A WASTE MANAGEMENT STRATEGY FOR CANBERRA

NO WASTE BY 2010

A MESSAGE FROM THE MINISTER

Problems associated with the generation and disposal of waste are issues of increasing importance to the community. Energy and resources are being wasted while tips are filling quickly.

The ACT Government is committed to achieving sustainable practices for the management of our wastes.

This Waste Management Strategy for Canberra has been developed through an extensive community consultation process. The strategy sets the vision of how we can become a waste free society by 2010 and outlines the future direction for waste management whereby we will be turning our wastes into resources.

We are the first Government anywhere to embrace such a bold target - of becoming a waste free society. This will be a most rewarding challenge for our community to adopt and I commend this strategy for its vision.

Tony De Domenico MLA

Minister for Urban Services

Published by Publications and Public Communication for ACT Waste
and printed by the Authority of
Nigel Hardiman, ACT Government Printer 6000/12/96(97/2495)

ACT Government Homepage address is:
http://www.act.gov.au

For further information contact: ACT Waste
PO Box 788, Civic Square ACT 2608
Telephone: (06) 207 6356 Facsimile: (06) 207 6341

ISBN No: 1 86331 389 3

Design/Artwork: Carolyn Brooks & Bill Gresham
Printed on Australian made recycled paper

TABLE OF CONTENTS

THE VISION

By 2010 it is envisaged that waste will have been eliminated by a community that:

- has encouraged the producers of goods to take responsibility for the form in which their products are sold to ensure that waste is not generated with the initial production, during use or at the end of the product's life;
- has created an environment for developing innovative solutions to avoid generating waste;
- only buys what it needs. Whether they be building materials or groceries, waste is avoided by efficient buying and production practices;
- has created cost-effective methods for recovering resources so that materials can either be re-used or reprocessed into valuable products;
- has created industries dealing in unwanted materials;
- has extended the opportunities for resource recovery to the Canberra region; and
- takes pride in its achievements in eliminating waste and includes environmental education as a key element in achieving the vision.

EXECUTIVE SUMMARY

In a natural eco-system there is a balance whereby the wastes from one process become the resources for other processes. Nothing is wasted. In a consumer society waste is an accepted part of life. A strategy is needed to reverse this trend and prevent leaving future generations the legacy of our waste.

The Waste Management Strategy for Canberra has been developed to set the vision and future directions for waste management in the Australian Capital Territory. The strategy is the result of extensive community consultation which has identified a strong desire to achieve a waste free society by 2010.

Improving current waste management practices will provide opportunities to develop new and innovative businesses with significant employment potential as well as establishing Canberra as a centre of excellence in sustainable resource management.

Although ambitious, reaching no waste by 2010 is achievable with the willingness, co-operation and participation of all sectors of the Canberra community.

The strategy establishes a framework for sustainable resource management and lists broad actions which are needed to achieve the aim of a waste-free society.

These include: Community Commitment, Avoidance and Reduction, Resource Recovery, Residual Waste Management, and Creative Solutions.

Community commitment

The success of this strategy will rely largely on the acceptance and commitment of the community. Information programs aimed at raising awareness coupled with feedback to the community, are essential. There will be rewards and recognition for successful community initiatives which reduce waste .

Avoidance and reduction

A waste inventory must be developed so the community can identify all wastes being either generated or recycled. The inventory will include quantities, qualities and the full costs of each type of waste. Only then can benchmarks be set and performances monitored.

Individuals will be encouraged to reduce waste by making sound decisions when they buy products. Specific programs will be developed to enable people to adopt smart purchasing practices.

ACT industries will be encouraged to adopt cleaner production practices in order to reduce emissions and by-products during production. Cleaner production and waste reduction agreements will be negotiated with industries operating in the ACT.

As a first step, industries will be encouraged to audit their waste to improve their environmental performance. In future, it may be necessary to introduce mandatory waste audits.

Resource recovery

Infrastructure will need to be established to accelerate the process of turning waste into resources. The development of Resource Recovery Estates, dedicated to separating, reprocessing and value-adding materials, will help solve many disposal problems and provide employment opportunities. These estates will include educational centres, workshops and cottage industries.

Similarly, a Resource Exchange Network will also be established to match the unwanted outputs from one process with the needs for such resources in other activities. A Resource Exchange Network will promote markets for recovered products, provide a central data base of available materials and indicate their potential re-uses.

