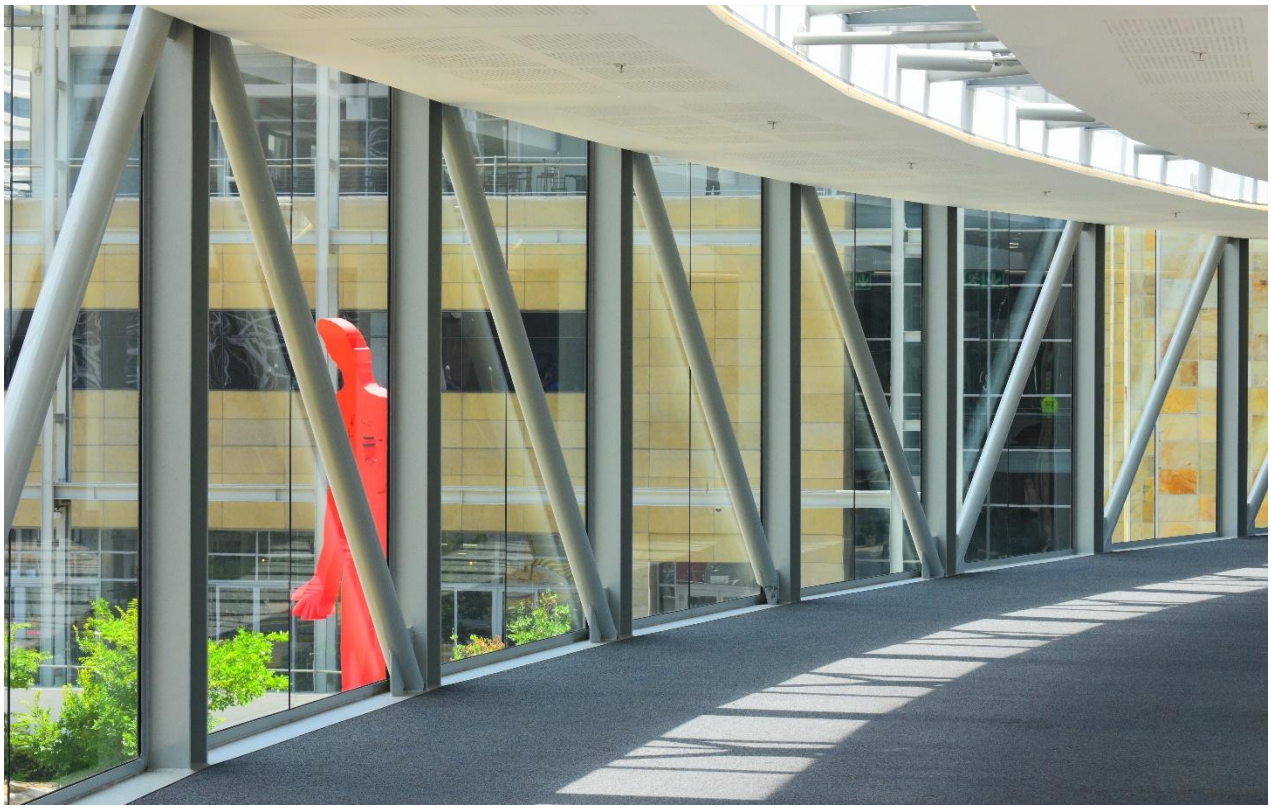
In order to monitor and evaluate the level of success achieved in relation to each objective, a set of indicators is required. Each objective may have several indicators. Indicators should include measurable timeframes and be accompanied by targets and local standards where possible. Possible examples are outlined in Table 8.

Table 8: Sample of Sustainable Procurement monitoring and evaluation indicators

Objective	Indicator	Target	Result
Strategy and labelling	Eco procurement guidelines included into the overall procurement guideline documents for the event	TBC	TBC
	Select environmentally labelled or certified goods and services	TBC	TBC
Promote Local Economic Development (LED)	Give preference to local products and services	TBC	TBC
	Ensure that small, medium and micro enterprises (SMME's) are supported	TBC	TBC
Reduce the negative impact of catering at events	Ensure that food packaging is avoided or reduced and consider the use of PLA instead of other petroleum based plastic products	TBC	TBC
	Ensure that food is locally produced, seasonal and healthy	TBC	TBC
Reduce the negative impact of clothes, gear and other merchandise	Ensure that sports gear, clothes and other merchandise is locally manufactured	TBC	TBC
Sustainable sponsorship	Ensure that sponsors comply with sustainability criteria	TBC	TBC

It is recommended that the promotion and possible uptake of sustainable procurement measures be considered for procurement processes for 2023 Netball World Cup.

