

Championing the environment

Sydney 2000: the green Games



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'The Sydney 2000 Olympics is the largest building project in the world that has attempted to apply the policies of Ecologically Sustainable Development (ESD).'

– Green Games Watch 2000 (2000a)

The 'green' aspects of the Sydney bid for the 2000 Olympic Games were significant in winning the bid. The Sydney bid received support from Greenpeace, which collaborated with the bid organisers in designing the Athletes Village. Development of a set of environmental guidelines which were to permeate every aspect of the development and running of the Games helped to secure the 2000 Olympic and Paralympic Games for Sydney.

The environmental successes of the Sydney 2000 Games have been documented by several groups

(Earth Council 2001, Greenpeace 2000, the Sydney Organising Committee for the Olympic Games and the Olympic Co-ordination Authority 2001).

These successes included:

- remediation of the Homebush Olympic site, which contained industrial and toxic waste;
- the use of renewable energy and energy efficient design, particularly in the Athletes Village, which was the world's largest solar suburb;

- the construction of a new rail link and the use of public transport by most spectators;
- development of a water reclamation and management scheme;
- implementation of an integrated waste management strategy for large events;
- reuse and recycling of construction wastes;
- protection of the endangered Green and Golden Bell Frog through regeneration of habitat.

Many of the principles of ecologically sustainable development applied by government, industry and environment groups for the Sydney 2000 Games subsequently became enshrined in Government policy and legislation.



Architectural model of the proposed Olympic Stadium used to promote the Sydney 2000 bid to the IOC. Designed by Philip Cox Richardson Taylor in association with Peddle Thorp Connell Wagner.**

How the green Games began

By the early 1990s the environment had become a significant global issue. The decision to focus on environmental considerations was timely for the Sydney 2000 bid in 1993.

The United Nations Earth Summit in Rio de Janeiro in June 1992 represented a milestone in government, community and industry progress towards addressing sustainable development, or ecologically sustainable development (ESD) as it is known in Australia.

'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs ... The world must quickly design strategies that will allow nations to move from their present, often destructive, process of growth and development onto sustainable development paths.'

– World Commission on Environment and Development 1987

ESD was institutionalised by Australian governments in December 1992 in the National Strategy for Ecologically Sustainable

Development. This strategy defined ESD as:

'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.'

– Ecologically Sustainable Development
Steering Committee 1992

This strategy was based on principles which aspire to balance social, economic and environmental considerations in meeting the needs of the current generation while conserving ecosystems for future generations. The five key principles were:

- *integrating economic and environmental goals in policies and activities;*
- *ensuring that environmental assets are properly valued;*
- *providing for equity within and between generations;*
- *dealing cautiously with risk and irreversibility; and*
- *recognising the global dimension.*

– Ecologically Sustainable Development
Steering Committee 1992

By 1993 the International Olympic Committee (IOC) had included the environment in its charter, developed an environment policy and required bidding cities to address the theme of the environment in their bids.

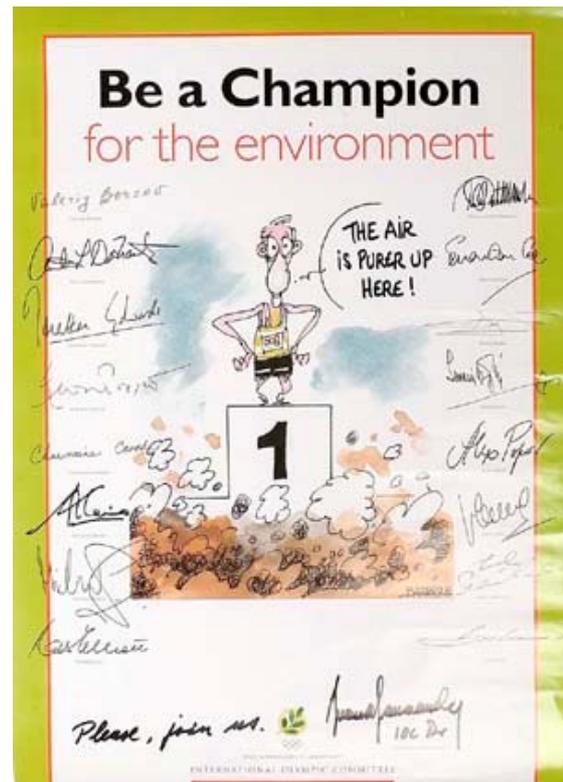
The creation of the green Games aspect of the Sydney bid began with the design competition for the Athletes Village in early 1992. The competition required that environmental considerations be addressed in the Village design. One of the five joint winners was connected with Greenpeace Australia. The five winning groups worked together with Greenpeace to design the Village for the Sydney 2000 Olympic bid. This collaboration initiated the formation of an Environment Committee to create the Environmental Guidelines for the Summer Olympic Games.

