

Environment

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Environment

Introduction

This chapter presents information about Australia's environment. This is a large topic and there are many initiatives worthy of presentation. With the passage of time, more and more data are becoming available. However, not all information is updated on an annual basis, so rather than repeat it, references are provided here to information in previous Yearbooks.

Biodiversity and introduced species — see *Year Book Australia 1994*, chapter 14 and *Australia's Environment: Issues and Facts* (4140.0), chapter 2.

Water resources — see *Year Book Australia 1994*, chapter 18.

Environmental law — see *Year Book Australia 1994*, chapter 14, for details on various legislation in the Commonwealth and State jurisdictions that relate to the environment.

World Heritage Areas — details of Australian properties on the World Heritage List are provided in *Year Book Australia 1994*, chapter 14.

Management of wastes, particularly on local council activities, landfill sites and waste

minimisation, see *Year Book Australia 1994*, chapter 14 and *Australia's Environment: Issues and Facts* (4140.0).

Visits to National Parks, State Parks and World Heritage Areas — see *Year Book Australia 1995*, chapter 14.

Recycling by households — see *Year Book Australia 1995*, chapter 14.

Environmental indicators

Environmental indicators are increasingly seen as a necessary tool for helping to set the course towards a sustainable future. The OECD has been working on indicators as part of its program on environmental economics that would integrate environment and economic decision-making. Indicators need to be viewed in a dynamic context, so the set of indicators can change to reflect the changing nature of policy and the seriousness of different environmental problems.

The following data reflect economic and population changes of environmental significance. The data have been prepared by the OECD and show a comparison of Australia with some selected countries.

14.1 OECD environmental data

Indicator	Australia	Canada	USA	Netherlands	Sweden	UK	World
Carbon dioxide (CO ₂) emissions from energy use (million tonnes)							
1980	221	439	4 913	184	75	601	18 792
1990	272	437	5 038	183	56	598	21 562
1992	288	457	5 188	190	57	610	n.a.
Greenhouse gas emissions 1990							
Methane ('000 tonnes)	5 000	3 700	37 000	833	457	4 371	18 792
CDFCs ('000 tonnes)	8	14	130	9	2	n.a.	21 562
CO ₂ (million tonnes)	287	461	5 067	200	60	n.a.	n.a.
Estimated renewable fresh water resources, long-term annual average (billion m ³)	343	2 740	2 460	11	167	71	274 900

...continued

14.1 OECD environmental data — continued

Indicator	Australia	Canada	USA	Netherlands	Sweden	UK	World
Total water abstraction (million m ³)							
1980	n.a.	37 864	525 000	14 794	4 106	13 912	600
1990	n.a.	46 878	468 000	n.a.	2 932	14 237	22 300
Population served by waste water treatment plants (%)							
1980	n.a.	64	70	73	82	82	n.a.
1990	n.a.	70	n.a.	93	95	87	n.a.
Major protected areas 1990							
'000 km ²	457	701	983	4	18	46	6 515
% of land areas	5.9	7.0	10.5	9.5	3.9	18.9	4.9
Wooded area							
1980 ('000 km ²)	1 059.0	4 364.0	2 968.0	3.3	279.0	21.0	41 003.0
1990 ('000 km ²)	1 060.0	4 533.0	2 946.0	3.3	280.0	24.0	40 276.0
1990 (% of land area)	13.8	49.2	32.1	9.9	68.1	10.0	30.8
Waste generation ('000 tonnes)							
Municipal waste 1990	n.a.	16 000	177 500	7 430	3 200	20 000	n.a.
Hazardous waste 1990	n.a.	6 080	180 000	1 040	500	2 540	n.a.
Total energy supply (index 1985 = 100)							
1980 (per unit of GDP)	108	108	109	106	99	107	n.a.
1991 (per unit of GDP)	107	97	97	97	97	94	n.a.
1981 (per capita)	101	100	103	102	90	96	n.a.
1991 (per capita)	112	102	103	109	100	106	n.a.
Tonnes of oil equivalent (TOE) 1985							
per \$US'000	0.4	0.5	0.4	0.4	0.4	0.3	n.a.
per capita	4.7	7.7	7.4	4.3	5.7	3.6	n.a.
Motor vehicles in use (millions)							
1981	7.6	13.4	158.3	4.9	3.1	17.5	427.2
1991	10.0	16.8	192.3	6.2	4.0	23.4	608.0
Public R&D expenditure for environment protection							
1985 (\$US million)	24.9	45.9	258.0	52.4	20.7	99.6	n.a.
1991 (\$US million)	50.7	41.3	361.2	69.0	48.9	112.5	n.a.
As % of total R&D 1991	3.5	1.6	0.7	4.1	3.1	1.7	n.a.
Population (million)							
1981	14.9	24.4	230.1	14.3	8.3	56.4	4 513.5
1991	17.3	27.0	252.7	15.1	8.6	57.6	n.a.
Population density (persons/km ²)							
1981	1.9	2.4	24.6	381.7	18.5	230.2	33.7
1991	2.2	2.7	27.0	403.7	19.2	235.4	n.a.
GDP @ 1985 prices & purchasing power parities (index 1985 = 100)							
1981	88.5	89.9	90.4	94.5	91.4	89.4	n.a.
1991	114.8	112.7	111.9	117.4	108.8	114.3	n.a.

