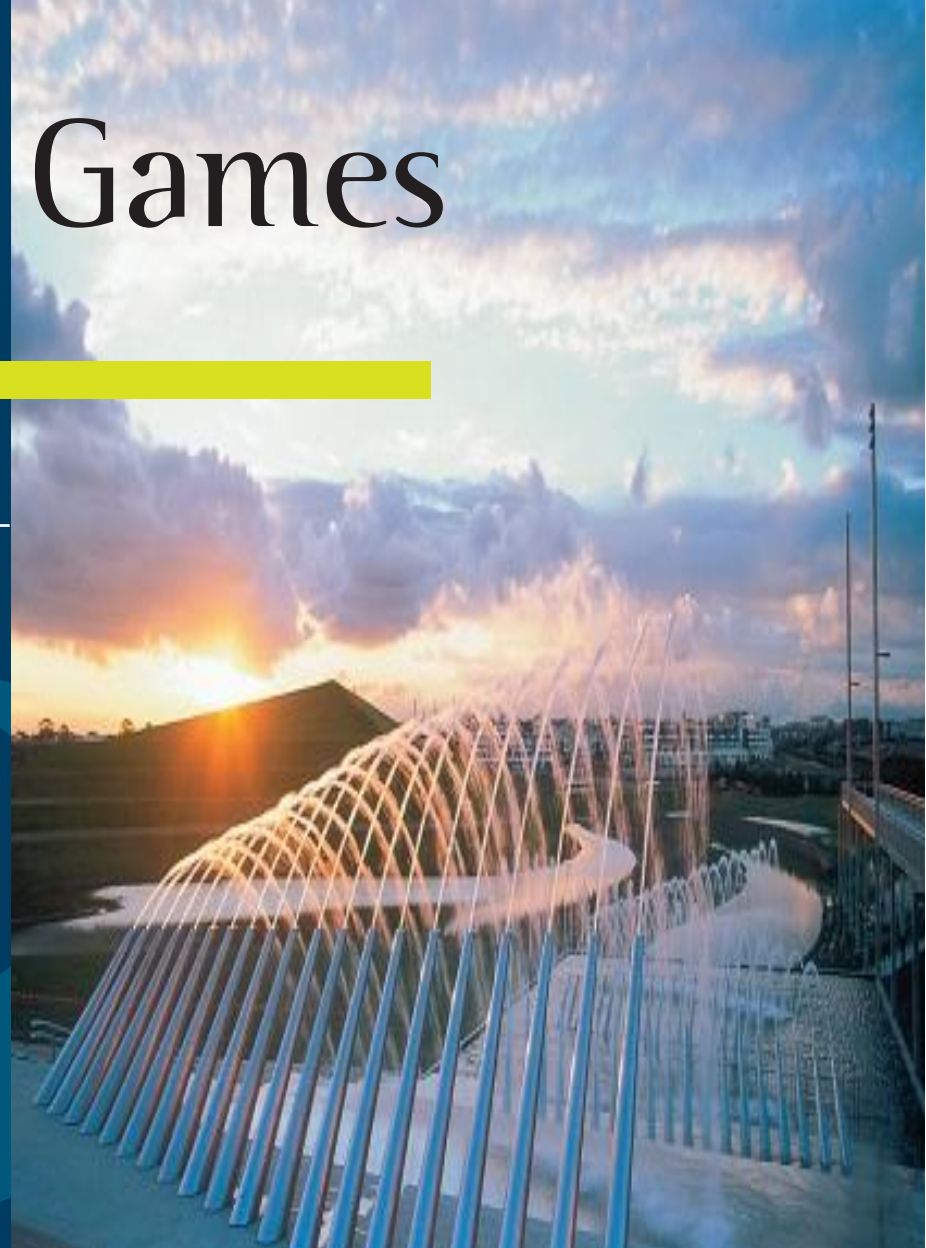


The Environmental Games

Environmental achievements of the Sydney 2000 Olympic Games



The Environmental Games

Environmental achievements of the Sydney 2000 Olympic Games

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Foreword

Setting a new standard for a new millennium

We are pleased to introduce the Sydney 2000 publication, *The Environmental Games*. It describes the significant achievements made by Sydney 2000 in delivering a new standard of environmental excellence for organising and staging the Olympic and Paralympic Games. The goal is to leave a legacy of improved environmental standards for the third millennium.

Sydney was the first host city to include a comprehensive commitment to the environment as part of its bid to host the Olympic and Paralympic Games. Environmental considerations were integrated into all aspects of planning and staging of the Sydney 2000 Games, including design, clean up, monitoring, land management, construction, operation of venues, transport, catering and waste management.

Significant achievements have been recorded in the key performance areas of energy conservation; water conservation; waste minimisation; pollution avoidance; and protection of significant natural and cultural environments. *The Environmental Games* documents these achievements - and the cooperative effort by Sydney 2000 and its partners, including sponsors, licensees, environmental groups and government agencies.

We encourage you to read and use this document. The problems that Sydney 2000 faced and endeavoured to overcome are common to communities around the world.

We believe the high standards set will establish an environmental legacy that others will strive to improve upon.



Dr Kate Hughes
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Environment: the third pillar of Olympism



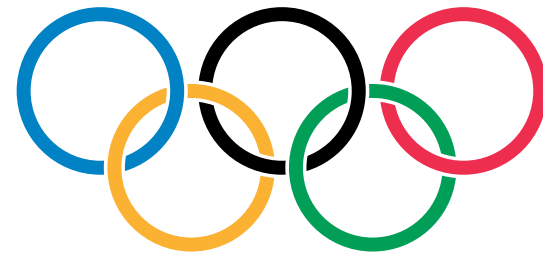
”Protection of nature and the environment so that people may practise the sport of their choice is an essential part of the contribution to quality of life, which should be based on sustainable development.”

Juan Antonio Samaranch, President, IOC.

The International Olympic Committee recognises that a healthy global and local environment is fundamental to sport. It has made environment the third pillar of Olympism, along with sport and culture.

Sport and the environment are linked in three ways:

1. Large sporting events can contribute to environmental degradation due to pollution; waste generation; and excessive consumption of materials, energy and water.
2. Athletes need a healthy environment in which to train and perform.
3. Sport originated in the natural environment and many sports are still played in a natural environment.





Sydney's commitment

Sydney was the first host city to include a comprehensive commitment to the environment as part of its bid to host an Olympic Games. The town of Lillehammer in Norway helped inspire the commitment due to the conservation measures taken during its preparation for the 1994 Winter Olympics. The *Environmental Guidelines for the Summer Olympic Games*, which formed part of Sydney's bid, contains more than 100 commitments in five key performance areas:

- energy conservation
- water conservation
- waste avoidance and minimisation
- pollution avoidance
- protection of the natural environment.

President of the IOC Juan Antonio Samaranch said Sydney's commitment to the environment was a factor in it winning the right to host the 2000 Games.

Your Olympic Games venues



- | | | |
|---|---|---|
| Sydney Olympic Park
1 Baseball Stadium
1 The Dome
1 Pavilion 2
1 Pavilion 3
1 Pavilion 4
1 Olympic Stadium
1 Race Walks Course
1 State Hockey Centre
1 State Sports Centre
1 Sydney International Aquatic Centre
1 Sydney International Archery Park
1 Sydney SuperDome
1 NSW Tennis Centre | City Centre
2 Triathlon Course
Darling Harbour
3 Sydney Convention Centre
3 Sydney Entertainment Centre
3 Sydney Exhibition Centre Halls 1 to 5
Sydney East
4 Cycling Road Course, Centennial Parklands
4 Sydney Football Stadium, Moore Park
5 Beach Volleyball Centre, Bondi Beach
6 Sydney Harbour, Rushcutters Bay | Sydney West
7 Ryde Aquatic Leisure Centre, Bankstown
8 Dunc Gray Velodrome, Bankstown
9 Mountain Bike Course, Fairfield City Farm
10 Sydney International Shooting Centre, Liverpool
11 Equestrian Centre, Horsley Park
12 Baseball Centre, Blacktown
12 Softball Centre, Blacktown
13 Penrith Whitewater Stadium
13 Sydney International Regatta Centre, Penrith Lakes |
|---|---|---|
- Interstate Venues**
 Brisbane Cricket Ground QLD
 Bruce Stadium, Canberra ACT
 Hindmarsh Stadium, Adelaide SA
 Melbourne Cricket Ground VIC

6



Wetlands and storage ponds frame the Olympic Stadium.