11 Section 11: Sustainable Construction



11.1 Overview

Responses to global environmental crises such as global warming, energy security and the depletion of natural resources have driven an increasing move towards sustainable design, architecture and construction. The built environment is responsible for a major proportion of global resource use and environmental degradation, especially climate change. The design of buildings has a broad range of environmental impacts including those associated with:

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

Many terms are used internationally to describe efforts by built environmental professionals to minimize these impacts, such as green building, eco-design, and environmental design; with the term sustainable design becoming more acceptable globally. Sustainable design encompasses the three pillars of sustainable development, namely environmental, social and economic sustainability, rather than being limited to 'green' environmental resource

issues. It is not merely substituting 'greener' alternatives for resource use, materials or technologies, but represents an integrated process within architectural design.

The broad aim of sustainable design is to reduce the environmental impacts of buildings and increase the social and economic benefits during the production of building components, during the construction process, as well as during the lifecycle of the building, as follows:

- **Environmental sustainability** considers the limits of natural resources by maintaining ecological integrity, limiting the use of natural resources (including land) to a level that allows nature to regenerate, thus minimising the use of non-renewable resources.
- **Social sustainability** is principally about ensuring stakeholder participation, user comfort and health, designing inclusive environments with broad access and providing a range of facilities, amenities and services. It also incorporates the education of labour and building users to raise awareness of environmental issues.
- **Economic sustainability** focuses on development that is viable, fair and efficient, and which occurs at a rate which does not exceed the ability of the natural and social systems to support this growth. It also supports the local economy and promotes design for adaptability and flexibility over time. A lifecycle costing approach is necessary, which takes into account not merely the capital cost of a component or technology, but the ongoing costs of operation and maintenance over a longer-term period.

At the planning phase of projects, the principles of Sustainable Planning should be applied. These principles advocate compact development with good access to public transport; mixed use development including a variety of uses (commercial, retail, residential) and design for walking and cycling. It promotes protected areas, wildlife corridors and on-site power generation and wastewater treatment.

The concepts of sustainable landscaping include the selection of indigenous plants that enhance biodiversity and reduce water consumption, efficient irrigation technologies, the use of vegetation to moderate the effects of climatic extremes on building users, and hard landscaping designed to allow storm water infiltration.

Certain components used in sustainable design may cost more than conventional technology, such as photovoltaic panels for the in-situ generation of electricity. In contrast, the so-called passive design approaches actually reduce construction and operational costs by investing in a building's form and envelope (e.g. optimising building orientation, shading, and thermal performance of the building envelope) so that the heating, cooling, and lighting loads are reduced, and in turn, less costly ventilation and air conditioning systems are needed.

11.2 The Construction Phase

The construction phase of a project entails activities that have significant environmental impacts. In particular, the use of energy and water during construction, the production of wastes, pollution of land, air and water and impacts on biodiversity need to be mitigated and well managed. In the case of the Netball World Cup 2023, construction requirements will be for the installation of netball courts. Procurement methods and design for the netball court material should ensure that sustainable materials are sourced and used from local sources as far as possible. As a condition of approval in terms of environmental legislation, projects may be required to implement an Environmental Management Plan (EMP) under the supervision of an Environmental Site Manager (ESM). Ideally, an EMP should be subject to periodic audit by an independent environmental consultant. An EMP must be included in the package of tender documents issued to contractors and it then becomes part of a binding contractual agreement with the main contractor. The City of Cape Town's (CoCT) generic EMP for civil engineering construction projects even requires the contractor to appoint an Environmental Representative who interacts with the ESM in ensuring sound environmental management of construction. The full EMP can be obtained from the City of Cape Town, free of charge, by e-mailing: enviro@capetown.gov.za. Post the Netball World Cup, the ESM must ensure that the materials are discarded in a sustainable manner.