Source: OECD, *Environmental Data Compendium*, 1993.

National activities

Australian and New Zealand Environment and Conservation Council

ANZECC was formed, in 1991, by combining the Australian and New Zealand Environment Council (ANZEC) and the Council of Nature Conservation Ministers (CONCOM).

Some of the 1993 activities of ANZECC included:

- National Lead Abatement Education Campaign to inform Australians about the need to reduce the amount of lead entering the environment, with the key aim being to reduce the consumption of leaded petrol. A price differential between leaded and unleaded petrol was introduced in February 1994.
- National Pollutant Inventory (NPI) — ANZECC endorsed State and Territory participation in the development of the NPI, being undertaken by the Commonwealth Environment Protection Agency (CEPA).
- National Reserve System — ANZECC agreed to the finalisation of a technical paper about scientific data and analytical methods relevant to the establishment of a National Reserve System, which recognises the importance of a representative system of protected areas.
- National Recycling Targets — there was agreement on the need for a more strategic, proactive and coordinated role in waste minimisation and recycling issues, with work to be established to identify instances where standards are inhibiting the development of and uses for recycled materials.
- Environmental Impact Assessment.
- National Pollutant Inventory which will assemble information on pollutants entering the Australian environment as emissions to air, land and water, and waste disposal to land.
- Environment technologies, involving the running of programs to assist the industry's development, develop export markets and setting up a database on the capabilities of the Australian industry.
- Dumping wastes at sea — administration of laws to control waste dumping at sea.
- Contaminated sites — issues such as technical guidelines for the assessment and management of sites.
- Water quality.
- Air pollution, through work on the national lead abatement strategy, and development of national guidelines for industrial emissions and ambient air quality goals.
- Safe management of biotechnology.
- Ozone protection, through the coordination of national ozone protection activities and input to international activities under the Montreal Protocol.
- Waste minimisation.
- Chemicals management through assessment of the environmental hazards of agricultural, veterinary and industrial chemicals.
- Management of hazardous waste by administering Commonwealth hazardous waste legislation which implements the Basel Convention, an agreement to reduce generation of hazardous waste and to ensure it is disposed of in an environmentally safe manner as close to the source as possible.
- Cleaner production in industry, which involves programs with industry designed to demonstrate the economic and environmental benefits of product and process redesign from an environmental perspective.

Commonwealth Environment Protection Agency (CEPA)

CEPA is an agency of the Commonwealth Department of the Environment, Sport and Territories. It will interact with the National Environment Protection Authority (NEPA), when it is established under the terms of the Intergovernmental Agreement on the Environment (see *Year Book Australia 1994*), and with ANZECC to provide a uniform, coordinated approach to protecting Australia's environment. The current projects of CEPA are:

Protection of freshwater resources

This section focuses on some of the programs which include in their aims protection of the quality and supply of freshwater resources. This matter features in the United Nations Conference on Environment and Development (UNCED) Agenda 21 program.

The National Landcare Program (NLP)

The Decade of Landcare Program has been developed to provide an integrated policy and program package to resource users and managers. It provides an overall collaborative framework within which all participants — governments, the farming sector, industry, the conservation movement, land and water managers, and the community — are encouraged to make their contribution to sustainable management of all resources. Within the plans, the contribution of women to the process of improved resource management has been emphasised.

The NLP has three components — the Community Landcare Component bringing together community-based natural resource management policies and programs; the Federal/State/Territory governments' component, which draws together in partnership agreements the objectives, strategies and evaluation arrangements for joint action on natural resource management issues; and a national initiative component, which covers activities of national significance, undertaken by the Government, for example, research and development.

Major elements funded under the NLP include integrated catchment management, salinity mitigation, land resource management, water assessment and planning, vegetation protection and re-establishment, flood plain management, country towns water management programs, community landcare, property management planning, and biological diversity conservation. Australian Government funding, in conjunction with financial assistance from other sources such as State Governments and the community, will be provided to priority natural resource management projects through partnership agreements.