Residual Waste Management

Promoting best practice in waste management will require the development of systems that are safe and environmentally responsible, the rationalisation of recycling and waste handling infrastructures and the redesign of landfills to maximise the recovery of resources.

Landfill charges will need to recognise the full environmental costs of disposal and encourage resource recovery.

Creative Solutions

Research and development will play a key role in identifying innovative solutions to maximise resource recovery. This will go hand in hand with identifying, developing and promoting new markets for sustainable resource recovery.

Links will need to be fostered with peak community, government and industry groups to influence decisions for waste management, and with industry and research organisations to develop new waste management practices. This will need to be done on a regional level.

This strategy promotes a more integrated and strategic approach to resource management. This approach is consistent with the ecologically sustainable development principles promoted in the National Capital Beyond 2000 Strategic Plan,[1] waste minimisation legislation in NSW,[2] the ACT and Sub-region Planning Strategy[3] and moves to develop a regional waste strategy through the Regional Leaders Forum.

1. Facing our future - National Capital Beyond 2000 - a joint Commonwealth/ACT initiative, Canberra 1996

2. NSW Government Waste Minimisation and Management Act 1995

3. ACT and Sub-Region Planning Committee, Solid Waste Management, Position Paper No. 12, Canberra, May 1995

Current waste management practices evolved from the need to maintain public health.

With the concentration of populations in cities and increasing consumerism, the waste management systems had to cope with ever increasing volumes of waste. By the 1970's engineered landfill was identified as the accepted standard for waste disposal.

In Australia, landfills are the dominant waste disposal option. In recent years, however, it has become more difficult to establish new landfills as tighter environmental controls have been introduced. Incinerating waste has been suggested as an alternative to landfills, but these are expensive to construct and costly to run. Local communities have also expressed opposition to waste disposal sites in their "backyards".

The cost of waste disposal has increased appreciably in recent years and has forced communities to review the present one-way system of production, consumption and disposal.

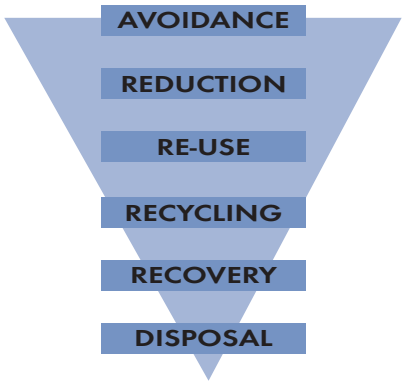
By 1990, governments were trying to find ways of sustaining development. A new term emerged as a result - Ecologically Sustainable Development (ESD). In recognition that existing waste practices need to change for ESD to be achieved, all Australian governments have made a commitment to minimise waste.

The absence of heavy industry in Canberra limits wastes to those generated by tertiary industries, such as public administration; tourism, building and construction and householders.

Considerable progress has been made toward achieving the national target of halving waste by the turn of the century. Total waste delivered to ACT landfill sites decreased by 39% from 415,798 tonnes in 1993-94 to 252,068 tonnes in 1995-96. This is largely as a result of introducing waste disposal charges at landfills with major reductions in demolition waste, clean fill and organic garden waste being dumped (Table 1 - Page 22).

Recycling has also made a significant impact in reducing waste. The community has participated strongly in using the comprehensive range of recycling services available, including the kerbside collections of paper and containers, garden waste composting, demolition waste reprocessing, clothing collection, metal and oil recovery as well as landfill salvage by Revolve. The results of these recycling activities are detailed in table 2 (Page 22).

There is an established hierarchy for waste management which has a preferred option of avoiding waste and a least preferred option of disposal.



Significant progress has been made in reducing some waste by providing recycling alternatives which have been supported by education programs and introducing disposal fees.

The scope for making further gains in reducing waste will depend on developing markets for recovered materials, new technologies that minimise waste and the provision of infrastructure to recover a wider range of materials.

THE CONSULTATIVE PROCESS

Waste management strategies have been produced by all levels of government throughout Australia. These documents were used as a basis for developing a strategy for Canberra.

In 1995, an issues paper, *A Waste Free Future* [4] was produced to highlight the major waste management issues in Canberra. This report was widely circulated to community, business and professional groups to encourage participation in preparing a draft strategy.