The Environmental Guidelines were based on ESD principles and addressed the major areas of energy conservation, water conservation, waste avoidance and minimisation, pollution avoidance, and protection of significant natural and cultural environments.

The Guidelines were presented to the IOC in 1993 and formed an important part of the bid to secure the 2000 Olympic Games for Sydney. The promise of the first eco-friendly Olympic Games led to Sydney 2000 becoming known as the 'green Games'. The 'green' label stuck and was used to promote the Sydney 2000 Games prior to and during the Games. The Guidelines became part of NSW legislation once Sydney won the right to host the Games. This ensured that the environment was considered at all stages in the development and organisation of the Games.

'We always knew the environment would be a strong issue in the bid. When we went to the IOC in Lausanne for the briefing on the bid books, we noticed that the environment was listed as a full chapter in its own right for the first time. The IOC was clearly trying to send a signal that it wanted candidate cities to regard the environment as an important consideration.'

– Rod McGeoch 1994
(McGeoch and Korporaal 1994 p139)



"Be a champion for the environment" urged the IOC Sport and Environment Commission. This poster was signed by the IOC president Juan Antonio Samaranch and sixteen renowned Olympic athletes.*

When Sydney won the bid to host the 2000 Games, a coalition of environment groups came together to form Green Games Watch 2000. This independent group became the environmental watchdog during Games development. It reported on Games progress in regard to the environment and lobbied for environmental protection.

The Olympic Coordination Authority (OCA), the NSW government body responsible for developing the physical infrastructure for the Games, invited the Earth Council to

undertake an independent review of its environmental performance against the aims described in the Environmental Guidelines.

The final report by the Earth Council states:

'It is possible to use the concept and principles of sustainable development as the guiding force behind a major development project...doing so will result in a range of intended and unintended economic, social and environmental benefits.'

– Earth Council 2001

The report also suggests that it is not 'necessary to have a perfect blueprint for sustainable development' to gain from the approach. While the Sydney 2000 Games did not receive a perfect scorecard from its environmental watchdogs, they provided an example of how the Games and other large infrastructure projects can approach sustainable development practices.

Building the green Games

Building the extensive infrastructure required to host an Olympic and Paralympic Games in Sydney provided an opportunity to use sustainable development principles in design and construction.

The OCA required all construction and infrastructure projects to address the Environmental Guidelines. It set up the Environmental Tender Specification which required those who submitted tenders to develop an Environmental Management Plan and demonstrate how they would address the Guidelines. The OCA used an Environmental Management System, a structured set of procedures, lists and actions, to ensure it achieved its environmental commitments. This was the first time such a system had been used in delivering Olympic and Paralympic facilities.

'The [building] industry has clearly been made aware of the benefits of an environmentally benign approach. I believe that this will be one of the most lasting legacies of the Games for the industry.'

– Associate Professor Deo Prasad 1997
(Centre for Olympic Studies 1998 p83)

Use of the Environmental Tender Specification process resulted in education across the building industry, as firms were required to research and address environmental considerations in their proposals. An integrated multidisciplinary approach to design most often was the key to introducing successful ESD initiatives. In some cases, a sustainable development consultant led the team of architects and designers.

'Lend Lease suggest that multidisciplinary 'design for environment' workshops carried out on the village have resulted in changes to the way the whole organisation operates.'

– Jeff Angel 2001
(Green and Gold 2001)

architects were connected with Greenpeace. As a result of this connection, a relationship between the Games organisers and Greenpeace was initiated, resulting in much of the focus on the green Games.

'The Olympic Village design was so successful, there were enquiries from all over the world – most of them nothing to do with the Olympics. Developers from everywhere asked for the designs. The Village came to be regarded as the state of the art living for the next century; how people will build and live, taking into account environmental concerns.'

– Rod McGeoch 1994
(McGeoch and Korporaal 1994 p140)

Building the Athletes Village

The initial Village design for the Sydney 2000 bid was developed by the Urban Village Design Group, a consortium of architects who were joint winners in the design competition. The group consisted of Bruce James and Partners, Phillip Thalys and Peter John Cantrill, Mazhar Berke and Gungor Ozme, John Hockings, Roderick Simpson and Andrea Wilson. The last two



Architectural model of the Athletes Village used to promote the Sydney 2000 bid to the IOC. Designed by the Urban Village Design Group. Made by R&F Porter Model Makers.**

After the Sydney bid was won, a consortium consisting of construction groups Lend Lease and Mirvac and architects Philip Cox Richardson Taylor and Peddle Thorp was awarded the job of designing and constructing the Village. While this decision created some controversy for not including the designers from the original bid, the design team aimed to go beyond the environmental guidelines to develop a model for a sustainable urban community.