11.3 Guidelines and Assessment Methods

There are no universal solutions for the design of sustainable buildings, as each context will have appropriate local responses. General guidelines should be adjusted to the specific climatic, environmental, economic and social conditions of the location. The local availability of materials, products and services and locally appropriate technologies should also be taken into account.

There are sustainability assessment tools for the built environment available in many countries, including South Africa, that provide guidance and a broad range of strategies, checklists and indicators towards achieving a sustainable design. Some have a bias towards 'green' environmental issues and tend not to deal with socioeconomic aspects. The South African context requires a unique balance between environmental, social and economic issues. Moreover, each project will have different priorities depending on the local context and the values/ vision of the project team and other participants.

Examples of assessment tools include:

- **Green Star** Certification, Green Building Council of South Africa (GBCSA).
- **SBAT** (Sustainable Building Assessment Tool), CSIR, South Africa.
- **LEED** (Leadership in Energy and Environmental Design), United States Green Building Council

- **BREEAM** (Building Research Establishment Environmental Assessment Method), The Building Research Establishment (BRE), United Kingdom

11.4 Challenges in Achieving Sustainable Buildings

An important factor in achieving a sustainable building is defining a common vision and promoting interdisciplinary collaboration amongst the design professionals in the project team, the owners and users of a building, and a range of interested and affected parties. Without this approach, nonconventional design proposals are not likely to receive adequate support and may fail to come to fruition. The common vision should be driven by the client or building owner and be captured in a 'Sustainable Design Brief' that should be developed prior to commencing the conceptual design. Without this brief and in the absence of legislation, there may be little incentive for the design team to move away from conventional approaches. The brief should include specific performance targets where available and applicable, for example, average annual energy consumption should not exceed 300 kWh. When considering project timeframes, the project team should anticipate that research and evaluation of design or technological alternatives are likely to take additional time and resources.

Achieving a sustainable design requires a life-cycle approach to costing, including both capital cost and ongoing operational and maintenance costs, to ensure that budget is made available for sustainable construction and technologies. Taking a short-term view is unlikely to result in more capital-intensive solutions appearing economically feasible.

Motivating non-conventional design approaches is more readily achieved by highlighting the benefits of sustainable buildings, which include:

- More productive, comfortable and healthy living and working environments;
- Reduced long-term maintenance and energy costs;
- Compliance with legislation;
- Avoiding the costs of retrofitting to achieve compliance; and
- Marketing differentiation, by making it easier to secure operators, tenants, buyers.

The main drivers of sustainable design include environmental benefits and a reduction in running costs. Increasing pressure can be expected from the adoption by central and local government of regulations to enforce compliance with sustainability policies. New and innovative approaches to payment of professional fees may be necessary for sustainable designs, as well.

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

11.5 Green Buildings in South Africa

Until recently, there has been little awareness and few examples of sustainable buildings in South Africa. In the last few years, however, there has been an increasing shift towards this approach in keeping with international trends. Recently, the South African Green Building Council was established to develop a Green Rating system similar to the Australian Green Star. The system would initially be voluntary, allowing project teams to evaluate the degree of sustainability achieved. At the local level some municipalities have initiated green building guidelines that are intended to be voluntary initially, but that can be expected to become mandatory in due course.

South Africa has specific, critical issues relating to resource efficiency, in particular, electricity supply and energy security, water supply, water quality and landfill space. Please refer to the relevant sections on Climate Change and Energy, Water, and Waste.

11.6 Objectives

The key objectives with respect to sustainable design and construction are to achieve:

- Environmental sustainability;
- Social sustainability; and
- Economic sustainability.

11.7 Suggestions for information on sustainable construction

The suggestions contained in this section are derived from international and local precedent as per the following sustainability assessments methods, namely, LEED, BREAAM, Green Star and SBAT. These primary sources should be referred to for more detailed guidance, including specific indicators.

11.7.1 Environmental sustainability through retrofit and/or implementation or new build

Item	Description
Site	- Protect and enhance the natural environment on the site to provide habitat and promote biodiversity. - Minimise damage to sensitive landscapes, e.g. wetlands. - Minimise the building footprint to conserve land. - Provide as much indigenous vegetation on site as possible. - Rehabilitate contaminated sites before construction commences.