More than 60 community representatives participated in a series of workshops to:

- identify key issues associated with the generating, collecting and disposing of wastes;
- consider the management and use of resources in the context of environmental sustainability;
- determine the future of landfills;
- identify suitable tools to inform and educate the community;
- identify who should be responsible for meeting the costs associated with the generation of waste; and
- establish the role of government in waste management.

The workshops succeeded in identifying the key issues and actions which were incorporated into a Draft Waste Management Strategy. More than 1000 copies of the draft strategy were distributed throughout Canberra and the region. The next step involved a series of meetings with the community, special interest groups, local government and professional organisations to further develop the draft.

There was general agreement to set a definite goal which is meaningful and not just a partial solution.

GOAL: A WASTE FREE SOCIETY BY 2010

It is essential that the community change its thinking from waste to resources and continue to nurture and develop a strong commitment to the 2010 target. The actions identified by the community form the basis of this strategy and are developed in the following sections.

4. Issues Paper - A Waste Free Future, ACT Government, 1995

COMMUNITY COMMITMENT

Actions

Foster and develop a strong community commitment to responsible waste management by:

Information Programs and Community Support

• Developing information programs to increase awareness of resource and waste management issues.

• Providing feedback to the community on the progress towards achieving No Waste by 2010.

Public Recognition

• Supporting, encouraging and recognising initiatives within the community which reduce waste.

• Promoting commitment to the 2010 goal through feedback and by providing rewards and recognition for successful community initiatives.

COMMUNITY COMMITMENT

Information Programs and Community Support

The future for resource management in Canberra will be based upon Canberra becoming a waste-free society by 2010. The success of this strategy will depend on community involvement and commitment.

An informed and committed community can achieve remarkable results in waste avoidance and recovery.

Canberrans have already demonstrated a willingness to recycle materials, with the kerbside recycling program boasting a participation rate greater than 98%, recovering 24,000 tonnes of material annually, or 220 kgs per household a year. This is the highest participation and recovery rate for any kerbside recycling system operating in Australia.

There needs to be increased awareness of waste issues and long-term attitudinal change to achieve a waste free society by 2010. The public cannot shoulder this responsibility alone. There is a role for industry and government to work together to find innovative non-regulatory measures to ensure goals are met.

Support will be provided for educating community volunteers to deliver projects such as the Earth Works Program.[5] Earth Works was developed, piloted and evaluated in conjunction with local government in NSW and is now recognised as an effective way of encouraging waste-reduction initiatives within the community. It is proposed that this program be introduced in Canberra.

Public Recognition

The community has many creative and innovative ideas to address waste reduction and resource recovery. Increased public awareness and recognition of these ideas will foster changes in consumer behaviour and will provide an important incentive for the continued pursuit of the no waste goal.

Identifying achievers in waste reduction will go hand in hand with targeted information and promotional programs. It may be possible to attract sponsorship for reward programs.

An annual report will be produced that compares progress in reducing waste against established benchmarks. The first report will be released in mid 1997.

5. NSW EPA Earth Works Program (Pilot 1993 - Launched 1996)

Actions

As a community we should avoid and reduce generating waste by:

Waste Inventory and Benchmarks

• Developing a waste inventory and identifying the full costs of each type of waste.

• Setting benchmarks to monitor performance towards achieving the 2010 target.

Smart Buying

• Developing programs that will allow consumers and resource users to make well-informed choices for minimising waste in their purchasing and production decisions.

Reduction Agreements and Cleaner Production

• Establishing waste reduction agreements with key industries operating in the ACT and region.

Waste Audits and Legislation

• Introducing mandatory waste audit processes before development approvals.

• Explore the use of economic instruments or legislation, as appropriate, to support new waste management initiatives.

AVOIDANCE AND REDUCTION

Waste Inventory and Benchmarks

There is limited accurate data available on Canberra's waste. An inventory of wastes in the Canberra region needs to be developed to identify all wastes being generated or recycled, including quantities, qualities and sources.

This information will enable priorities to be set and assessments to be made of the full costs and impacts for each waste type depending upon space consumed, treatment required, and environmental consequences of the material being disposed of at landfill.

This will enable benchmarks to be established and allow for the measurement of performance towards the 2010 goal.