Building the stage

An event the size of the Olympic Games needs a fabulous stage. At the Sydney 2000 Games, there are 130 stages in all, including training venues. A strong commitment to the environment is reflected in all aspects of the design, construction and management of the venues.



Venues

All new Olympic sporting venues are designed to maximise energy efficiency, conserve water and promote natural ventilation. They are constructed from environmentally-friendly materials, using building processes designed to minimise waste.

Conserving energy

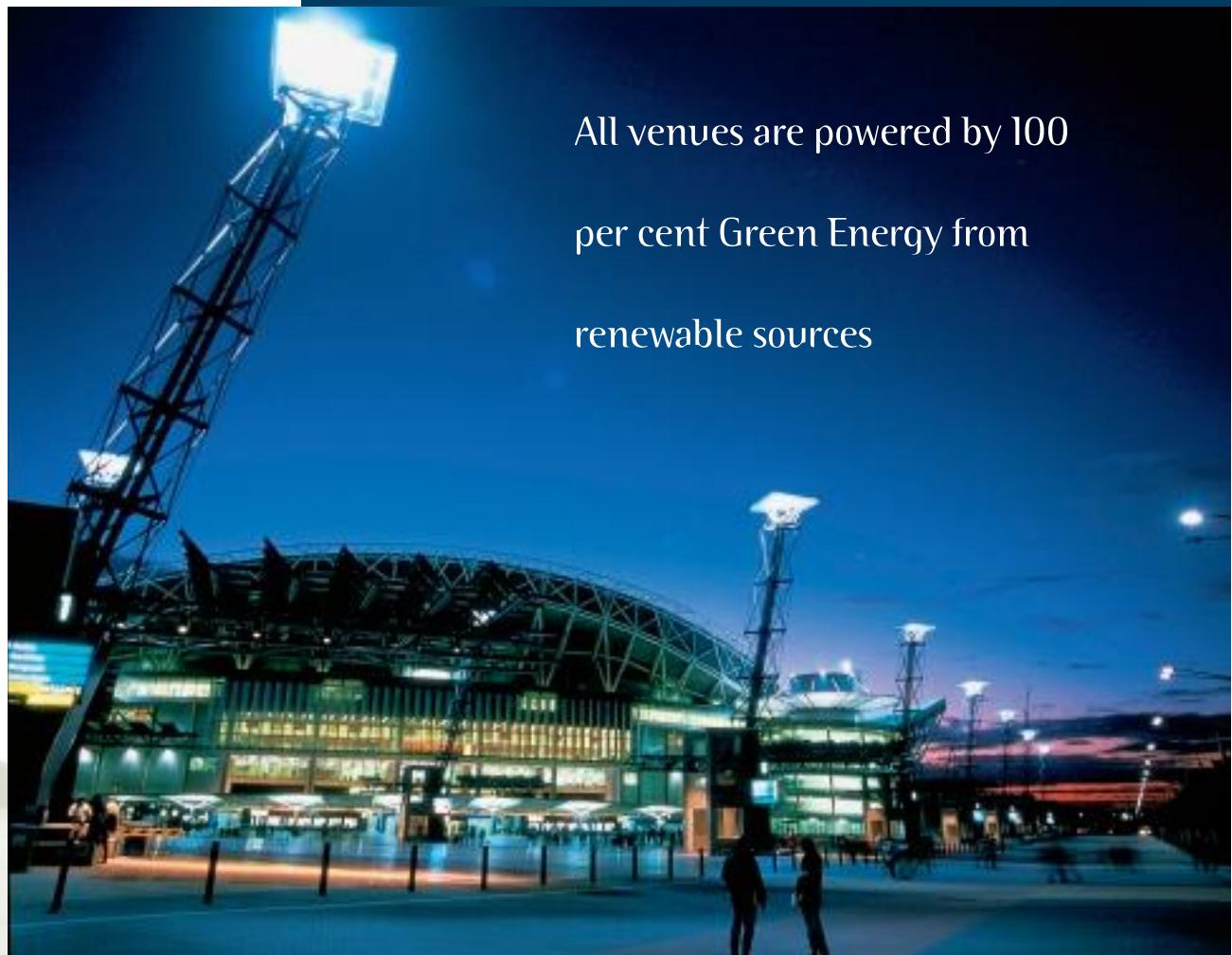
Solar electricity

Solar panels for generating electricity are found at many of the venues. The single largest roof-based solar energy system is on the roof of the Olympic basketball venue, the Sydney SuperDome; the combined solar panels on the roofs of 665 houses in the Athletes Village are the equivalent of a small power station; and there are solar panels on the light towers along Olympic Boulevard, Olympic Park and smaller examples on the finishing tower at the Sydney International Regatta centre, the ferry terminal at Homebush Bay and other light poles. A solar power station helps manage water quality in corridor wetlands at Homebush Bay.

Even venues without solar panels use solar or other forms of renewable electricity. During the Games, all competition venues will be powered by 100 per cent Green Energy from renewable sources, supplied by Olympic Sponsor Energy Australia.

Passive ventilation

The natural ventilation in the Olympic Stadium is achieved by the use of oversized lift shafts, stairwells and escalator voids that draw in cool air while allowing warm air to escape. Cloth funnels suspended from the roof in the animal pavilions of the Sydney Showground (converted to the Main Press Centre during the Games) promote rapid replenishment of air.



All venues are powered by 100 per cent Green Energy from renewable sources

Solar-powered light towers illuminate the walkway outside the Olympic Stadium and (left) cloth air funnels in the Main Press Centre.



Co-generation

Two 500-kilowatt gas co-generation engines supply electricity and heat to meet a large share of the Olympic Stadium's energy requirements. These produce 40 per cent less harmful greenhouse gases than conventional mains electricity.

Energy-efficient air conditioning

Air conditioning at the Sydney International Aquatic Centre at Olympic Park has been designed to cool only the air immediately surrounding the spectators, not around the pool, meaning less energy is needed for both cooling the venue and heating the pool. Similar systems are used in the SuperDome and Dome exhibition hall in the Sydney Showgrounds.

Solar hot water

The Novatel and Ibis Hotel at Homebush Bay has one of Australia's largest solar hot water systems on its roof. The 4002 square metre plant will supply 60 per cent of the Hotel's hot water requirements, reducing the total energy consumption by 15 per cent.



Conserving water

Dual water system

A dual water system at Sydney Olympic Park supplies potable (drinkable) water from the mains water supply through one set of pipes, and recycled water for toilet flushing and irrigation through a parallel system of pipes.