Item	Description
	- Control erosion and sand transport during construction to reduce impacts on water and air quality. - Retain topsoil and valuable plants and set aside for reuse and replanting.
Water use	- Minimise the use of potable water. - Install water efficient devices, e.g., waterless urinals, low flush toilets, and low-flow shower heads and taps. - Install flow meters to monitor consumption and leaks. Measure the water consumption and compare to predicted consumption. - Adopt a water management strategy during construction. - Harvest rainwater and store for use in irrigation or flushing of toilets.
Waste water	- Adopt innovative waste water technologies to reduce generation of waste water and recycle waste water to reduce potable water demand, e.g. Greywater reuse, biological filtration (Biolytix), reed beds filtration.
Storm water	- Minimise run-off using permeable paving that allows infiltration. - Collect storm water on site in retention ponds or storage structures and allow infiltration or use for irrigation.
Landscaping	- Select plants and irrigation systems to reduce water use, e.g., drip irrigation. - Select indigenous and endemic plants that promote biodiversity. - Provide areas of habitat on site, e.g., ponds and refuges in landscaping structures for invertebrates.
Energy and Atmosphere:	- Design for passive ventilation, cooling and heating and minimise the use of conventional air-conditioning systems. - Design the building envelope to achieve thermal performance in accordance with best practice. - Optimise use of natural lighting and install energy-efficient lighting appliances and controls such as movement sensors to reduce energy use. - Maximise the use of renewable energy systems, e.g., solar water heating, small wind turbines, and photovoltaic panels. - Avoid the use of ozone depleting substances in air-conditioning or fire equipment, or in the production of materials, e.g., thermal insulation.

Item	Description
Transport	- Provide facilities for cyclists to encourage non-mechanised transport, e.g. secure bicycle storage and provision of showers. - Model the building during design to predict energy consumption. Install easily accessible measurement equipment that can be used for regular data collection, communication and display of information.
Materials	- Reuse and adapt existing structures wherever possible to conserve resources. - Select most sustainable materials and products available that meet a range of sustainability criteria, such as maximizing use of renewable, recycled, low embodied energy, and non-toxic materials, and minimising pollution in manufacture and fossil fuel consumption.

11.7.2 Social sustainability

Item	Description
User comfort	- Provide adequate day-lighting, effective solar and glare control. - Provide adequate fresh air supply to ensure indoor air quality is to acceptable standards. - Provide adequate security lighting.
Healthy indoor environments:	- Consider physical health when specifying materials and finishes, e.g. paints that reduce emissions of toxic compounds such as formaldehyde and Volatile Organic Compounds (VOCs).
Safety	- -Comply with all legislation on the construction site and within the building. *Inclusive environments:* - Design for environmental control by users, e.g. vents, shading devices, and operable windows. - Facilitate consultation with all stakeholders during the design process. - Provide a User Manual that explains the sustainability features.

	- Make provision for disabled access. - Locate the building close to public transport. - Provide a range of services including retail, banking, communication and recreation. - Participation and control by users, e.g., consultative design process, and user operated sun control devices.
Education:	- Provide construction skills training and induction on environmental management on site. - Make the sustainability strategies visible to the building users.

11.7.3 Economic sustainability

Item	Description
Local economic development	- Use local contractors and labour (within 100km of the site). - Ensure that the construction employee mix reflects the Equity Act requirements. - Use locally procured building material and components. - - Support small manufacturers and contractors.
Efficiency of use	- Maximise the proportion of 'usable' to 'non-usable' space (circulation).
Adaptability and flexibility	- -Design spaces that are adaptable for different uses - Configure services to allow for different internal arrangements. - - Employ structural systems that allow easy renovation.
Ongoing costs	- Consider ongoing costs in the specification of materials and equipment to enhance serviceability of components over life of building. - Install meters to allow for easy monitoring of costs energy and water consumption. - Display information on consumption of resources and waste production, e.g. integrated electronic notice boards.

11.8 Monitoring and Evaluation

Project-specific indicators for the success of each objective will need to be identified. Examples of indicators that could be used to measure success in achieving that relate to Sustainable Buildings are provided in Sections 11.7.1 – 11.7.3.

12 Section 12: Participation, Communication, Public Awareness and Reporting

12.1 Overview

Despite the best intentions and all the preparation on the side of an event manager, the greening of an event will not be a success without the active participation of the spectators and participants at the event. The actions of the people on the day will determine the success of the event, but this can be influenced through active marketing and an awareness raising campaign.