Smart Buying

Consumers can play a key role in reducing waste through their purchasing decisions. Items that have multiple layers of wrapping are an obvious example of waste. Avoiding items that are over-packaged will impact on waste generated.

Consumers are not given information on the full environmental costs of the products they buy in terms of manufacture, consumption and ultimate re-use, recycling and disposal implications.

Introducing a national rating system, which provides information on the environmental characteristics of a product, including by-products, energy consumed in production and use, packaging used and the potential for re-use and recycling, will be supported.

Reduction Agreements and Cleaner Production

In 1991 the Australian and New Zealand Environment and Conservation Council (ANZECC) endorsed developing a national recycling strategy for domestic waste.[6] A taskforce was set up to negotiate recycling targets for 1995 and to establish agreements with specific paper and packaging industries.

Another taskforce was established in 1995 to review progress towards achieving waste reduction targets and to negotiate waste reduction agreements with a wider range of industries. National industry agreements are being prepared to encourage each State and Territory to establish waste reduction agreements with local industries.

There are benefits in making agreements with key industries in the ACT and these agreements will be pursued in the context of any national agreements. Waste reduction agreements with specific local industries will be progressed on the basis of the waste hierarchy which promotes waste avoidance as the first step, followed by waste reduction and recycling.

The term **cleaner production** has been used widely in recent times to indicate the practice of industries reducing emissions and by-products during production. Cleaner production results in waste avoidance and reduction, makes good business sense, and is widely applied by businesses internationally.

In the building industry, good design and planning can reduce the generation of waste in construction and use of the building and, ultimately when the building needs to be either refurbished or demolished.

Waste Audits and Legislation

Waste audits assess waste produced by an activity including quantities and composition.

Industries will be encouraged to complete waste audits to improve their environmental performance. The building and construction industry will also be encouraged to complete waste audits for building designs and developments. It is proposed that waste audit procedures and guidelines be developed jointly with industry.

It may be desirable to introduce mandatory waste audits before granting development approvals and approvals to vary lease purpose clauses.

Economic instruments, including the concepts of polluter pays and full-cost pricing, are being increasingly accepted by governments in Australia and overseas. The further use of economic instruments to achieve waste reduction will be explored.

While voluntary systems will be encouraged, legislation may be needed if voluntary systems fail to achieve satisfactory levels of waste minimisation and reduction.

6. National Kerbside Recycling Taskforce, Report on the Establishment and Implementation of a National Kerbside Recycling Strategy - June 1992

RESOURCE RECOVERY

Actions

Turn waste into resources by:

Resource Recovery Infrastructure

• Establishing infrastructure for resource recovery, in particular developing Resource Recovery Estates incorporating waste-minimisation education centres.

Resource Exchange Network

• Establishing a resource exchange network to match wastes with resource requirements.

RESOURCE RECOVERY

Resource Recovery Infrastructure

A review[7] of the operations and future options for ACT landfills concluded that the use of two landfills in Canberra, each with its own tip face, associated road works and infrastructure, is inefficient. The review found that if all waste materials were handled at sites designed to recover resources, the cost of landfill management could be reduced and the opportunity to recover resources would be more cost-effective.

The development of dedicated recycling sites (Resource Recovery Estates) links directly with the **McIntyre & Associates** report which recommends the use of such sites to reduce waste and the demand for landfills.

The establishment of processing plants to separate, reprocess and value-add materials will resolve a great number of disposal issues and provide jobs. Over the past five years more than 70 full-time jobs in resource recovery have been created in Canberra. The potential for further job creation is only limited by effort and imagination.

Existing recycling industries would be relocated to the Resource Recovery Estates. They will be co-located with new sunrise industries to foster innovation and co-operation needed to return wastes to resources. The outputs from one process would be used as the inputs to other manufacturing or value-adding processes.

Education centres, providing seminar facilities and tours for schools, industry and other groups, will help change people's perception from waste to resources. Workshops and cottage industries could

also be located on these estates to provide business opportunities for innovative solutions to resource recovery and value-adding.