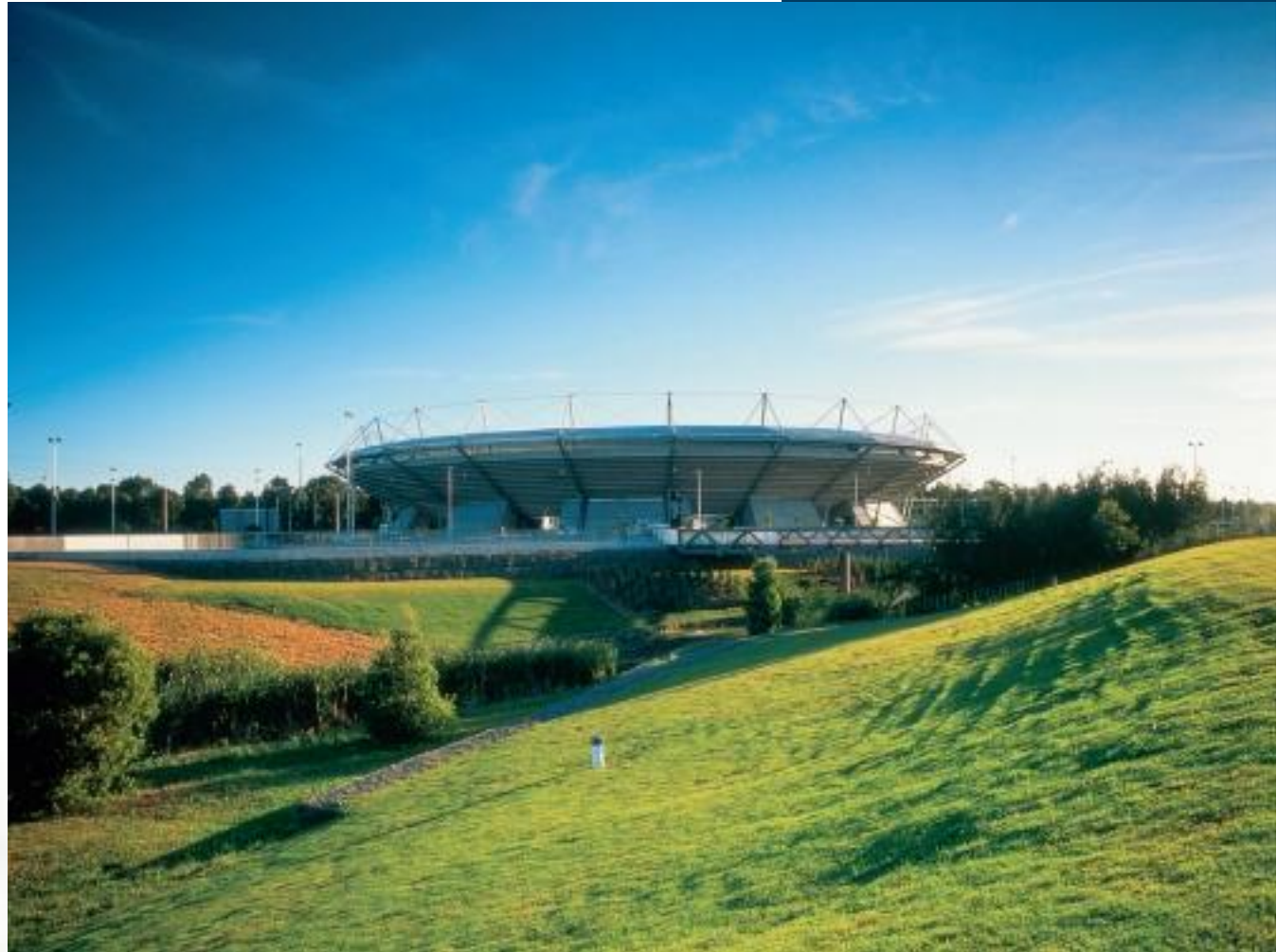
Sewage is treated in on-site wastewater reclamation and treatment plants before being reused for irrigation and toilet flushing. Storm water run off is caught in channels designed to imitate the natural water cycles of creeks and wetlands, stored on-site, then treated in the water treatment plant before use.

Water-efficient appliances

Olympic venues conserve water through efficient appliances, including water-flow reduction valves and shower roses, dual-flush toilets, roof-fed rainwater tanks and drip irrigation systems.

Native trees

Australian native trees and shrubs have been planted around venues to reduce water and mulching needs.



The Olympic Tennis Centre in a sea of green and (below) fig trees are shipped by barge from Northern NSW for planting around the Olympic Park site.





Reducing waste ... more than 90% of construction waste was recycled.



All materials for use in construction
underwent a life-cycle analysis



Reducing waste

Reusing buildings

Where feasible, existing buildings have been used and refitted for the Sydney Olympic Games. Around one-third of sporting competitions (nine out of 28) will be held in existing venues, which avoids the environmental impact of new construction. Many non-competition venues are also in existing venues. The Sydney Olympic Games headquarters is in a building that once housed a newspaper, the media village in an old hospital, the technical officials village is a university and the international broadcast centre is a converted warehouse.

Recycling construction waste

The reuse and recycling of construction material has led to some impressive figures for waste minimisation. For example:

- 220,000 cubic metres of concrete and rubble from the demolished Homebush abattoir was recycled and used on-site
- 40,000 cubic metres of earth excavated during construction was reused to create embankments at the Athletic Centre
- 94.67 % of construction waste at the Sydney Showground was recycled.

Building materials

Life-cycle analysis

All materials for use in construction underwent a life-cycle analysis. This assesses the environmental impact of a material over its entire life, from manufacture through use to disposal. Materials with the least impact were chosen for Olympic venues.

PVC reduction

The Environmental Guidelines committed Sydney to minimise and avoid the use of PVC. Olympic Sponsor Olex was instrumental in helping achieve this aim with its PVC-free cabling, which was used throughout the venues. PVC-free seating is used at venues and most subsurface pipes are non-PVC.

Steel

Steel supplied by BHP was one of the main construction materials used in Olympic venues. An important feature is its ability to be recycled.



The Athletes Village ... each of the 665 permanent houses has solar panels on the roof.

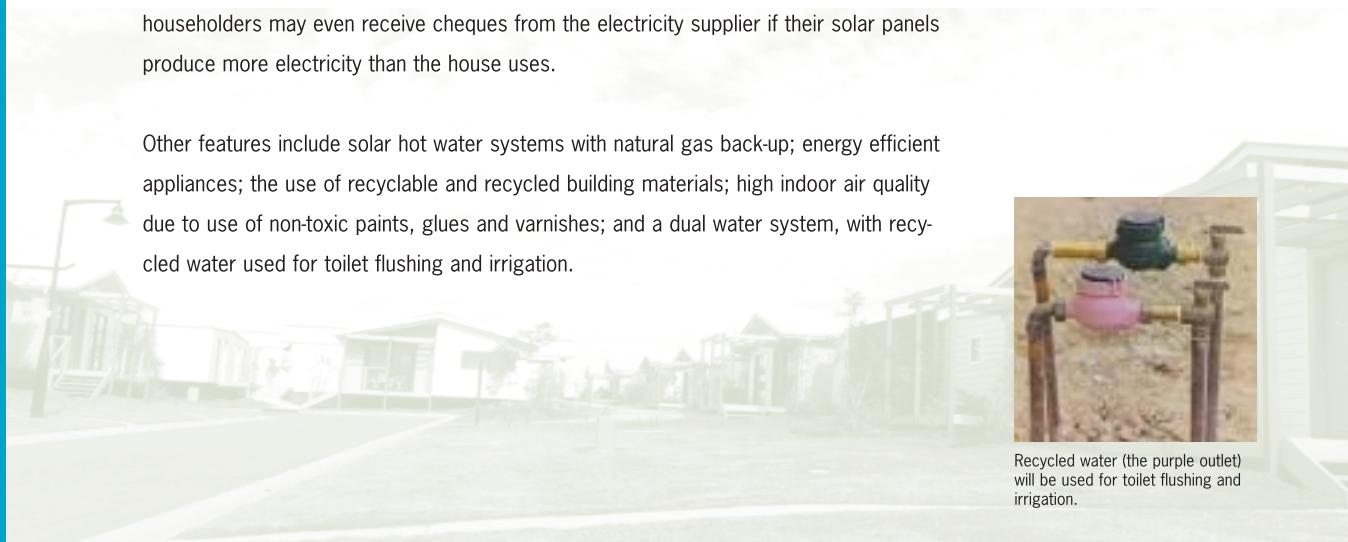
Athletes Village

The Athletes Village is an excellent example of how environmental considerations have been incorporated into the design and construction of new Olympic facilities. Adjacent to Sydney Olympic Park, its location means less travel time for athletes, which is an environmental benefit.