In 1993–94 funding of \$105.2 million was allocated under the NLP. Of this amount, \$10.2 million was allocated for catchment

management to improve water quality through improved land, water and related vegetation management. A further \$1.6 million will improve sewage treatment at selected sites to reduce phosphorous loads in the Darling Catchment.

The National Water Quality Management Strategy

In association with the States and Territories, the Federal Government is developing the National Water Quality Management Strategy which covers fresh and marine waters, reclaimed water, and rural water management. The objective of the Strategy is to achieve sustainable use of the nation's water resources by protecting and enhancing their quality while maintaining economic and social development. The Strategy provides a nationally consistent approach through the National Water Quality Management Guidelines which have a shared national objective but provide the flexibility to respond to local and regional circumstances.

The Strategy also encompasses the development of guidelines for urban stormwater and sewerage systems addressing in particular the following issues: effluent management, acceptance of trade (industrial) wastes, the reuse of reclaimed water, and sludge management.

Other programs contributing to improved water quality are:

- the National Waterwatch Program, which aims to improve community awareness of water quality issues through supporting and facilitating the development of community-based water quality monitoring programs; and
- the National Wetlands Management Program which seeks to promote the wise use of wetlands and has, as one of its goals, the production of a wetlands management manual for both technical and community use.

The Australian Guidelines for Drinking Water Quality

The Australian Guidelines for Drinking Water Quality are intended to provide the community and the water supply industry with guidance on a nationally consistent approach to what constitutes good quality drinking water. The guidelines are concerned

with the safety of water, from a health point of view, and with its aesthetic quality. They are intended for drinking water (except bottled or packaged water) irrespective of its source (municipal supplies, rain water tanks, bores, point-of-use treatment devices, etc.) and/or where it is used (homes, restaurants, camping areas, ships, etc.).

The Guidelines for the use of reclaimed water address the need to use an important resource efficiently and to conserve it through reuse.

Monitoring river health

The Federal Government has established programs on monitoring and reporting on the state of Australia's rivers and has begun investigations into the environmental flow requirements of its waterways. They include the community-based Waterwatch Program and the River Murray Corridors of Green community-based program which aims to develop a network of vegetation corridors along the Murray River.

The 1992 Monitoring River Health initiative incorporates two components — environmental flows (allocated \$2.5 million over four financial years) and scientific water quality monitoring (allocated \$7.5 million over four financial years). The Federal Government provided \$10.1 million in 1993–94 under the National Landcare Program for catchment management to improve water quality through improved land, water and related vegetation management.

The National Drought Policy

The National Drought Policy is based on sustainable development, risk management, productivity growth and structural adjustment in the farm sector. It seeks to encourage the sectors of rural Australia to adopt a self-reliant approach to managing for climatic variability.

Knowledge of the natural variability of climate and its impact on water resources is essential to the sustainable management of our freshwater resources. The Bureau of Meteorology is the national hydro-meteorological authority charged with observation and scientific study of the atmospheric and land phases of the hydrological cycle. An integrated assessment of resources, essential to the management of the resource, involves the measurement and analysis of rainfall, evaporation, stream flow

and underground water. The Bureau operates national networks for the measurement of climatic data and provides a national focus for the coordination, monitoring, evaluation and review of hydro-meteorological and hydrological data collection.

Research activities

The Federal Government funds research and development (R&D) to increase the sustainable use of Australia's land and water resources.

Some agencies fund R&D aimed directly at achieving sustainable use of Australia's land and water resources. Of particular interest is the Land and Water Resources Research and Development Corporation (LWRRDC). Its objective includes the funding of R&D to increase the sustainable use of land and water. The LWRRDC has identified river research as a high priority in its strategic plan for 1992–97. Two major issues to be addressed are an understanding of in-stream and flood plain processes, including the flow requirements of rivers, and the development of indicators of river health.

Other agencies fund R&D which either directly or indirectly helps to achieve sustainable use, most notably the Co-operative Research Centres (CRC) Program and the Industry Research and Development Board (IRDC). Under the CRC program, research, industry and educational institutions collaborate to develop proposals for the establishment of specific CRCs. There are now several CRCs undertaking research into specific aspects of land and water use in Australia.

Two recently established CRCs, one for freshwater ecology and the other for tropical rainforest ecology and management, intend to establish programs that will add to scientific knowledge on the nation's rivers. The CRC for Catchment Hydrology has already established programs on river research.

Through the Industry Innovation Program, the Industry Research and Development Board funds a range of companies and research organisations undertaking R&D on sustainable use of Australia's land and water resources. Examples include the development of new technologies to treat waste water and sewage and new techniques to treat contaminated sediments and soils.

