



**NO WASTE
BY 2010**

*Turning waste
into resources*

Action Plan 2004–2007

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TURNING WASTE INTO RESOURCES

Introduction

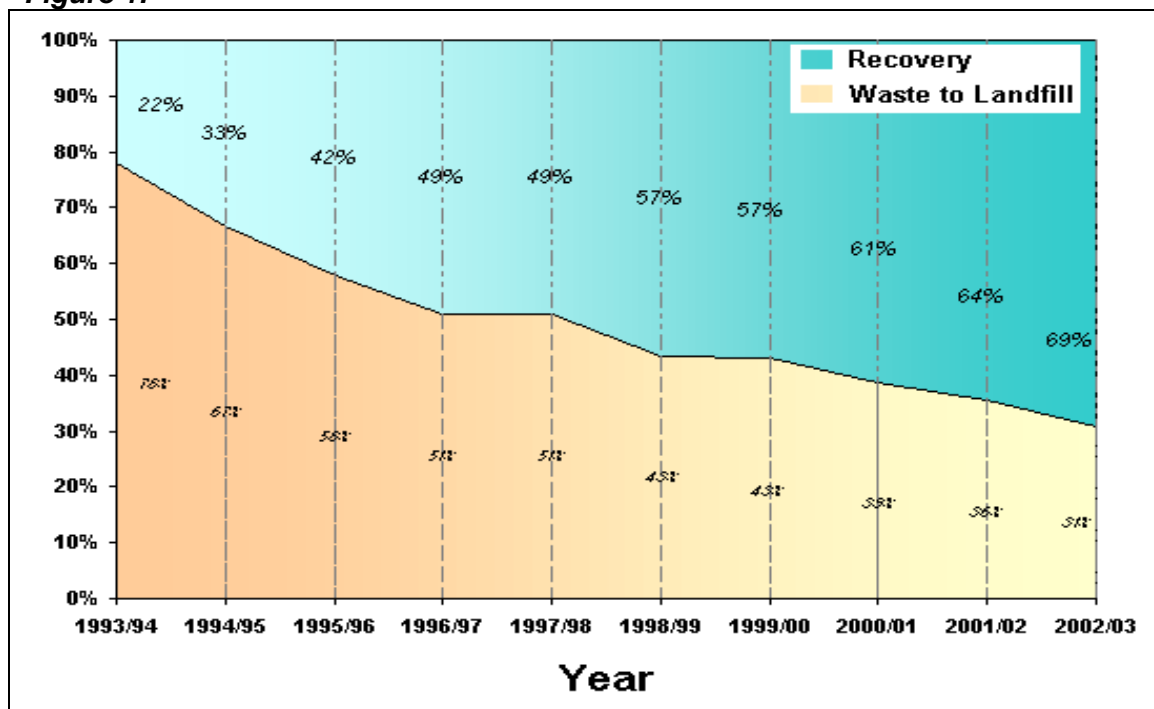
The *No Waste by 2010 Strategy* was developed to set the vision and future directions for waste management in the Australian Capital Territory and was released in 1996. The Strategy aims to achieve a waste free society through the combined efforts of industry, Government and community working co-operatively to achieve sustainable waste management outcomes.

Although ambitious, achieving No Waste by 2010 is considered achievable with the willingness, co-operation and participation of all sectors of the Canberra community. A key indicator of the success of the Strategy will be the reduction of waste going to landfill to the point where no waste needs to be disposed of. The No Waste Strategy established a framework for sustainable resource management and listed broad actions to achieve the aim of a waste-free society.

Waste Trends

Since introduction of the No Waste Strategy in 1996, waste to landfill has steadily decreased and there has been a significant increase in resource recovery levels. In 2002/03 with implementation of the No Waste Strategy, the ACT achieved a 69% recovery level (Figure 1). This result highlights the considerable success in increasing the level of resource recovery.

Figure 1:



While progress in implementation of the Strategy resulted in a 69% recovery of the total waste stream for 2002/03, the generation of waste in terms of both a total tonnage and on a per capita basis has also increased (Figures 2 and 3). In 1995/96, prior to the introduction of the No Waste Strategy, 436,500 tonnes of waste or 1.3 tonnes per capita was generated in the ACT. Of this 184,000 tonnes was recovered. In 2002/03 more than 673,000 tonnes of waste or 1.95 tonnes per capita, was generated in the ACT and of this, 467,000 tonnes was recovered.