Each of the 665 permanent houses in the village has a photovoltaic solar energy panel on its roof which generates electricity. This makes the village one of the world's largest solar-powered suburbs. The amount of electricity produced makes it the same size as a small power station

The clever passive solar design of houses in the village means that they only use half the energy of a typical house. Since most of the energy required is provided by the solar panels, energy costs to the householders are expected to be virtually nil. In some cases, householders may even receive cheques from the electricity supplier if their solar panels produce more electricity than the house uses.

Other features include solar hot water systems with natural gas back-up; energy efficient appliances; the use of recyclable and recycled building materials; high indoor air quality due to use of non-toxic paints, glues and varnishes; and a dual water system, with recycled water used for toilet flushing and irrigation.



Recycled water (the purple outlet) will be used for toilet flushing and irrigation.

The village is one of the world's largest solar-powered suburbs



From wastelands to wetlands

One of Australia's largest land remediation projects has taken place at Homebush Bay, the location of many Sydney 2000 Olympic Games venues. The 6-year, \$A137m program has transformed a highly degraded environment into usable public space. The remediated lands and waterways are part of the new Millennium Parklands, which forms a green backdrop to Sydney Olympic Park and the Olympic Village.



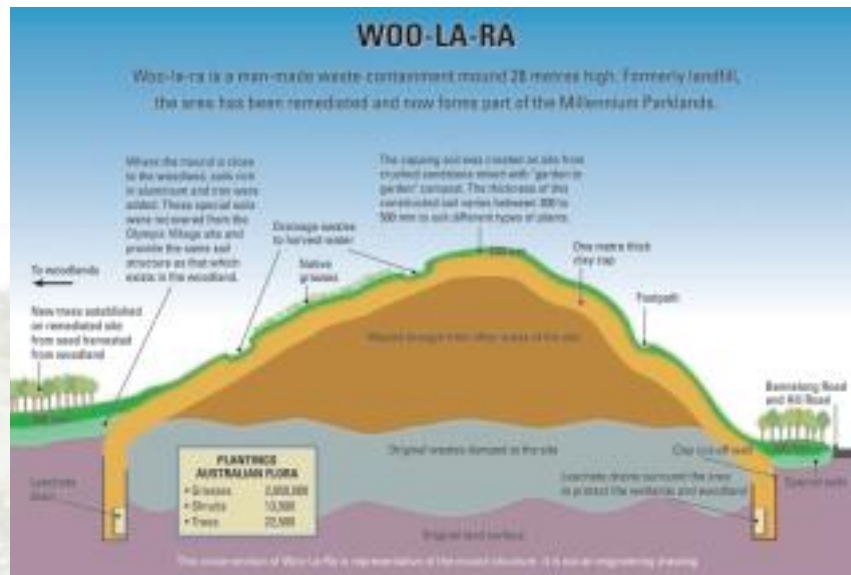
The problem

In the early 1990s, soil testing showed that about 160 hectares of the 760-hectare Millennium Parklands site was contaminated as a result of waste dumping practices in the 1960s and 1970s. Whilst most of landfill was domestic and commercial wastes, industrial chemical wastes were detected in some areas. Land degradation was also caused by clearing of vegetation, infilling of wetlands and creeks turned into concrete canals. Landfill leachate degraded water quality, as did upstream catchment pollution. Nine million cubic metres of waste had been dumped and had to be dealt with on site.



The strategy

The wastes were removed from sensitive land and waterways and consolidated into waste mounds, which were then capped and landscaped. To prevent pollution escaping to the waterways, drainage systems were installed to transfer the leachate to the nearby waste treatment plant. Today the remediated lands are used for sport and recreation, the creek flows in a natural way and the salt marsh is revitalised, with crabs, fish and birds returning. An enhanced remediation strategy is underway to ensure continued monitoring and management of the remediated land.



Waste is capped and contained in a number of large earth mounds at Homebush Bay, with drainage systems transferring the leachate to a nearby treatment plant.

Chemical wastes

During clean up, chemical wastes were discovered in one of the old landfills. Analysis revealed that it was hazardous waste and required special treatment. A total of 400 tonnes of material containing hazardous chemicals is being treated on site by a two-stage chemical process that reduces it to harmless substances.

The waterways and wetlands of Homebush Bay were in a sorry state before remedial works began



The mountain bike course at Fairfield contains important remnants of woodland forest.



Biodiversity

Rare pockets of Cumberland Plain woodland have been preserved at Sydney 2000 Olympic Games venues at Homebush Bay, the mountain bike course at Fairfield, the shooting centre at Cecil Park and the equestrian centre at Horsley Park. Although much changed from pre-European times, these areas still support an impressive biodiversity.

Woodlands

The 17-hectare Cumberland Plain woodland next to the Athletes Village at Homebush Bay contains many types of trees, with Ironbarks and Scribbly Gums predominant. They provide food and shelter for a variety of native fauna, including ringtail and brushtail possums, five species of bat and many of the area's bird species. Amid the cover of native herbs, grasses and climbers live 14 species of reptiles, including red-bellied black snakes and Eastern Blue tongue lizards. This mature Eucalyptus woodland has high conservation value as it is the only surviving example of its type in the region. The area supports more than 160 species of birds and the rare and endangered Green and Golden Bell frog.

The area also contains five hectares of casuarina woodland, which lies between the Eucalypt woodland and the saltmarsh areas in the northern part of the Millennium Parklands.

Wetlands

There are both saltwater and freshwater wetlands in the Millennium Parklands that surround Olympic Park. The extensive saline wetlands are linked by tidal mud flats and a mangrove forest, which is the largest surviving mangrove community in the Sydney Basin. The wetlands form one of Sydney's most significant habitat for migratory birds, including 10 species which migrate to the site every summer from various parts of Asia. These birds are protected by international treaties between Australia, China and Japan.

A frog's life

The number of Green and Golden Bell Frogs in Australia has declined, placing the frog on the endangered species list.

A colony of the frogs was found in a disused brickpit at the Sydney Olympic Park site in 1993. Plans to alter the brickpit to house the Olympic Tennis Centre were shelved so that the frogs could be studied and their habitat protected.

A significant effort has been mounted to enhance or create habitat as well as design frog underpasses and frog fences along nearby roads to help protect the frogs. The frogs are now thriving amidst the bustle of Games-time activity. In June, Sydney 2000 was awarded Australia's leading environment award, the Gold Banksia Award for its program to save the frogs.



Green and Golden Bell Frogs are thriving at Olympic Park.

The wetland areas form one of
Sydney's most significant habitat
for migratory birds



Putting on the show

Transport

The Olympic Games will create the biggest demand for transport ever experienced in Australia. A range of initiatives will provide significant environmental benefits.

Sydney 2000 will be the public transport Games, with private parking banned at Olympic venues and spectators receiving free travel on trains and Olympic buses. Spectators driving from regional areas outside Sydney will be encouraged to leave their cars at free park and ride sites and to join the Olympic transport system. With Olympic tickets also serving as transport passes, the huge number of transport tickets otherwise needed for spectator travel will not have to be printed.

Bicycle storage areas will be provided for all venues and walking routes will operate to Sydney Olympic Park and other venues. Buses in the Olympic Village will be powered by compressed natural gas. The other buses in the Olympic Bus Fleet will use a low sulphur diesel fuel.



Olympic Park station will handle up to 50,000 people every hour during the Games.