One Billion Trees

The One Billion Trees (OBT) Program was initiated by the Commonwealth Government in 1989 to encourage community participation and involvement in vegetation establishment and retention projects.

It is the Commonwealth Government's principal vegetation management program, with the primary aim of having a billion more trees established around Australia by the year 2000.

The Commonwealth, through the Australian Nature Conservation Agency, provides funds to Greening Australia, a non-profit community-based organisation, to continue the OBT program. State and Territory Greening Australia staff provide technical information, advice and practical support to help individuals and groups to develop community-based landcare and conservation activities.

Greening Australia conducts school-based and community education projects to develop a

knowledge and understanding of the processes of vegetation decline, land degradation and remedial vegetation management.

The Australia-wide network of Greening Australia staff and volunteers conducts trials and demonstrations on how to establish and sustain vegetation, how to develop seed banks and collect seed from local species, conduct species trials, and coordinate major revegetation projects.

Concerns and views on the environment

Concern about environmental quality is another measure of the perception of the quality of life. Tables 14.2 to 14.4 show the extent and nature of the concerns and views of Australians about the environment in June 1994. The problems registering the highest level of concern were air pollution, ocean pollution and the destruction of trees and ecosystems.

14.2 Concern about environmental problems, June 1994

Concern about environmental problems	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	'000								
Yes	3 011.5	2 180.5	1 547.5	784.9	837.3	209.6	64.6	155.1	8 791.0
No	1 210.5	989.6	656.0	275.0	323.6	126.4	22.6	52.0	3 655.7
Don't know	127.7	72.8	54.1	15.9	33.8	5.7	2.2	2.0	314.2
Total persons(a)	4 349.8	3 242.9	2 257.6	1 075.8	1 194.7	341.7	89.4	209.0	12 760.9
	%								
Yes	69.2	67.2	68.5	73.0	70.1	61.3	72.2	74.2	68.9
No	27.8	30.5	29.1	25.6	27.1	37.0	25.3	24.9	28.6
Don't know	2.9	2.2	2.4	1.5	2.8	1.7	2.5	0.9	2.5

(a) Aged 18 years and over.

Source: *Environmental Issues: People's Views and Practices* (4602.0).

14.3 Specific environmental problems concerning persons(a), June 1994

Environmental problem	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
'000									
Air pollution	1 716.7	1 106.7	658.2	334.4	352.3	92.3	29.9	57.8	4 348.3
Ocean pollution	1 388.2	740.0	581.0	311.5	230.6	89.8	22.4	43.3	3 406.8
Destruction of trees/ecosystems	1 136.9	727.2	661.3	264.4	314.6	73.9	30.7	55.8	3 264.7
Freshwater pollution	1 312.5	707.1	508.3	317.0	251.7	83.9	24.2	52.1	3 256.8
Ozone layer	688.4	607.5	352.2	222.6	211.6	44.6	18.2	39.1	2 184.1
Garbage disposal	698.6	518.2	330.8	203.4	160.7	42.5	11.9	35.0	2 001.1
Extinction of species	686.2	363.5	337.4	116.3	123.8	33.9	18.1	24.3	1 703.5
Toxic chemical waste	521.8	394.3	299.1	129.4	113.7	34.9	8.0	12.4	1 513.6
Land degradation	449.7	283.3	222.8	112.5	93.9	28.3	12.2	22.5	1 225.1
Other pollution	473.4	224.9	219.7	114.7	71.6	27.1	9.1	24.8	1 165.3
Greenhouse effect	409.4	314.6	156.0	115.9	73.3	21.2	7.4	20.7	1 118.5
Resource conservation	376.1	272.2	212.2	78.1	79.9	31.8	11.5	17.9	1 079.9
Overpopulation	412.8	206.2	196.4	59.1	75.9	21.2	10.1	15.3	997.0
Use of pesticides	356.0	206.3	178.9	58.0	55.6	18.5	8.5	8.3	890.1
Nuclear tests/weapons	341.2	229.5	144.9	54.7	51.0	20.1	7.1	5.5	854.1
Use of uranium	161.5	125.0	85.7	34.5	35.8	10.0	5.3	4.0	461.9
Sand mining	107.3	41.0	73.9	13.9	10.9	3.0	1.4	1.4	253.0
Other	238.7	155.5	157.8	59.1	78.2	13.8	2.7	19.0	724.9
No concerns or don't know	1 338.3	1 062.4	710.1	290.9	357.4	132.1	24.8	53.9	3 969.9
Total persons(a)	4 349.8	3 242.9	2 257.6	1 075.8	1 194.7	341.7	89.4	209.0	12 760.9
%									
Air pollution	39.5	34.1	29.2	31.1	29.5	27.0	33.4	27.7	34.1
Ocean pollution	31.9	22.8	25.7	29.0	19.3	26.3	25.0	20.7	26.7
Destruction of trees/ecosystems	26.1	22.4	29.3	24.6	26.3	21.6	34.3	26.7	25.6
Freshwater pollution	30.2	21.8	22.5	29.5	21.1	24.6	27.0	24.9	25.5
Ozone layer	15.8	18.7	15.6	20.7	17.7	13.1	20.4	18.7	17.1
Garbage disposal	16.1	16.0	14.7	18.9	13.5	12.4	13.4	16.7	15.7
Extinction of species	15.8	11.2	14.9	10.8	10.4	9.9	20.3	11.6	13.3
Toxic chemical waste	12.0	12.2	13.3	12.0	9.5	10.2	8.9	5.9	11.9
Land degradation	10.3	8.7	9.9	10.5	7.9	8.3	13.6	10.8	9.6
Other pollution	10.9	6.9	9.7	10.7	6.0	7.9	10.2	11.8	9.1
Greenhouse effect	9.4	9.7	6.9	10.8	6.1	6.2	8.3	9.9	8.8
Resource conservation	8.6	8.4	9.4	7.3	6.7	9.3	12.9	8.5	8.5
Overpopulation	9.5	6.4	8.7	5.5	6.4	6.2	11.3	7.3	7.8
Use of pesticides	8.2	6.4	7.9	5.4	4.7	5.4	9.5	4.0	7.0
Nuclear tests/weapons	7.8	7.1	6.4	5.1	4.3	5.9	8.0	2.6	6.7
Use of uranium	3.7	3.9	3.8	3.2	3.0	2.9	5.9	1.9	3.6
Sand mining	2.5	1.3	3.3	1.3	0.9	0.9	1.6	0.7	2.0
Other	5.5	4.8	7.0	5.5	6.5	4.1	3.0	9.1	5.7
No concerns or don't know	30.8	32.8	31.5	27.0	29.9	38.7	27.8	25.8	31.1