The design and construction consortium used workshops involving government, community and construction groups to investigate issues such as materials use, landscaping, orientation and design.

One of the greatest challenges for the design and construction of the Village was to ensure that everyone involved supported the environmental initiatives. To ensure awareness and understanding within the design and construction workforce, the consortium ran induction and training programs to educate staff about the protocols necessary to achieve the environmental outcomes.

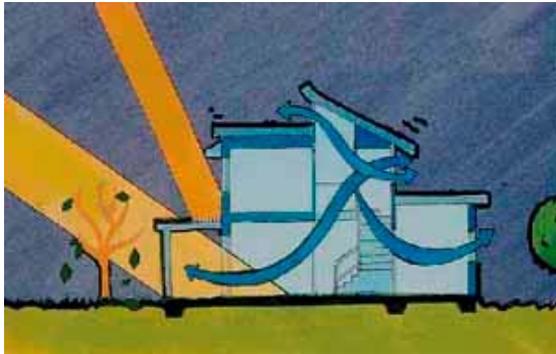
At the time of the Sydney 2000 Games, the Athletes Village was the world's largest solar suburb (in terms of the number of houses). There were 665 houses fitted with photovoltaic solar collectors and connected to the electricity grid. Together they generated 665 kW. These houses were also fitted with solar hot water collectors.



Installing solar panels on the roof of the Village. #

Passive solar design was utilised to maintain temperatures and avoid the need for air conditioning. Passive design aims to use the existing climatic conditions to maximum benefit and minimise the heating and cooling needed. Design principles include orienting living areas to the north and using shading so that summer sun is excluded while winter sun is allowed into the house (see diagram below). Using materials that absorb heat and release it during the night reduces the need for heating in the evening. Designing for air flow

through the building allows natural ventilation to be used for cooling.



Passive design principles used in the Village.#

By using these design principles, energy demand of homes in the Village was reduced to 50% of the energy consumption of comparable normal homes. The Athletes Village was considered by Greenpeace as 'Australian best practice for energy' (Greenpeace 2000 p29).

Sewage and runoff from the Village was captured by the Water Reclamation and Management Scheme (WRAMS) for treatment and reuse on the site. A dual-pipe water system was used to provide the recycled water for toilet flushing and garden use. Gardens were landscaped and designed to use native species and minimise water use.

Life cycle analysis was used to determine the most environmentally friendly materials and products. Over

90% of waste from construction of the Village was recycled or reused.

At the time of the Games, the Village consisted of 665 houses and 330 apartments plus removable modular housing. The Village housed over 22,000 athletes and officials during the Olympic and Paralympic Games. After the Games the Village was sold as residential housing. The Village continued to grow, expanding to become the new suburb of Newington.



Panels on the roofs of the Athletes Village generated electricity and hot water.#

Green Games on show

One of the most visible aspects of the environmental performance of Games events was the management of waste. Using recycling bins and biodegradable packaging was one way the public directly interacted with the green Games strategy.

The great influx of people and activity to Homebush for the Games had the potential to create a huge amount of waste, putting pressure on Sydney's rapidly disappearing landfill space. Sydney 2000 set an ambitious aim of reusing or recycling 80% of waste generating during the Games. It achieved recovery of 77% of waste, more than for any other Games (Earth Council 2000). A particularly significant achievement was the reuse and recycling of construction and demolition waste at an average rate of 60% over the entire Games development.

The Sydney 2000 Olympic Games Integrated Waste Management Solution was launched in 1998 after two years of development. It was developed by SOCOG and OCA in conjunction with sponsors SITA-BFI, Waste Service NSW, Cleanevent and Visy.

The strategy addressed the waste aspects of the Environmental Guidelines and was based on the concept of '100% responsibility' for waste. Everyone involved in producing waste material had a role in waste reduction.



'You sort it, we won't waste it'. The Olympic mascot, Syd, advises the public on the separation of general, recyclable and biodegradable waste at the Sydney 2000 Games.*

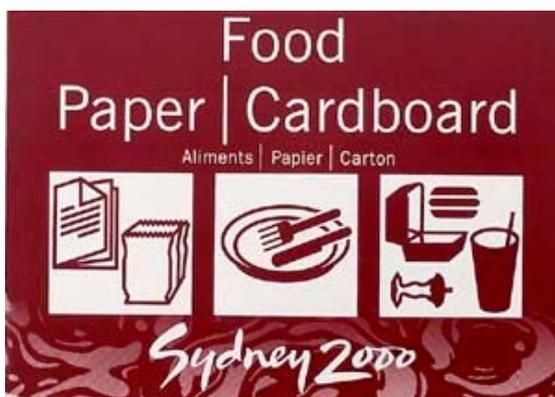
The strategy focussed on the possibilities of resource recovery from the Games. It included packaging and foodware specifications to control the types of material entering the waste stream. Recyclable or biodegradable materials such as cardboard, PET and aluminium were acceptable whereas polystyrene, aluminium foil and cling wrap were not.