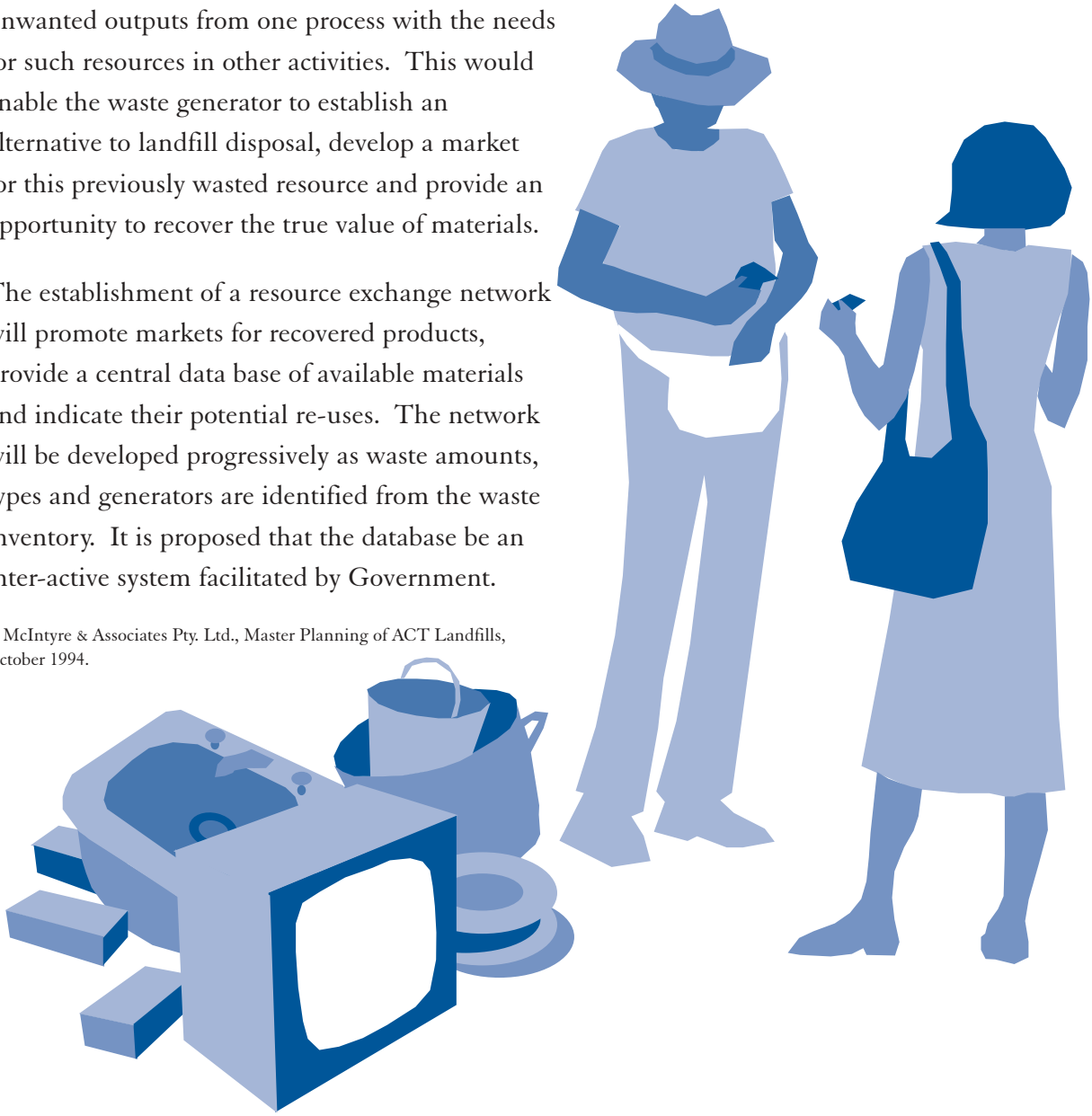
Given the level of innovation, the Resource Recovery Estate would become a model centre of excellence, foster eco-tourism and provide a focus for regional cooperation.

Resource Exchange Network

A resource exchange network will match the unwanted outputs from one process with the needs for such resources in other activities. This would enable the waste generator to establish an alternative to landfill disposal, develop a market for this previously wasted resource and provide an opportunity to recover the true value of materials.

The establishment of a resource exchange network will promote markets for recovered products, provide a central data base of available materials and indicate their potential re-uses. The network will be developed progressively as waste amounts, types and generators are identified from the waste inventory. It is proposed that the database be an inter-active system facilitated by Government.