Four hundred electric golf buggies, provided by Olympic Sponsor Frazer-Nash, will transport athletes, officials and police within venues. Around half of these are Solar Babies, with a solar panel on the roof to supplement the power supply.



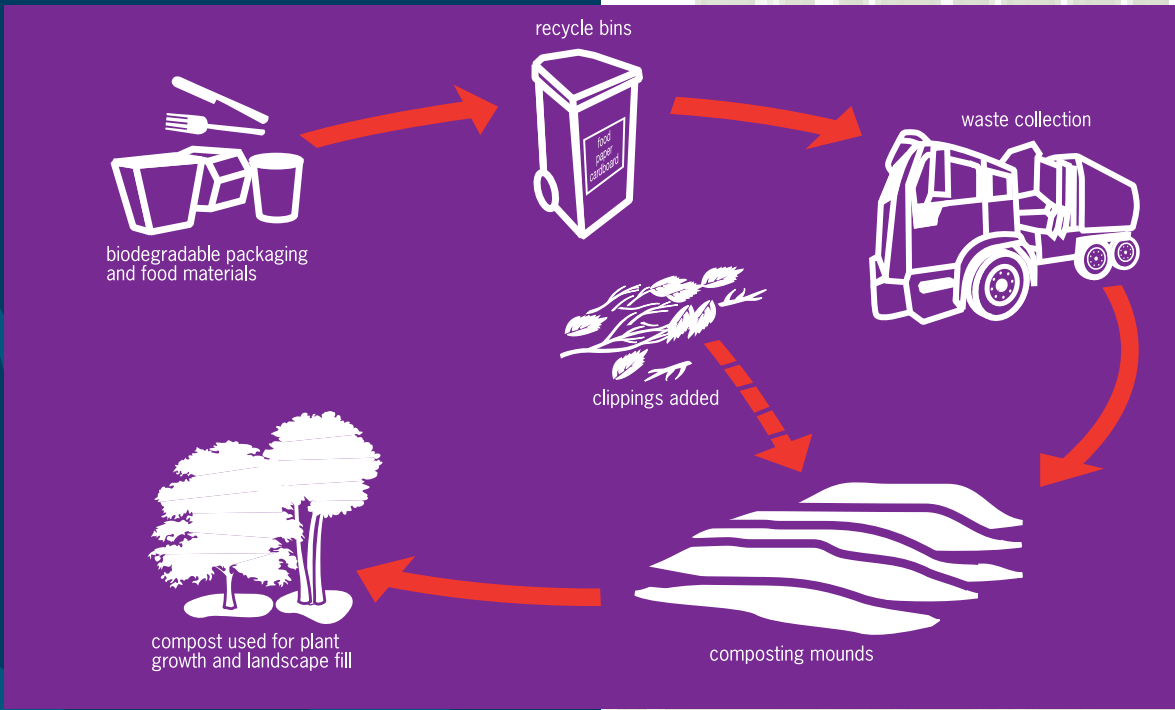
All buses in the Olympic Village are powered by compressed natural gas, rather than diesel

The future of private transport

Olympic Sponsor Holden will be showcasing the future of private car transport with a hybrid petrol and electricity car, the Ecommadore. A fuel cell car, the Hydro Gen 1, will be used as a lead car in the marathons.



The hybrid petrol and electricity car used in the torch relay.



Waste

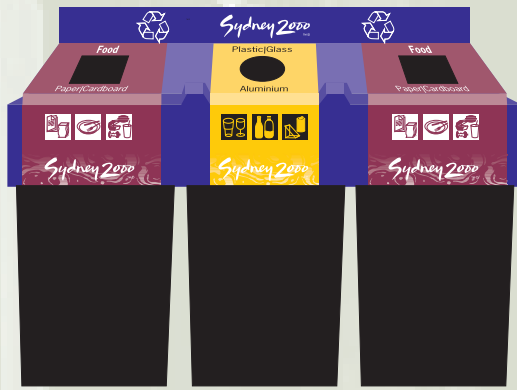
Waste is one of the biggest environmental issues to be considered at the Olympic Games. The estimated quantities of waste at venues are huge – up to 10,000 tonnes – and very visible. Rather than dispose of waste by burial in the ground, organisers will reduce the amount of waste created, and then recycle or compost as much as possible. With the help of Olympic waste sponsors Visy, Cleanevent, Pacific Waste Management and Waste Service NSW, the aim is to reduce the amount sent to landfill from Olympic Games venues by up to 80%.

Reducing waste

Waste is being reduced by ensuring packaging and utensils can be reused or recycled.

All disposable foodware (the term used for cups, plates and cutlery) supplied at the Games is made from materials that can be recycled or composted. All drink bottles and cans are recyclable, including newly developed recyclable plastic cups for beer and wine. Disposable plates and food containers are made from cardboard and sugar cane fibre. The disposable knives, forks and spoons are made from biodegradable cornstarch. All will be composted.

Plastic shrink wrap and polystyrene can't be recycled, and will not be allowed into venues.



Paper and cardboard waste is collected in bins marked red and plastic, glass and aluminium in bins marked yellow for recycling.



Recycling waste

Games organisers are aiming to recycle or compost up to 80% of Games waste. The public will be encouraged to place litter in two colour-coded bins. Plastic, aluminium and glass will go into yellow marked bins, which will be separated at a Materials Recovery Facility (MRF) and sent to plants for recycling. Food and paper will go into red marked bins, with the waste composted in a commercial biowaste facility.

Behind the scenes, venue and catering staff will use the two waste streams listed above, plus six others:

- Clean paper and cardboard, recycled in a paper mill
- Glass, recycled in a glass reprocessing plant
- Cooking oil, recycled in an oil reprocessing plant
- Medical, veterinary and quarantine waste, disposed of in treatment plants
- Reusable materials, such as crockery and boxes
- Other rubbish, disposed of in landfill

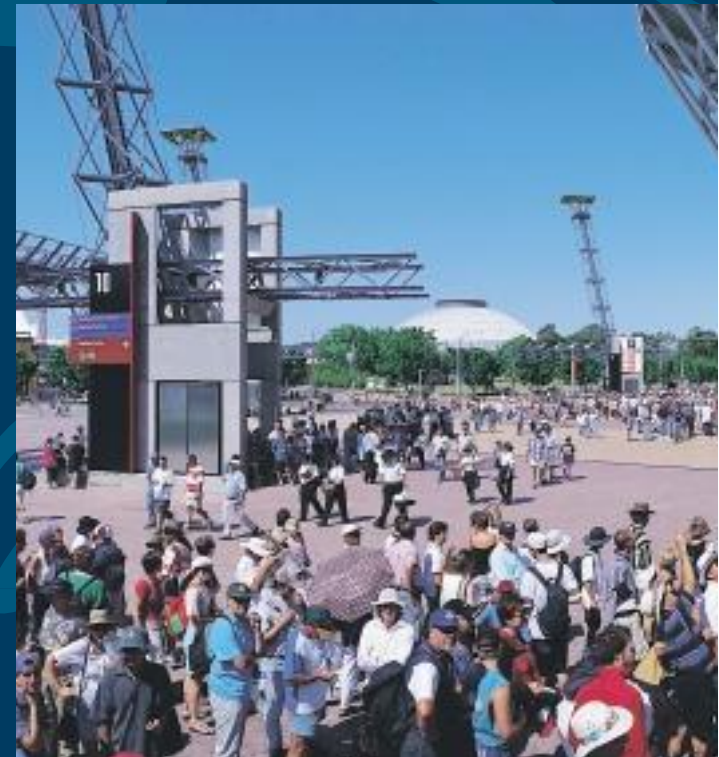
Worm farms

More than one million worms are hard at work in the basement of the Sydney 2000 headquarters, the International Broadcast Centre, the Main Press Centre and the Novotel Hotel. They are chomping through tonnes of food waste each day and playing an important part by recycling food waste into compost.