The plan identified all the potential waste generating areas and activities, enabling a system for waste

separation to be designed for each different activity or area. It described eight waste streams of: comingled containers, clean paper and cardboard, glass, medical, cooking oil, compostable, residual, and reusable. A system of colour coded bins sorted the waste as it was created.



Waste was separated at the source using these colour coded bins.##



Stickers on collection bins informed the public how to correctly deposit their rubbish.*

Visy supplied much of the recyclable and biodegradable product for use at the Games. This included biodegradable sugar cane fibre

plates, paper cups, biodegradable (cornstarch) plastic cutlery, and paper and cardboard food packaging.

'...the task was to identify the product before it got to the consumer – some products are hard to recycle (PVC, polystyrene and even polypropylene) so all cups were either card or PET, not polystyrene – then have the logistics in place to recover the materials. Our objective was to take back all the Visy manufactured products for recycling and, where possible, make these into [new] products.'

– Rob Pascoe, Visy
(Webb 2001 p123)

Biodegradable foodware and packaging was collected together with food scraps using biodegradable bin liners. It was taken to a composting facility on the outskirts of Sydney, where it was mixed with green waste from homes. This material was turned and watered and left until May 2001 to ferment. It was then screened, prepared and sold to horticultural markets in Sydney.



Cutlery was made from either cornstarch or wood and later decomposed to form compost.*



Recycled cardboard bookshelf made by Visy for use at the Games.*

Visy also designed and made cardboard furniture which was used

in Games offices. Tables, chairs, desks, partitions and bookshelves were all made from recycled cardboard. After use, the furniture was collected by Visy and recycled.

One of the greatest challenges for managing the Games waste was coordinating all of the organisations and participants involved. Contractual arrangements ensured caterers and suppliers understood the waste strategy. The result was a process of education and increased awareness among venue staff and caterers of waste management issues. Part of the strategy also included an education plan to make staff, visitors, athletes and the wider community aware of their role in waste avoidance and minimisation.



Disposable plates made of sugar cane fibre were biodegradable.*



Paper cups coated in cornstarch rather than plastic became compost after the Games.*



Biodegradable bin liners were used to collect waste for composting.*

The Sydney 2000 Games waste management strategy demonstrated a successful closed loop recycling program. The strategy could be applied for use in other large scale events and organisations. It also provided a demand for recyclable and compostable packaging and foodware.

The green Games legacy

The Earth Council suggests that one of the most valuable outcomes of the attempt to produce a 'green' Games was the lessons learned in trying to apply the principles of sustainable development

The Games demonstrated an approach to incorporating ecologically sustainable development into a large scale project.

Significant outcomes of the green Games approach include:

- education of industry, government and the public about issues of ecologically sustainable development;
- remediation of the Games site at Homebush;
- demonstration of a method of incorporating ESD into a large scale project and
- development and demonstration of an integrated waste strategy for public events in Sydney.

'The test is whether the approach to ESD for the Games remains a one off or whether these significant endeavours are now repeated, to ensure a wider legacy.'

- Green Games Watch 2000 (2000b)

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Internet resources

Green and Gold – the sustainable sport source <http://www.greengold.on.ca/>

Green Games Watch 2000 (Archive) <http://www.nccnsw.org.au/member/ggw/>

Greenpeace – The Green Games (Archive)

<http://www.greenpeace.org.au/archives/olympics/index.html>

Olympic Co-ordination Authority – Environment (Archive)

<http://www.oca.nsw.gov.au/html/environment.stm>

Sydney Olympic Games Info (Archive)

<http://www.gamesinfo.com.au/home.html>

Sydney Olympic Park Authority <http://www.sopa.nsw.gov.au/html/default.cfm>

*Photo by Greg Garay. Gift of the New South Wales Government, part of the Sydney 2000 Games Collection.

**Photo by Sotha Bourn (PHM). Gift of the Sydney Organising Committee for the Olympic Games (SOCOG). For more information search Australian Museums Online at http://amol.org.au/collection/collections_index.asp

#Photo/illustration courtesy of Mirvac Lend Lease Village Consortium (MLLVC). May not be used without the prior permission of the MLLVC.

##Photo by David Stubbs. Courtesy Green & Gold Inc.
<http://www.greengold.on.ca/>.

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