7. McIntyre & Associates Pty. Ltd., Master Planning of ACT Landfills, October 1994.



Actions

Promote best practice in environmentally responsible waste management by:

Waste Handling Systems

• Developing systems to ensure that all wastes are contained, collected, transported and disposed of in a safe and responsible manner.

• Rationalising waste handling systems by establishing waste sorting, recycling and transfer infrastructure to a principal landfill.

• Redesigning ACT landfills to accommodate maximum recovery of resources and ensure operations are environmentally sustainable.

Landfill Charging

• Implementing landfill charges which recognise full environmental costs and encourages maximum resource recovery.

RESIDUAL WASTE MANAGEMENT

Waste Handling Systems

Over the past 50 years there has been little change in the way waste is contained, collected, transported and delivered for disposal at landfills. Emphasis has traditionally been placed on health issues and improved cost-efficiency of collection systems, rather than the recovery of materials for re-use or recycling.

In recent years a new emphasis has been placed on the recovery and re-use of resources, with systems designed to separate waste into streams to maximise recycling. A good example is Canberra's kerbside recycling service.

At-source separation provides the most efficient opportunity for resource recovery. Possible resource separation systems need to be fully researched and developed to minimise costs and return maximum environmental benefits.

Local landfills have a limited life. Even with increased efforts to minimise waste, the ACT's landfills will be full within the next 15 years.

Current practices at local landfills have high operational and environmental costs. Direct public access to landfills means increased costs in maintaining road surfaces, traffic management and environmental controls (dust, litter and leachate) and reduced efficiencies in the use of landfill space.

The 1994 study by McIntyre & Associates, indicated that establishing Mugga Lane as the principal landfill for Canberra, and constructing two transfer stations to service the urban areas, would have a similar order of cost to the operation of the two existing landfills.

Transfer stations will provide:

- all weather access to recycling and disposal;
- maximum use of landfill space;
- opportunities for new recovery and waste separation systems; and
- minimal environmental impacts associated with waste handling.

Effective management is required for other materials which cannot now be recycled. Tight regulation and tracking systems will need to be developed to ensure that hazardous materials are correctly identified and the best management practices implemented. In many cases, storing these materials in secure sites is the most appropriate response until a technology is developed to re-use, recycle or dispose of them in an environmentally safe manner.

A national manifest system is being developed as a national environment protection measure. If the measure is accepted by the National Environment Protection Council and enacted by the Commonwealth Parliament, it will automatically apply in the ACT.

Landfills need to be managed as sites that can be mined to recover the buried resources. Materials that are now unable to be re-used could be stored safely for future recovery when new technologies become available. An example of this is storage of used tyres in a trench at West Belconnen. Once viable tyre recycling technology is developed, these tyres can be recovered at minimal cost.

Landfill Charging

A scoping study [8] conducted by the Bureau of Industry Economics in 1993, found that costs of disposal has a major impact on waste to landfill. It is acknowledged that under-pricing of waste disposal discouraged the search for profitable improvements in waste management and recovery of resources.

There has been a 39% reduction in the total tonnages delivered to Canberra landfill in the past three years as a direct result of the introduction of landfill charges.

The fees do not reflect the true cost of landfill operations, and it is expected that as they increase, further reductions in disposal will occur and waste generators will develop alternatives to landfill disposal.

The disposal fee for general landfill in the Sydney area is $65 a tonne, compared with $23 per tonne in Canberra.

The containment of hazardous and special waste materials will impose additional charges reflecting the technology required. There is an obligation for the community to meet some of these costs. However, where the source of a special waste can be identified, the principles of polluter and user pays will be applied.

8. Bureau of Industry Economics, Waste Management and Landfill Pricing - A Scoping Study, Occasional Paper 12, AGPS, Canberra 1993

CREATIVE SOLUTIONS

Actions

Develop creative solutions to overcome the barriers limiting sustainable resource management by:

Research and Development

• Undertaking research and development to identify innovative solutions to maximise resource recovery

Market Development

• Identifying, developing and promoting new markets for sustainable resource recovery.

Linkages

• Developing relationships with peak community, government and industry bodies to influence informed decisions on waste management issues and encourage a climate for change.