Worm farms are helping recycle food waste.

Games organisers
are aiming to
recycle or compost
as much as 80% of
Games waste



Environmentally friendly
modifications have been
used to ready venues for
Games-time crowds



A team effort

Staging an environmentally friendly event

Energy supply

During the Games, all competition venues will use renewable electricity. This electricity is generated by solar, wind, hydro or biomass and is distributed through the Sydney electricity grid.

Saving paper

An environmental problem of recent Olympic Games has been the huge amount of paper used to provide the media with results and competitor information. Forty-five millions sheets of paper were used in Atlanta for this purpose alone. The Olympic Results Information System (ORIS) has been developed to reduce this amount of paper through the use of electronic information and through ensuring only the required amount of information is printed.

Environment volunteers

Environmental considerations are incorporated into venue operation plans. These address issues such as waste, legal compliance and staff training. To help run the event, a team of environmental volunteers will work with venue teams to assist with environmental compliance and to monitor and collect environmental performance data.

Additional facilities

Modifications needed to ready venues for the Games times crowds, such as extra seating, toilets and relocatable buildings are sponsored, hired or leased, rather than built from scratch. This way, once the Games are finished, the temporary facilities will be removed from the site and reused.

Education

Each Olympic Games runs an Olympic Youth Camp with 500 youth representatives from participating Olympic nations. The Sydney 2000 Olympic Youth Camp has the environment as its theme. Participants will do tree planting activities, participate in ecotours and conduct a forum on the environment.

Working with environment groups

Sydney 2000 strongly supports the role that the environmental community is playing in preparing for the Sydney 2000 Olympic Games. The following groups are working to create an environmentally-friendly Games.

Olympic Environment Forum

One of the major environmental consultative mechanisms leading up to the Games was the Olympic Environment Forum. Every two weeks, members of the Forum met to discuss environmental projects and agendas. Members include representatives from the Sydney Organising Committee for the Olympic Games, the Olympic Coordination Authority, Greenpeace, Green Games Watch 2000 and the Environment Protection Authority.

Greenpeace

Greenpeace has played an important part in the 2000 Olympic Games. It helped develop the ground breaking Environmental Guidelines and the original concept for the Olympic Village, appointed Olympic campaigners to monitor environmental initiatives and reported on environmental issues.

Green Games Watch 2000

Green Games Watch 2000 is made up of five non-government agencies, the Australian Conservation Fund, the National Parks Association, the National Toxics Network, the Nature Conservation Council of New South Wales and the Total Environment Centre. The organisation serves as an environmental watchdog, monitoring all the environmental issues associated with the Games.

Homebush Bay Environment Reference Group

Homebush Bay Environment Reference Group drives the consultation process about the remediated lands at Homebush Bay. Membership is drawn from the Homebush Bay community, scientists, local government and environment organisations. The group operates under an agreed consultation protocol.



Olympic Sponsors meet to discuss environmental issues.

Working with sponsors

Sponsors are helping Sydney meet its environmental commitments in the following ways:

Olympic Sponsors Environment Network

The Olympic Sponsors Environment Network provides an opportunity for Sponsors to network on environment issues by sharing ideas, initiatives and problems in a non-competitive forum.

Environmental initiatives by sponsors for the Sydney 2000 Olympic Games include:



World-best environmental initiatives and technology are showcased at the Sydney 2000 Olympics



Showcasing products and technology

- Energy Australia supplies PureEnergy electricity to the Sydney 2000 Games, which is generated using solar, wind, hydro and landfill gas power.
- Holden is showcasing its hybrid-electric Ecommadore, an experimental vehicle that halves fuel consumption, and the Hydro Gen 1 fuel cell car.
- Coca Cola is showcasing and testing environmentally friendly hydrocarbon refrigeration machines at Sydney Olympic Park.
- Frazer-Nash will provide up to 400 electric and solar assisted vehicles to transport people within venues, with minimal impact on the environment.
- Fuji Xerox's 50% recycled paper, Green Wrap, is used for printing at all Olympic venues.
- Shell is providing a new, low emission, low sulphur diesel fuel for use in the Olympic bus fleet.
- Olex Cables provided PVC-free electrical cables for many of the venues. It managed the project to place powerlines under ground.
- BHP steel is currently used as a construction material because it meets or exceeds environmental standards, provides innovative design solutions and can be recycled.
- Ramler Furniture has provided biodegradable cardboard tables and bookshelves for a number of venues.
- Nike's Stand-Off Distance Singlet is available to runners in the Olympic marathon. The tank top is made of 75% recycled plastic soft-drink bottles.
- McDonald's will showcase its ozone-friendly hydrocarbon refrigeration units at its seven restaurants at Sydney Olympic Park and PVC-free toys.
- The Royal Australian and Perth Mints have produced a total of 53 collector coins in non-PVC packaging.
- TAFE NSW uses PVC-free training folders and manuals.
- Carlton and United Breweries is supplying recyclable PET beer bottles and PET beer cups.
- Lindemans Wines is supplying recyclable plastic wine glasses.
- Samsung is providing hydrocarbon (green freeze) refrigeration.

Integrated waste management

- Pacific Waste Management, Visy Industries, Cleanevent and Waste Service NSW have developed and will deliver the Sydney 2000 Integrated Waste Management Strategy, the most advanced waste system for any Olympic Games. The aim is to reduce waste by 80%.

Partnering and environmental projects

- BHP, Fuji Xerox, Telstra, Channel 7, Westpac and Ansett are sponsoring the Olympic Landcare project to plant more than 2 million trees around Australia.
- Energy Australia is collecting data for Olympic Greenhouse Challenge.
- BHP is undertaking an Environmental Life Cycle Analysis of the Olympic Games. BHP Environment has a corporate staff cultural program, Environment Team 2000, to encourage workers to be environmentally friendly.
- Holden is a sponsor of the Greener Sydney 2000 program, a Sydney tree planting program.
- Bonlac Foods has played a key role in the Sydney 2000 Olympic Games Sponsor Environmental Network.
- Ansett is raising public awareness of environmental issues with in-flight movies.



The legacy

The Sydney 2000 Olympic Games will leave the following environmental legacies:

- environmental knowledge, tools and benchmarks for application by future Games and large event organisers
- greater community awareness and education about environmental issues
- new products and services
- new, state-of-the-art environmentally-friendly sports venues in Sydney.

”It is the intention of the IOC that each edition of the Olympic Games be as environmentally responsible as possible.”

Richard Pound, IOC Executive Board.



The Sydney International Equestrian Centre ... one of the many environmentally friendly venues at the Sydney 2000 Olympic Games.

Summary of environmental achievements

World-best environmental initiatives and technology are showcased at the Sydney 2000 Olympics. The initiatives include:

Energy

- The Athletes Village at Homebush Bay is one of the world's largest solar-powered suburbs, with photovoltaic solar energy panels fitted to 665 houses.
- The Sydney SuperDome at Homebush Bay, home to the Olympic gymnastics and basketball, features Australia's single largest photovoltaic solar energy system.
- The Novotel Hotel at Olympic Park has the largest solar hot water system in the southern hemisphere.
- The 19 lighting towers that illuminate the main Olympic Boulevard at Olympic Park are powered by photovoltaic solar cells.
- A total of 400 solar-assisted electric carts will transport athletes, media, police, equipment and sponsors within Olympic venues.
- A solar power station at Homebush Bay is assisting wetland management.

Remediation

Homebush Bay has been the site of one of the largest clean-up programs ever staged in Australia. A total of \$137 million was invested in the degraded lands,

which contained nine million cubic metres of waste. The 450 hectare Millennium Parklands that was created is a significant public asset for the Sydney community. An enhanced remediation strategy is underway to ensure continued monitoring and management of remediated land. Computer mapping and monitoring are the main features, with an emphasis on a practical educational legacy.