An Environmental Management System (EMS) is required for all large events to ensure that all the relevant aspects have been included into the preparation for the event. The success of the greening can only be measured if there is a monitoring system in place and if an evaluation is done at the end to determine lessons learnt and ensure continuous improvement. One of the measurements of the success of the greening is the effective implementation of long-term projects which are usually referred to as "Legacy Projects".

12.2 Marketing and Communication

To ensure that the greening guidelines are integrated into all aspects of the sporting event a successful marketing and communication campaign is required. The following implementation guidelines provide suggestions that should be taken into account:

- An external and internal marketing and communication strategy is needed to get the right message across.
- Different target groups need to receive specific kinds of information with a specific focus relating to their needs.
- Provide accurate and reliable information so that role players know what is expected from them with respect to greening efforts.
- Both visitors and the general public need to be informed about the greening process and be encouraged to participate through a comprehensive marketing strategy.
- Ensure that the need for capacity building to equip different service providers and other role-players to implement the greening guidelines is addressed and clearly communicated to the relevant parties.
- The marketing of greening implementation and lessons learnt is essential to encourage a better understanding of event greening.
- The marketing and communication strategy has to take local circumstances into account, such as the limited access to internet facilities within developing countries.
- Branding of the event in promoting the greening initiatives that will be undertaken.

The development and execution of a simple and well researched marketing and communication plan will ensure that people are informed and get involved in embracing the greening guidelines associated with the event. The documentation of the process also helps with capacity building around event greening in general. Through developing a clear marketing and communication strategy, people will have a better understanding of what is required of them and what constitutes environmentally responsible behaviour. This increased awareness, understanding and participation will also assist in leaving a long-term legacy.

12.2.1 Documentation and Marketing of Lessons Learnt

An important aspect of event greening is communication to the participants and the general public through the media. Those who have organized an environmentally friendly event should make it known through the media, but also in an environmental report. A simple, clearly illustrated environmental report should detail the environmental objectives, targets and achievements of a particular activity, service or product and thus provide an incentive for those wishing to do the same.

12.3 Branding

To ensure that people actively participate in the greening of an event, it is essential that the message is well communicated and branded. Branding assists different role players to identify with the greening programme. From service providers and sponsors through to spectators and sports participants.

A brand identity needs to be developed, with specific brand positioning and a clear message. The development of a logo will assist in brand recognition as was done with the Greening of the World Summit on Sustainable Development and the 2006 German FIFA World Cup™.

Different methods of communication can be used to get the message across such as a website, e-newsletter and moving billboards such as on the side of a bus. The principles of greening should, however, be kept in mind when selecting communication methods.

12.4 Target Audiences

Different audiences should be identified, and specific messages should be developed to suit their needs. The following audiences should be considered:

- Organising team (2023 Netball World Cup);
- Athletes / sports men and women;
- Referees;
- Operational personnel;
- Volunteers;

- Domestic and foreign spectators;
- Partners and sponsors;
- Suppliers;
- Media; and
- Environmental NGOs, etc.

Different marketing and communication methods will have to be used for the different target audiences. During the 2006 FIFA World Cup™ extensive use of internet facilities was made, which will not be as practical for the locals in developing countries, but it could however be effective for visitors from other countries. For example, the 2019 3rd PAGE Ministerial Conference which was hosted in Cape Town International Convention Centre used mobile applications to share programme updates and documents to minimize printing.

Similarly, mobile applications may be developed for the 2023 Netball World Cup to provide update, communicate awareness, messaging, etc.

12.5 Media Activities

Shortly before and during an event, media representatives are particularly interested in covering all aspects of the event. This provides an opportunity to showcase issues around general sustainability considerations and environmental protection. Press releases can present measures that illustrate how the event is being managed to become environmentally sustainable. In the case of events stretching over several days, a press conference especially devoted to environmental issues is recommended, since experience shows that this generally receives a considerable response in the media. This area of work should be clearly indicated in the Communication Strategy and Action plan for the 2023 Netball World Cup.

12.6 Training, Awareness-Raising and Participation

Training, awareness-raising and participation are integral requirements of a successful greening programme. Furthermore, to ensure that the legacy of the event greening continues long after the event, it is imperative that the people involved in the greening understand the benefits of event greening and what they can do to contribute to or support the various greening efforts. Despite the best technology and design, the responsibility for resource management still lies with individuals. If people do not change their values and actions, then unsustainable consumption and waste generation patterns will continue.