(a) Aged 18 years and over. Totals do not equal the sum of environmental problems in each column because people may report more than one problem.

Source: *Environmental Issues: People's Views and Practices* (4602.0).

People's views on the issue of the priority between environmental protection and economic growth provide an indicator of the public's attitude to the environment generally. Table 14.4 shows that in June 1994, a majority of people (71%) rated them as being of equal

importance. As the questions were necessarily cast in somewhat simplified terms, the responses can only be regarded as indicative of general attitudes rather than of fully formulated views.

14.4 Attitude to environmental protection and economic growth, June 1994

Priority	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	'000								
Environment protection is more important than economic growth	776.3	535.2	428.2	200.8	237.7	44.2	18.0	46.5	2 286.8
Environment protection & economic growth are equally important	3 012.4	2 316.3	1 609.9	793.1	865.1	259.1	65.3	144.5	9 065.7
Environment protection is less important than economic growth	338.4	245.6	147.4	57.9	53.7	26.2	4.9	14.1	888.3
No opinion	222.7	145.8	72.1	24.0	38.2	12.2	1.2	3.9	520.1
Total persons(a)	4 349.8	3 242.9	2 257.6	1 075.8	1 194.7	341.7	89.4	209.0	12 760.9
	%								
Environment protection is more important than economic growth	17.8	16.5	19.0	18.7	19.9	12.9	20.1	22.2	17.9
Environment protection & economic growth are equally important	69.3	71.4	71.3	73.7	72.4	75.8	73.1	69.1	71.0
Environment protection is less important than economic growth	7.8	7.6	6.5	5.4	4.5	7.7	5.5	6.8	7.0
No opinion	5.1	4.5	3.2	2.2	3.2	3.6	1.3	1.9	4.1

(a) Aged 18 years and over.

Source: *Environmental Issues: People's Views and Practices* (4602.0).**Energy and water use by households**

In June 1994, an ABS survey found that gas and electricity were of almost equal importance as sources of energy for space

heating, while electricity was clearly the main hot water energy source.

14.5 Energy source for space heating by households(a), June 1994

Energy source	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	'000								
Gas									
Bottled	101.4	43.0	21.4	20.5	18.6	9.0	2.2	1.2	217.4
Mains	318.9	1 097.5	12.7	167.9	177.1	0.3	0.3	46.6	1 821.3
Unknown	4.4	—	—	0.7	0.4	—	—	—	5.6
Total gas	424.7	1 140.5	34.1	189.1	196.1	9.3	2.5	47.8	2 044.3
Electric	998.4	200.2	303.8	204.5	104.5	51.7	4.1	39.2	1 906.4
Wood	369.2	225.5	115.5	107.6	192.7	108.8	0.6	10.6	1 130.4
Oil	74.9	20.9	42.7	24.0	23.5	8.6	0.7	4.7	200.0
Solar	1.5	—	0.5	0.8	0.7	0.2	0.2	—	3.8
Other/varies	36.0	9.6	22.8	7.7	12.3	0.9	0.4	0.9	90.6
No heating	252.9	9.7	623.4	33.7	80.8	0.4	37.8	0.4	1 039.1
Total dwellings	2 157.7	1 606.4	1 142.7	567.3	610.6	179.9	46.2	103.6	6 414.5

For footnotes see end of table.