Biodiversity

Sydney 2000 was awarded Australia's leading environment award in June 2000 for its successful program to save a colony of endangered Green and Golden Bell Frogs at Olympic Park. The Gold Banksia Award was presented by the Banksia Environmental Foundation. Venues are designed in sympathy with the natural environment. Rare pockets of Cumberland Plain woodland have been preserved at Olympic Park and in Sydney's west.

Design

Life cycle analysis of construction materials was undertaken at Olympic Games sites. New techniques reduced demolition and construction waste by 95%, with significant cost savings. Use of PVC was minimised. Solar power and water recycling facilities were installed in many of the venues. Much of the temporary furniture, including desks, book-

shelves and tables, at the Games is made from cardboard and will be recycled after the Games. Olympic licensees are producing merchandise made of alternative materials. The plastic cases for the Olympic coin collection are made from polypropylene rather than PVC.

Transport

Buses fuelled by natural gas will be used in the Olympic Village. Solar-assisted electric carts will transport athletes, police and media within venues. The Olympic bus fleet will use low-sulphur diesel fuel.

Waste

The Sydney 2000 integrated waste management solution aims to compost or recycle up to 80% of litter generated during the Sydney 2000 Olympic and Paralympic Games. To ensure this process, all plates, cutlery, bin liners and bags at the Games will be biodegradable. The public will be encouraged to take personal responsibility at the Games by placing food and paper in dark-red coloured compost bins - and plastic, glass and aluminium in yellow recycling bins. Caterers and suppliers will follow a similar system, but with more targeted bins. The organic waste will then go into Australia's largest compost heap (about 4000 tonnes) in Sydney's west for composting and later sale to gardening outlets. Some organic waste will be

eaten by worms in farms at the Main Press Centre, the International Broadcast Centre and the Novotel Hotel at Olympic Park; and Sydney 2000 headquarters in Jones St, Ultimo. Fibre-based packaging materials have replaced non-recyclable plastics, both for transport of goods and for disposable foodware.

Water recycling

The Water Reclamation and Management Scheme (WRAMS) at Homebush Bay will reduce by up to 50% of the site's demand for potable (drinking) water from Sydney's water supply. Recycled water will be used for irrigation and toilet flushing.

Olympic Landcare

More than two million trees will have been planted between 1998 and the close of 2000 in one of Australia's largest community landcare projects involving tens of thousands of Australians and hundreds of Olympians. The project will leave a legacy of regenerated soil and water quality in more than 500 sites throughout Australia.

Torch

The innovative techniques developed by the University of Adelaide and Fuel Combustion Technology has resulted in a flame that has high luminosity from the least amount of gas.

Environment sponsors and green groups

The organisations below are among a large number of bodies helping Sydney 2000 meet its environmental commitments by providing environmentally friendly products, services and support.



Energy Australia

Energy Australia is a Team Millennium Olympic Partner (Energy Management) for the Sydney 2000 Olympic Games. Energy Australia's Olympic involvement includes managing energy operations during Games time, building the permanent infrastructure to deliver energy service to the Homebush Bay precinct and meeting the additional energy requirements needed to stage the Olympics. Energy Australia supplies PureEnergy, which is generated using solar, wind, hydro and landfill gas power instead of the traditional coal-fired power. It has also installed 1176 solar panels on the roof of the SuperDome and solar panels on 19 light towers along the main Olympic Boulevard

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Web site: www.energy.com.au



Olex Cables

Olex Cables is a Supporter (Cables) for the Sydney 2000 Olympic Games. Olex developed a new PVC-free electrical cable which is used in most venues, including the Olympic Stadium. Olex also managed the project to place overhead power lines at the site underground, which required specific planning to ensure the health and safety of the Green and Golden Bell Frogs on the Olympic Park and Millennium Parklands site.

Olex Cables
PO Box 6107
Silverwater NSW Australia 1881
Tel: +61 2 8845 6100
Fax: +61 2 8845 6155
Email: jjittle@olex.com.au
Web: www.olexcables.com.au



BHP

BHP is a Team Millennium Olympic Partner (Steel Products) for the Sydney 2000 Olympic Games. Steel was chosen as a construction material for venues because it meets or exceeds environmental standards and provides innovative design and construction solutions. BHP applied life cycle analysis to minimise any detrimental environmental effects at all stages of manufacture, use and disposal. BHP is a sponsor of the Olympic Landcare program, a national community tree planting program.

BHP
GPO Box 536
Sydney NSW Australia 2001
Tel: +61 2 9239 6619
Fax: +61 2 9241 5295
Email: begg.adrian.ab@bhp.com.au
Web: www.bhp.com.au



Shell

Shell Australia is a Supporter (Fuels, Oils) for the Sydney 2000 Olympic Games. Shell is providing for the first time a new, low sulphur diesel for use in the Olympic bus fleet. The product provides significantly lower emissions, with positive outcomes for health and the environment.

Shell Australia
Durham St,
Rosehill NSW Australia 2142
Tel: + 61 2 9897 8438
Fax: +61 2 9897 8433
Email: shaun.m.colley@shell.com.au
Web: www.shell.com.au



Fuji Xerox

Fuji Xerox Australia is a Team Millennium Olympic Partner (Document Publishing) for the Sydney 2000 Olympic Games. Fuji Xerox's high-performance recycled paper, Green Wrap, is used for printing and photocopying at all Olympic venues. Fuji Xerox is testing production of results books on CD Rom, which has the potential to save millions of sheets of papers at future Olympic Games. Fuji Xerox is also a sponsor of Olympic Landcare, a national community tree planting program.

Fuji Xerox
Locked Bag 2051
North Ryde NSW Australia 2113
Tel: +61 2 9856 5800
Fax: +61 2 9856 5003
Email: graham.cavanagh-downs@aus.xerox.com
Web: www.fujixerox.com.au



McDonald's

McDonald's Australia and McDonald's Corporation are Team Millennium Partners (Food Service) for the Sydney 2000 Olympic Games. McDonald's will showcase and test its ozone friendly hydrocarbon refrigeration units in its restaurants at Sydney Olympic Park. The company has aligned its food packaging with the Olympic waste system. Toys at McDonald's are PVC-free.

Mc Donald's
PO Box 392 DX4707
Pennant Hills NSW Australia 2120
Tel: +61 2 9875 6793
Fax: +61 2 9875 6530
Email: rdent@mcDonalds.com
Web: www.mcdonalds.com.au



Coca-Cola

Soft drink supplier Coca-Cola is Team Millennium Olympic Partner (Non Alcoholic Beverages) for the Sydney 2000 Olympic Games. Coca Cola is showcasing and testing 100 hydrocarbon refrigeration machines at Sydney Olympic Park. Cola has announced a commitment that, by the Athens Games in 2004, it will no longer purchase cooling equipment using hydrofluorocarbons where cost-effective alternatives are commercially available. Coca Cola has aligned its packaging with Sydney 2000's waste management system. The company also brings to the Games its technology for the closed-loop recycling of PET plastic.

Coca Cola
GPO Box 4251
Sydney 2001
Tel: +61 2 9259 6841
Fax: +61 2 9259 6799
Email: gwalsh@apac.ko.com
Web: www.ccamatl.com



Bonlac Food

Dairy products manufacturer Bonlac Foods is a Supporter (Dairy) for the Sydney 2000 Olympic Games. The company has played a key role in the Sydney 2000 Olympic Games Sponsor Environmental Network, and hosted a meeting of the network at its dairy factory in Victoria. Bonlac's CEO was an Environmental Advocate for the Sydney 2000 Olympic Games.