A training programme should be designed and implemented to enhance understanding of the concepts and principles underlying event greening and assist key role players implement their responsibilities. Such training interventions should be targeted at the organising committee, operational staff and service providers. If staff and volunteers are

not well informed, then the greening programmes will not be well implemented. Although it is important that a basic level of awareness should be provided, it is also understood that in-depth education cannot be achieved in a short time.

Volunteers should have a dedicated training programme so that they can understand the importance of greening, as well as fully appreciate the nature of their responsibilities and tasks.

A training programme should start with an analysis of the participant's capabilities and needs for further education. In addition, there is a need to identify what skills and competencies are required to implement the greening guidelines to ensure that relevant role players are adequately equipped to execute their responsibilities. Based on this information, the training programme needs to be properly planned and conducted.

Whereas training has a focussed message for a particular audience, awareness-raising is targeted at a larger audience and has a broader impact, although it is not as in-depth. Awareness-raising shows people that different choices exist and equips them with the knowledge to choose responsibly. Through the awareness-raising programme it is anticipated that environmentally responsible behaviour will increase and will contribute to leaving a long-term legacy for the host region.

An important reason for awareness-raising is to encourage active participation in the greening activities. It should not just be the responsibility of the event organisers and volunteers to participate in greening activities, but everybody should actively participate. For example, although recycling can be done off-site after the event, it is better if spectators at the sports event participate through waste separation at source. Participation in greening activities should lead to changes in attitudes and behaviour that promote environmentally responsible behaviour beyond the sports event. Spectators need to know what they should be doing in simple clear terms.

The participation in the greening programme can also leave a legacy for the host region if an extensive communication programme is included for the local residents. Aspects such as energy efficiency, water conservation and waste reduction will have a positive impact on the host region if the residents understand the benefits of these activities and implement these actions within their homes and work place.

12.7 Volunteer Programme

The programme seeks to actively build on the successful deployment of environmental volunteers during low carbon events supported by the Department of Forestry, Fisheries and the Environment. Human contact for people in a strange and different place enhances the experience of that environment and the learning that takes place irrespective of the quality of printed and audio-visual communications.

The use of volunteers provides ordinary citizens with an opportunity to participate in the sporting event, as well as gain knowledge and experience about event greening. Most of the large international sports events make use of volunteers, but these volunteers also need to be well trained and managed.

The training programme needs to include clear regulations and guidelines for the volunteers. The volunteers need to know upfront what is expected of them to ensure that the programme is successful. Clarity also needs to be provided regarding logistical needs such as transport, meals, dress code and working times. If any financial compensation is to be made, this should also be clarified prior to the start of the event. Clear identification, such as t-shirts or caps, should be given to volunteers. Certain types of events would also require that appropriate shelter is provided to volunteers.

Although volunteers can play a significant role in the greening of an event, the management of the volunteers should not be underestimated. This is very time consuming and will have to include effective training. Volunteers can however add tremendous value if they are well trained, managed and form an integral part of the overall greening programme.

It is ultimately the actions of the people that make the difference, although all initiatives should be supported by appropriate technology. The importance of sustainable resource management is however still relatively new in developing countries and as such, training and awareness-raising plays an important role in ensuring the successful implementation of the guidelines. People need to be encouraged to participate and one of the ways of doing this is to make use of volunteers at large sports events.

12.8 Monitoring and Evaluation

Monitoring and evaluating the effectiveness of greening activities and plans are crucial when aiming to achieve long-term benefits from major events. The monitoring and evaluation process provides valuable information on problems that arise during the event itself as well as information on the effectiveness and impacts associated with the greening programmes. This information is important for present and future organising committees and host cities, as lessons learnt will help to guide the design of future greening programmes and thereby strengthen sustainability aspects of future sporting events in South Africa.

12.8.1 Guidelines for Monitoring and Evaluation

Measuring effectiveness and impact through monitoring and evaluation allows steps to be taken to improve greening activities during implementation; demonstrate the successes of the initiative and the value of environmental best practice and strengthen future greening initiatives. Monitoring and evaluation can be conducted by the greening team but is most credible when carried out by an independent organisation.