• Developing and co-ordinating a regional approach to resource recovery and waste management.

• Establishing and fostering links with industry and research organisations to develop new and improved waste management and resource recovery techniques.

CREATIVE SOLUTIONS

Research and Development

Although there has been a 39% reduction in the total amount of waste going into ACT landfills, and the amount of solid waste being recycled now exceeds that going to landfill for disposal, there are still enormous opportunities for further waste reduction.

The proposed waste inventory will identify the materials that need to be targeted for research. A focussed research program will help develop solutions to optimise the value of each resource.

In parallel with the establishment of new waste/resource handling initiatives, it is also essential that research and development continue to identify new technologies and innovative ways of managing and handling resources. These projects need to be funded and supported by government, industry and the community.

Market Development

There are a number of examples where imagination and effort have created a market niche and have established an ongoing demand as well as generating additional business opportunities in Canberra. Examples include:

- the re-use of demolition material in the ACT by Canberra Concrete Recyclers has resulted in the creation of eight full-time jobs, and the re-use of more than 100,000 tonnes of material each year;

- Canberra's community-based recycling company, Revolve, operates by salvaging and selling recovered goods at the two landfill sites. Revolve has created 30 jobs by recovering 7,000 tonnes of material a year from landfill; and
- Canberra's organic recyclers compost more than 95,000 tonnes of garden waste each year.

Although there are large composting centres for garden waste, a sustainable market needs to be developed to continue these operations in the longer term.

Linkages

The Regional Leaders Forum has identified the need to foster close working relationships in areas such as waste management that have potential benefits through regional co-operation. Maintaining close relationships with government agencies, regional industries and the community will provide the link to establishing integrated resource/waste management systems and viable industries within the region.

This strategy promotes a more integrated and strategic approach to resource management. It is consistent with the ecologically sustainable development principles promoted in, and direction of, the National Capital Beyond 2000 Strategic Plan, waste minimisation legislation in NSW, the ACT and Sub-region Planning Strategy and the actions being undertaken with the development of a regional waste strategy through the Regional Leaders Forum.

Canberra is home to a number of academic and research institutions of international status. Fostering links with these organisations will provide opportunities for establishing joint ventures at the leading edge of waste management.

Actions

All initiatives listed in this strategy will need to be implemented to achieve No Waste by 2010. Over the next two years, the following things need to be done.

Waste Inventory and Benchmarks

- Develop a waste inventory and identify the full costs of each type of waste.
- Set benchmarks to monitor performance towards achieving the 2010 target.
- Establish a resource exchange network to match wastes with resource requirements.
- Provide feedback to the community on the progress towards achieving No Waste by 2010.

Infrastructure

- Prepare a development and implementation plan to establish infrastructure for resource recovery, particularly in developing Resource Recovery Estates incorporating waste minimisation education centres.

MAKING IT HAPPEN

THE NEXT TWO YEARS

Waste Inventory and Benchmarks

The first step in the Waste Management Strategy is to develop an accurate waste inventory/database on waste generated in Canberra.

The inventory will be based on weighbridge data and will be extended with additional quantitative and qualitative information drawn from sampling wastes from commerce and industry. This will create a comprehensive profile of the wastes generated in Canberra. Once identified, the environmental costs associated with collecting, treating and disposing of these wastes can be measured.

A detailed inventory of Canberra's waste will be developed by July 1997.

A reliable information base that identifies all wastes being either generated or recycled, including quantities, qualities and sources, will form the basis upon which benchmarks and the resource exchange network can be established and targeted information and research programs based.

Benchmarks will be established and a resource exchange network will be functional by December 1997.

The momentum to achieve the 2010 target can only be maintained with the support of the community. Regular feedback on actions and achievements will be essential to maintain community support and help identify potential problems.

A report on progress in achieving the 2010 target will be produced annually with the first progress report being issued in July 1997.

Infrastructure

Community consultation has identified the need to rationalise waste handling systems, including redesigning landfills, establishing transfer stations and Resource Recovery Estates, and ensuring that landfill pricing and educational elements are addressed.

A plan to rationalise the solid waste management system in Canberra will be prepared and submitted to Government for endorsement by June 1997.