Bonlac Foods Box 4313
Melbourne, Victoria Australia 3001
Tel: + 61 3 9270 0922
Fax: + 61 3 9270 0912
Email: heydonn@bonlac.com.au
Web: www.bonlacfoods.com



HOLDEN

Holden

Holden is a Team Millennium Partner (Automotive) for the Sydney 2000 Olympic Games. Holden is providing more than 3000 vehicles for the transportation of athletes, officials, and support staff during, and leading up to, the Sydney 2000 Olympic Games. Holden is also supplying the official vehicle fleet accompanying the Olympic Torch Relay along its 100-day journey around Australia. During the Torch Relay, Holden showcased its hybrid-electric Ecommodore – an experimental vehicle that halves the fuel consumption of a full-sized family car without compromising performance, safety and looks. Holden will showcase zero-emissions transport when the HydroGen1 Fuel Cell vehicle leads the men's and women's marathon events.

General Motors Holden
GPO Box 1714
Melbourne 3001
Tel: +61 3 9647 1111
Fax: + 61 3 9647 1330
Email: alison.terry@holden.com.au
Web: www.holden.com.au



Nike

Nike is a Supporter (Technical Sportswear) for the Sydney 2000 Olympic Games. Nike provides sports equipment for 67 teams from 22 countries. Nike's Stand-Off Distance Singlet will be available for use by runners in the Olympic marathon. It is made of 75% recycled soft drink bottles, consumes 43% less energy in production, uses no dyes for colouring and all printing is done through a water-based screen printing process. Nike also has a Reuse A Shoe program that collects used athletic shoes of any brand, grinds them up and then provides them for use in sports surfaces such as soccer fields, running tracks, multi-purpose courts and playgrounds.

Nike
Units 1-3, 2 Holker Street,
Newington Business Park,
Newington, NSW Australia 2127
Tel: + 61 2 8748 2388 or
+ 61 3 9292 9333
Fax: +61 2 8748 2380
Email: Megan.Ryan@nike.com
Web: www.nike.com or www.nikebiz.com



Frazer-Nash
Frazer-Nash is a Provider (Golf Carts) for the Sydney 2000 Olympic Games. It will provide up to 400 electric and solar assisted vehicles to transport people within venues, with minimal impact on the environment.

Frazer-Nash Australia
Suite 1203 The Gateway
1 Macquarie Pl Sydney NSW Australia 2000
Tel: +61 2 9247 2266
Fax: +61 2 9247 3633
Email: frazernash@frazer-nash.com
Web: www.frazer-nash.com.



Ramler Furniture
Ramler Furniture is a Provider (Furniture) for the Sydney 2000 Olympic Games. The company has provided biodegradable cardboard tables and bookshelves for a number of venues, including the the Uniform Distribution and Accreditation Centre at Technology Park, Redfern. At the conclusion of the Games the items will be collected and reprocessed into cardboard and newsprint so waste is virtually non-existent.

Ramler Furniture
PO Box 245
Cheltenham Victoria Australia 3192
Tel: +61 3 9584 7377
Fax: +61 3 9583 2000
admin@ramler.com.au
www.ramler.com.au



Visy
Visy is a Provider (Packaging and Recycling Services) for the Sydney 2000 Olympic Games. With three other firms, it has developed and will deliver the Sydney 2000 Integrated Waste Management Solution, the most advanced waste system for any Olympic Games. Visy has provided a range of recyclable food packaging and recycling facilities, some developed especially for the Olympic Games, and will take back recovered material to remanufacture into new end-use products.

Visy Industries
Level 2, 533 Little Lonsdale St
Melbourne, Victoria Australia 3000
Tel: +61 3 9247 4777
Fax: +61 3 9247 4747
Email: leora.givoni@visy.com.au
Web: www.visy.com.au



Waste Service NSW
Waste Service NSW is a Provider (Waste Management Services) for the Sydney 2000 Olympic Games. With three other firms, it has developed and will deliver the Sydney 2000 Integrated Waste Management Solution, the most advanced waste system for any Olympic Games. It has been project manager in the environmental clean-up and redevelopment of the Sydney Olympic Park and Millennium Parklands, which has transformed it from a polluted wasteland into a mix of sporting, commercial, recreational, conservation and residential facilities.

Waste Service NSW
PO Box 699
Chatswood NSW Australia 2057
Tel +61 2 9934 7000
Fax +61 2 9934 7185
Email info@wasteservice.nsw.gov.au
Website www.wasteservice.nsw.gov.au



Pacific Waste Management
Pacific Waste Management is a Provider (Solid Waste Collection Services) for the Sydney 2000 Olympic Games. With three other firms, it has developed and will deliver the Sydney 2000 Integrated Waste Management Solution, the most advanced waste system for any Olympic Games.

Pacific Waste Management
28 Weyba St, Lower Nudgee, Queensland
Australia 4014
Tel: +61 7 3212 8000
Fax: +61 7 3267 8264
Email: espooner@pwm.com.au



Cleanevent
Cleanevent is a Provider (Cleaning Management Services) for the 2000 Sydney Olympic Games. With three other firms, it has developed and will deliver the Sydney 2000 Integrated Waste Management Solution, the most advanced waste system for any Olympic Games. Cleanevent controlled approximately 60% of the cleaning operations at the 1996 Atlanta Olympic Games.

Cleanevent
PO Box 97
Ascot Vale Victoria Australia 3032
Tel: +61 3 9372 2383
Fax: +61 3 9372 2380
Email: narellet@cleanevent.com.au
Web: www.cleanevent.com.au



NSW Environment Protection Authority
The NSW Environment Protection Authority (EPA) is the leading public sector organisation responsible for environment protection in NSW. It uses regulation, education and economic incentives to guide the community towards a healthy environment in a productive NSW. The EPA's Sydney 2000 Olympic Games role includes advising Games organisers, venue developers and land remediators and is also working to ensure that the many environmental benefits from Sydney Games continue for NSW long after the Games have finished.

EPA Public Communications Unit
Level 16 PO Box A290
Sydney South NSW Australia 1232
Tel: +61 2 9995 5347 or 131555
Fax: +61 2 9995 5912
Email: carlonb@epa.nsw.gov.au
Web: www.epa.nsw.gov.au



The Perth Mint



ROYAL AUSTRALIAN MINT

Royal Australian and Perth Mints
The Royal Australian and Perth Mints are Supporters (Coin Collectables) for the Sydney 2000 Olympic Games. The mints have produced a total of 53 collector coins for sale in more than 60 countries. The coins depict the athletic ethos, the cultural and social development of Australia and its flora and fauna as well as a bronze coin dedicated to each of the Olympic sports. The mints have developed a new packaging for the coins to replace the existing PVC product.

Sydney 2000 Olympic coin program
PO Box Private Bag 2000
Kingston ACT Australia 2604
Tel: +61 2 9362 3099
Fax: +61 2 9362 1982
Email: ramint.gov.au.
Web: www.ramint.gov.au/olympiccoins.



Greenpeace
Greenpeace is a global organisation with 2.5 million supporters in more than 30 countries. Greenpeace contributed to the development of the Environmental Guidelines for the Sydney 2000 Olympic Games. Since then, Greenpeace has campaigned, lobbied and taken direct action to ensure these environmental commitments are met.

Greenpeace Australia
GPO Box 3307 Sydney
NSW 2001 Australia
Tel: +61 2 9261 4666
Fax: +61 2 9261 4588
Email: LynneMinion@au.greenpeace.org
Web: www.greenpeace.org.au

Green Games Watch 2000

Green Games Watch 2000
Green Games Watch 2000 (GGW2000) is a coalition of five environmental bodies including the Australian Conservation Foundation, National Parks Association of NSW, Nature Conservation Council of NSW, National Toxics Network and Total Environment Centre. GGW2000 was formed in late 1995 to ensure environmentally sustainable development (ESD) in the provision and management of Olympic facilities, advocate sustainable technologies and businesses, provide community input and maximise the ESD legacy of the Sydney 2000 Olympic Games.

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