...continued

14.5 Energy source for space heating by households(a), June 1994 — continued

Energy source	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	%								
Gas									
Bottled	4.7	2.7	1.9	3.6	3.0	5.0	4.7	1.2	3.4
Mains	14.8	68.3	1.1	29.6	29.0	0.2	0.7	45.0	28.4
Unknown	0.2	—	—	0.1	0.1	—	—	—	0.1
Total gas	19.7	71.0	3.0	33.3	32.1	5.2	5.4	46.2	31.9
Electric	46.3	12.5	26.6	36.0	17.1	28.8	8.8	37.8	29.7
Wood	17.1	14.0	10.1	19.0	31.6	60.5	1.2	10.2	17.6
Oil	3.5	1.3	3.7	4.2	3.9	4.8	1.5	4.5	3.1
Solar	0.1	—	—	0.1	0.1	0.1	0.4	—	0.1
Other/varies	1.7	0.6	2.0	1.4	2.0	0.5	0.9	0.9	1.4
No heating	11.7	0.6	54.6	5.9	13.2	0.2	81.8	0.4	16.2

(a) Totals do not equal the sum of energy sources in each column as more than one combination may be specified.

Source: *Environmental Issues: People's Views and Practices, June 1994 (4602.0)*.

14.6 Energy source for hot water by households(a), June 1994

Energy source	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	'000								
Gas									
Bottled	21.4	30.2	66.7	15.3	42.6	1.2	0.9	—	178.2
Mains	406.8	949.5	84.8	261.0	248.1	0.5	0.2	20.8	1 971.7
Unknown	—	0.6	2.2	0.7	0.3	—	—	—	3.9
Total gas	428.2	980.3	153.7	277.0	291.0	1.7	1.1	20.8	2 153.8
Electricity	1 676.6	610.3	936.7	277.2	223.3	172.6	20.8	81.9	3 999.3
Solar energy	74.6	12.6	55.2	18.8	125.1	1.0	26.6	3.2	317.1
Other	41.7	30.4	21.9	3.5	35.5	6.7	2.0	0.2	141.9
Total dwellings	2 157.7	1 606.4	1 142.7	567.3	610.6	179.9	46.2	103.6	6 414.5
	%								
Gas									
Bottled	1.0	1.9	5.8	2.7	7.0	0.7	1.9	—	2.8
Mains	18.9	59.1	7.4	46.0	40.6	0.3	0.4	20.1	30.7
Unknown	—	—	0.2	0.1	0.1	—	—	—	0.1
Total gas	19.9	61.0	13.4	48.8	47.7	1.0	2.3	20.1	33.6
Electricity	77.7	38.0	82.0	48.9	36.6	95.9	44.9	79.1	62.3
Solar energy	3.5	0.8	4.8	3.3	20.5	0.6	57.5	3.1	4.9
Other	1.9	1.9	1.9	0.6	5.8	3.7	4.3	0.2	2.2

(a) Totals do not equal the sum of energy sources in each column as more than one combination may be specified.

Source: *Environmental Issues: People's Views and Practices, June 1994 (4602.0)*.

The main source of water for households is mains/town water, with 93% of households, followed by water from rainwater tanks with 15%. Of those households connected to the mains/town supply 64% are satisfied with the quality of the water supply for drinking

purposes. Residents of South Australia were the least satisfied with their mains water quality (47%) while the Northern Territory and the Australian Capital Territory were the most satisfied.