REDUCTION MEASURES

STATISTICS LANDFILL AND RECYCLING TONNAGES

Table 1
Waste to ACT landfills
(tonnes)

Waste type	1989/90 estimated	1993/94	1994/95	1995/96
ACT household	32 250	44 147	39 588	39 668
Queanbeyan household	6 780	9 864	9 481	8 789
Builder's spoil	105 090	127 747	70 597	66 358
Clean fill	71 190	90 765	4 361	3 406
Garden waste (charged)	10 170	12 527	8 074	7 745
Tyres	1 695	364	468	551
Asbestos	3 390	1 009	679	831
Sullage	6 780	3 340	1 380	1 998
Special waste (contaminated soil, ash, etc-)	3 390	1 613	3 755	1 684
Putrescible	50 850	64 183	69 032	69 958
Private delivery	47 460	60 240	64 640	51 072
Total	**339 045**	**415 798**	**272 054**	**252 068**

Table 2
ACT Recycling Results
(tonnes)

Product	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96
Glass	1 927	2 896	3 598	4 171	4 495	7 100	7 795
Paper	15 350	19 550	19 861	22 413	23 578	31 500	37 124
PET	20	30	45	82	98	300	429
HDPE	n/a	n/a	n/a	77	94	280	439
Liquidpaperboard	n/a	n/a	n/a	8	72	240	251
Aluminium cans	265	274	275	285	296	280	200
Steel cans	n/a	n/a	n/a	n/a	n/a	500	826
Garden waste	13 750	18 034	28 024	31 776	33 420	35 500	96 473
Demolition waste	n/a	n/a	26 578	30 390	44 193	48 400	104 670
Metals ferrous	n/a	2 808	2 874	3 752	4 560	4 700	5 541
Cooking oil&fat	217	180	354	535	595	600	754
Clothing	1 500	1 600	1 600	1 600	1 750	1 850	1 585
Revolve	1 312	2 100	2 575	2 950	3 570	3 920	7 000
Motor oil	815	1 014	1 180	1 350	1 400	1 400	1 935
Total	**35 156**	**48 486**	**86 964**	**99 389**	**118 121**	**136 570**	**265 022**

GLOSSARY

At-source
The source at which waste is generated, for example in the home, office, factory, etc.

Builders Spoil
Waste produced from construction or demolition activities. The materials usually include concrete, bricks, timber, soil, metals, glass, packaging material and rock.

Cleaner Production
Any manufacturing or production process which assist with the reduction of waste, the reduction of emissions, and energy reduction.

Co-mingled
Materials are co-mingled when they are mixed together in a single container, or collection vehicle.

Garbage
Garbage is most often used as a general term for domestic household wastes. The term however is used to describe any material disposed of at landfill.

Kerbside Recycling
Kerbside recycling is the collection of any material from domestic residences for the purpose of reprocessing.

Landfill
A site where waste materials are buried.

Leachate
Water that has percolated through putrescible waste and is contaminated with substances other than soil particles. Leachate from landfills usually contains extracted, dissolved and suspended materials, some of which may be harmful to the environment.

Liquidpaperboard Carton
A packaging container used predominantly for juice and milk.

Participation Rate
The percentage of households taking part in kerbside recycling collection services by putting out their containers for collection at least once in a given period of time.

Putrescible Waste
Any waste which is subject to biological and chemical decomposition or decay.

Recycle
To recycle (verb) is defined as the returning of materials to a previous stage in a cyclic process or the conversion of wastes into reusable materials.

Resource Exchange Network
A service which provides contacts for the exchange of materials, enabling a waste product from one process to be used as a base resource for another.

Resource Management
The handling of all materials as being of inherent value. The placement of all or any material in a re-use hierarchy.

Resource Recovery
The retrieval of any material with the primary intention of application in another process.

Resource Recovery Estates
Are facilities which enable materials discarded by the community to be re-used and/or recovered. Such a facility would be designed for storing, processing, recycling, value adding and selling recovered materials.

Transfer Station
A facility where wastes and recovered materials are transferred from small collection vehicles to larger transport vehicles for movement to a disposal site or other location for additional processing. Transfer Stations are generally established for situations where direct haul will be more expensive than the transfer and transport operations.

Waste free society
A waste free society is one in which no material is regarded as useless. Where all resources find another application or useful function.

Wastes
Wastes is a general term meaning material left-over after a process.

ACT GOVERNMENT

CITY SERVICES