Figure 2:

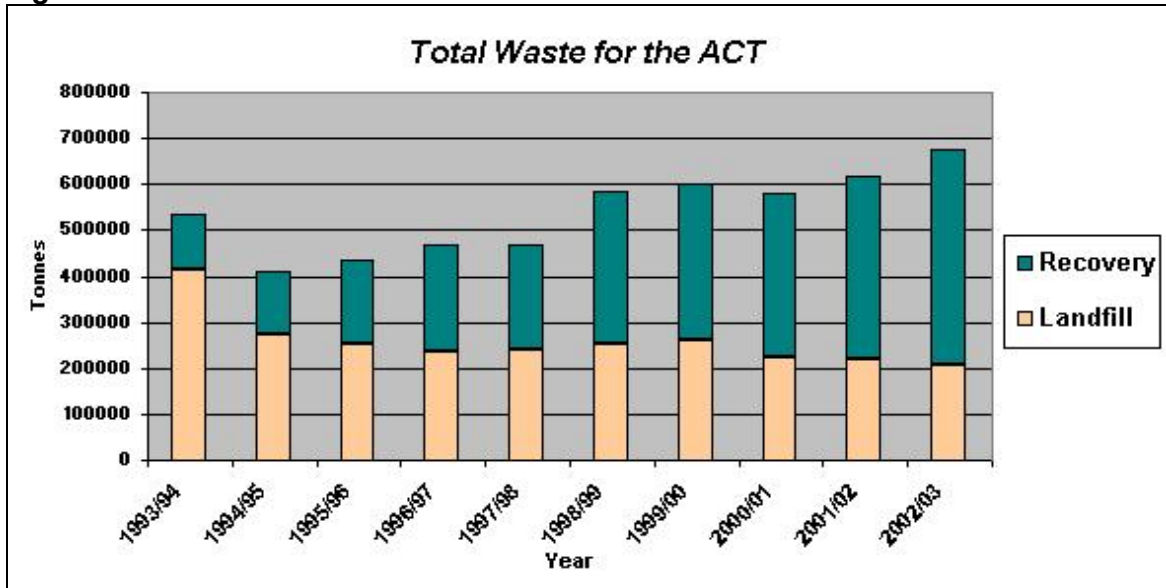
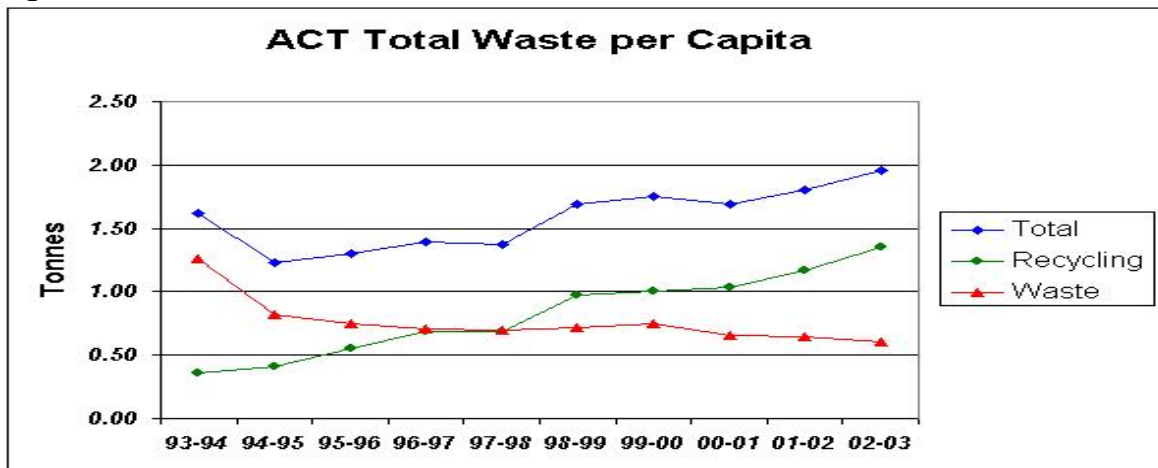


Figure 3:



Without the major increases in resource recovery we would be facing increased costs and extreme pressure on landfill, as available air space for landfill disposal would have already been consumed. The No Waste Strategy is now more than halfway, in terms of timing and more than halfway in terms of recovery of material but is significantly less than halfway in terms of the effort required to achieve No Waste. If the ACT is to maintain its international leadership position more effort is needed to progress the No Waste goal.

Of the current 207,000 tonnes of waste disposed at landfill in 2002/03, about 82,000 tonnes was domestically generated in the ACT and Queanbeyan with some 60,000 tonnes of this collected at kerbside in the ACT and Queanbeyan. Approximately 147,000 tonnes was delivered to landfill by both commercial and private users (Figure 4). Waste generated in the commercial sector and delivered directly to landfill requires different types of management strategies than the domestically collected garbage.