14.7 Sources of water by households(a), June 1994

Source of water	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
'000									
Mains/town	2 036.9	1 501.2	1 014.1	541.2	571.8	154.9	44.1	103.6	5 967.7
Rainwater tank	196.0	203.1	202.2	272.2	68.5	32.2	1.2	1.0	976.4
Spring	12.6	7.3	6.2	13.9	3.9	7.4	0.2	—	51.5
Bore	48.1	31.7	86.2	25.1	127.9	3.5	3.5	—	326.0
Bottled	54.5	21.1	24.5	52.6	21.5	1.1	0.8	1.3	177.4
Other	59.8	35.7	38.6	7.2	17.0	8.4	—	0.3	167.1
Total households	2 157.7	1 606.4	1 142.7	567.3	610.6	179.9	46.2	103.6	6 414.5
%									
Mains/town	94.4	93.4	88.7	95.4	93.6	86.1	95.4	100.0	93.0
Rainwater tank	9.1	12.6	17.7	48.0	11.2	17.9	2.6	0.9	15.2
Spring	0.6	0.5	0.5	2.4	0.6	4.1	0.4	—	0.8
Bore	2.2	2.0	7.5	4.4	20.9	2.0	7.5	—	5.1
Bottled	2.5	1.3	2.1	9.3	3.5	0.6	1.8	1.3	2.8
Other	2.8	2.2	3.4	1.3	2.8	4.7	—	0.3	2.6

(a) Totals do not equal the sum of water sources in each column as more than one combination may be specified.

Source: *Environmental Issues: People's Views and Practices, June 1994 (4602.0)*.

14.8 Quality of tap water for drinking by households, June 1994

Perception of quality	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
'000									
Satisfied	1 252.1	1 040.2	657.3	254.4	342.5	115.8	38.9	88.7	3 789.9
Not satisfied	698.8	422.2	322.2	275.3	204.1	34.6	4.6	12.9	1 974.8
Depends	82.5	38.1	34.1	11.5	24.5	4.4	0.6	2.0	197.7
Total households	2 036.9	1 501.2	1 014.1	541.2	571.8	154.9	44.4	103.6	5 967.7
%									
Satisfied	61.5	69.3	64.8	47.0	59.9	74.8	88.1	85.6	63.5
Not satisfied	34.3	28.1	31.8	50.9	35.7	22.4	10.5	12.5	33.1
Depends	4.1	2.5	3.4	2.1	4.3	2.8	1.4	1.9	3.3

Source: *Environmental Issues: People's Views and Practices, June 1994 (4602.0)*.

Of the water conservation steps within households that were surveyed by the ABS in June 1994, the most prominent was turning off and repairing dripping taps (24% of households). Thirty-nine percent of

households had a dual flush toilet, while 22% had a reduced flow shower head. Around 54% of households reported taking no water conservation steps within their households.

14.9 Methods of conserving water by households, June 1994

Method	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
'000									
Dual flush toilet	658.9	816.3	360.3	273.6	284.6	55.8	19.2	34.4	2 503.1
Reduced flow shower head	421.2	341.0	256.6	147.8	159.4	37.1	6.7	29.6	1 399.5
Recycle/reuse water	286.5	144.0	188.3	74.9	119.3	21.5	3.6	12.7	850.8
Full loads when washing	351.6	255.7	172.9	59.8	134.9	33.2	8.8	17.4	1 034.3
Shorter showers	360.9	214.2	174.3	70.8	133.8	30.1	6.3	16.5	1 006.8
Turn off/repair dripping taps	545.6	339.5	339.4	74.5	126.7	42.3	11.3	30.5	1 509.9
Brick in cistern	49.7	18.1	16.2	9.3	13.6	3.3	—	2.6	112.7
Other	191.4	91.8	122.2	40.9	65.9	9.1	2.4	15.6	539.3
Suds saver used	362.5	170.2	143.6	127.9	91.3	24.9	5.8	16.3	942.4
No water conservation methods	1 177.4	969.1	539.9	355.1	265.1	100.3	28.5	47.0	3 482.3

...continued

14.9 Methods of conserving water by households, June 1994 — continued

Method	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	%								
Dual flush toilet	30.5	50.8	31.5	48.2	46.6	31.0	41.6	33.2	39.0
Reduced flow shower head	19.5	21.2	22.5	26.1	26.1	20.6	14.6	28.6	21.8
Recycle/reuse water	13.3	9.0	16.5	13.2	19.5	11.9	7.7	12.3	13.3
Full loads when washing	16.3	15.9	15.1	10.5	22.1	18.5	19.0	16.8	16.1
Shorter showers	16.7	13.3	15.3	12.5	21.9	16.7	13.5	15.9	15.7
Turn off/repair dripping taps	25.3	21.1	29.7	13.1	20.8	23.5	24.5	29.5	23.5
Brick in toilet cistern	2.3	1.1	1.4	1.6	2.2	1.8	—	2.5	1.8
Other	8.9	5.7	10.7	7.2	10.8	5.1	5.2	15.0	8.4
Suds saver used	16.8	10.6	12.6	22.5	15.0	13.8	12.6	15.7	14.7
No water conservation methods	54.6	60.3	47.2	62.6	43.4	55.8	61.6	45.3	54.3

Source: *Environmental Issues: People's Views and Practices, June 1994 (4602.0)*.