- **Define the objectives of the greening initiative:** These can be broad objectives for larger events, or more specific for smaller events, e.g. waste minimisation, water conservation, energy efficiency, etc.
- **Identify indicators of success for each objective**: Indicators are criteria for measuring outcomes against expectations, such as percentage of waste recycled during the event, or the number of people reached through training during a specific time. Each objective may have several indicators.
- **Define a strategy for collecting and analysing data**: Include venue managers and other stakeholders to ensure access to relevant data. Ensure that data collection methods are simple and systematic and fully under-stood by those collecting the data. Surveys are useful tools for measuring less quantitative activities, such as awareness-raising.
- **Ensure that specific people are responsible for collecting data**: Do not rely on the random collection of data but ensure that it is well managed.
- **Communicate results through the event to encourage participation**: If people have a goal to work towards and they can see the progress that is being made, then it will encourage them to continue their actions. For example, if targets for use of public transport are set and information on efforts to reach these targets is published on a regular basis and in a visible place, spectators may be inclined to change their transport habits to assist in reaching the target.
- **Assess reasons for successes and failures**: Once the data is collected it needs to be analysed and communicated so that the statistics can add value to the process.
- **Communicate lessons learnt**: Future event organisers can benefit from these experiences if the processes and lessons learnt are well documented and communicated.

12.8.2 Evaluation report (post event)

An honest analysis and assessment of environmental activities after the event, indicates the strengths and weaknesses of the greening programme and identifies areas needing improvement. The review and assessment of environmental objectives is also a matter for sports associations, because only extensive monitoring creates a basis for the future development of environmental concepts in sports. A national federation can also take the initiative to the international level to ensure that greater account of environmental sustainability issues are taken into account with future events.

Reporting is a vital way to deliver information to future organisers about strategies and practices that are effective and others that did not work. A formal evaluation report makes the organisers aware of the activities and environmental initiatives, as well as the difficulties and setbacks that often arise in the management of major events. The report should be clear, informative and provide information about the advantages and disadvantages of the greening programme, as well as information as to how to improve activities and plans for future events. Consider reporting as a valuable legacy of activities

and efforts to enhance sustainable development practices that can influence programmes developed for other major sporting events in the future.

12.9 Legacy Projects

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

A legacy project will help to make sure that:

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

The new build programme to be constructed in support of the hosting of the 2023 Netball World Cup will form part of the legacy programme. The list below provides a list of identified legacy projects.

- Refurbishment of 48 Netball courts in the Western Cape Province;
- Legacy Projects in each of the nine (9) Provinces; and
- Legacy projects in Ghana, Botswana and Malawi.

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14 SECTION 14: WEBSITES

2010 Official website	http://www.sa2010.gov.za/government/transport.php
Audubon Cooperative Sanctuary Program for Golf Courses	www.audubooninternational.org/programs/acss/golf.htm
Beijing 2008 Olympics	http://en.beijing2008.cn
EUSA	www.eusa.org.za
Event Greening Forum	www.eventgreening.co.za
German 2006 FIFA	www.fifa.com
Global Reporting Initiative	www.globalreporting.org
Global Urban Development	www.globalurban.org
Global Emission Model of Integrated Systems (GEMIS)	www.gemis.de
Green Goal Report	www.oeko.de/oekodoc
Greenhouse Gas Protocol	www.ghgprotocol.org
Greening COP17	https://www.dffe.gov.za/projectsprogrammes/greeneconomy/
Greening Major Events	www.globalurban.org
Local Economic Development	www.led.co.za
London 2012 Olympics	www.london2012.org
Netball World Cup 2023	https://netball.sport/event/netball-world-cup-2023-2
Olympics	www.olympic.org
SANBI	www.sanbi.org
SEDA	www.seda.org.za
Sydney 2002 Olympic Games	www.gamesinfo.com.au
Torino 2006 Winter Olympics	www.torino2006.it
UNFCCC Glossary	https://unfccc.int/resource/cd_roms/na1/ghg_inventories/english/8_glossary/Glossary.htm
UNEP Events and Meetings	www.unep.org
UNEP Sports and the Environment	www.unep.org/sport_env/

Vancouver 2010 Olympics	www.vancouver2010.com/
WWF	www.wwf.org/