Costs of environment protection

Businesses, governments and households spend some of their resources on protection of the environment. For 1991–92, the ABS collected some information about expenditure by businesses in the mining, manufacturing, agriculture, retail and wholesale, and household sectors, as well as

data for the public sector, on pollution abatement and control. The expenditures included are for activities aimed at the prevention, reduction and elimination of pollution arising from production processes. Table 14.10 provides a summary of some of the information obtained.

14.10 Expenditure on environment protection by sector, (\$ million)

Industry/sector	Pollution abatement costs	Other costs	Total costs
Public sector	1 766.7	1 086.0	2 852.7
Agriculture	n.a.	n.a.	285.4
Mining	151.7	n.a.	98.3
Manufacturing	1 005.2	n.a.	1 005.2
Retail/Wholesale	27.2	n.a.	27.2
Household	118.7	709.8	828.5
Total	—	—	5 152.7

Source: *Cost of Environment Protection, Australia, Selected Industries, 1991–92 (4603.0)*.

International cooperation

United Nations Conference on Environment and Development, Rio de Janeiro, 1992

One of the largest conferences on the environment and development was held in Rio de Janeiro, Brazil from 1–12 June 1992. The United Nations Conference on Environment and Development (UNCED) brought together 178 governments, thousands of delegates and members of non-government organisations and journalists.

Four documents were agreed by many governments at the sessions in Brazil. These were the Rio Declaration, Agenda 21 and two conventions, one on climate change and one on biodiversity. A Declaration of Forest Principles was also agreed upon. Although not strictly binding under international law, Agenda 21 is an action plan to implement the

principles found in the Rio Declaration. It is a substantial document containing about 40 chapters on a wide range of issues, including:

- protection of the atmosphere by combating climate change, depletion of the ozone layer and transboundary air pollution;
- protection of the quality and supply of freshwater resources;
- protection of the oceans and coastal areas;
- protection and management of land resources by combating deforestation, desertification and drought;
- conservation of biological diversity;
- environmentally sound management of biotechnology;
- environmentally sound management of wastes, particularly hazardous wastes and toxic chemicals, as well as prevention of illegal international traffic in toxic and dangerous products and wastes;
- improvement of the living and working environment of the poor in urban slums and rural areas; and
- protection of human health conditions and improvement of the quality of life.

Subsequent to the UNCED, the United Nations has created the Commission on Sustainable Development to progress various international discussions. Member countries have a responsibility to report annually on aspects of their implementation of Agenda 21. Australia presented its first report in December 1993, addressing issues such as transfer of environmentally sound technologies, protecting and promoting human health, promoting sustainable human settlement, and toxic chemicals and hazardous wastes.

The Berlin Mandate adopted at the Conference of the Parties in March 1995 provides a new process, which will consider all greenhouse gases, for strengthening developed countries' commitments towards climate change after the year 2000. It set a 1997 deadline for adopting the results of this process. It will also consider setting quantified objectives for limiting and reducing emissions

within specified time-frames, such as the years 2005, 2010, and 2020. It does not introduce any new commitments for developing countries, although it does reaffirm the existing ones and will advance their implementation.

International treaties and conventions

The main international treaties and conventions relating to the environment to which Australia is a party are listed below.

General environmental

- Antarctic Treaty (signed by Australia 23 June 1961)
- Convention for the Protection of the World Cultural and Natural Heritage (17 December 1975)
- Convention on the Conservation of Nature in the South Pacific (28 March 1990)
- United Nations Framework Convention on Climate Change (9 May 1992)

Coastal/marine resources

- International Convention for the Regulation of Whaling (10 November 1948)
- UN Convention on the Law of the Sea (10 December 1982)
- Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific (24 November 1989)
- International Convention on Oil Pollution Preparedness, Response and Co-operation (30 November 1990)

Toxic and hazardous wastes

- South Pacific Nuclear Free Zone Treaty (11 December 1986)
- Convention on Early Notification of a Nuclear Accident (23 October 1987)
- Treaty Banning Nuclear Weapons Testing in the Atmosphere, in Outer Space and Under Water (12 November 1963)
- International Convention for the Prevention of Pollution from Ships (14 January 1988)

- International Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Dumping Convention) (20 September 1985)
- Basel Convention on the Transborder Movement of Hazardous Waste (early 1992)

Biological diversity

- Convention on Wetlands of International Importance (12 December 1975)
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (27 October 1976)
- International Plant Protection Convention (27 August 1952)
- Convention on Biological Diversity (18 June 1993)

Air quality

- Vienna Convention for the Protection of the Ozone Layer (17 August 1989)
- Montreal Protocol on Substances that Deplete the Ozone Layer (22 September 1990)

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