Figure 4:

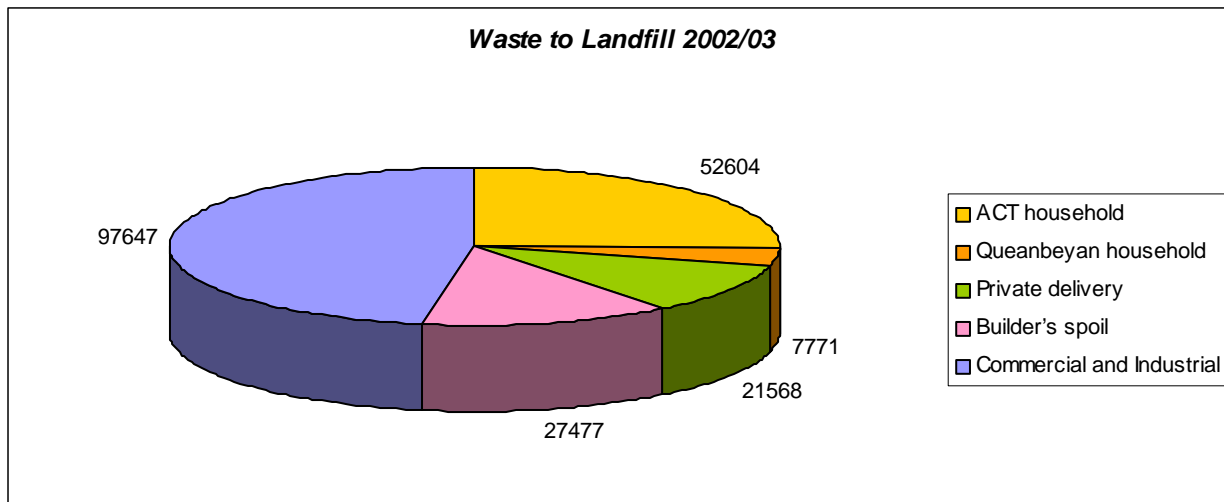
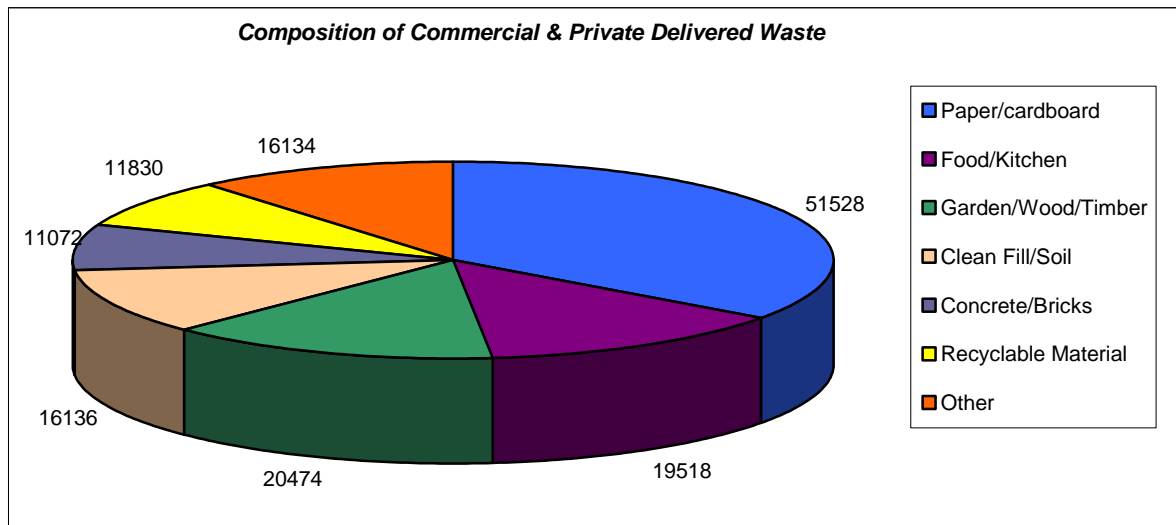


Figure 5 below shows the composition of the 147,000 tonnes of waste delivered directly to landfill for 2002/03. Many of these materials have recycling alternatives either already available or able to be readily established. Diversion of many of these materials from landfill therefore requires programs including facilitation of the establishment of alternatives as well as incentives or regulations for increased diversion.

Figure 5:



Turning Waste into Resources Programs

To progress the *No Waste Strategy* a number of key initiatives are needed for implementation over the years 2004-2007. In order to break the link between GDP, growth and increased waste generation, a two-pronged approach is needed. Strategies are required in order to influence industry to change the inputs to the waste stream as well as strategies that provide end-of-pipe solutions to manage the outputs.

A range of strategies such as facilitating the development of alternatives to disposal, appropriate waste pricing and/or the development of regulation are needed to effectively reduce the amount of waste going to landfill and to maximise recovery. The *No Waste Strategy* established the framework for sustainable resource management and identified broad actions necessary to achieve a waste free society. Key initiatives to progress the *No Waste Strategy* during 2004–2007 have been developed under a number of broad action areas:

- *Community Engagement*
- *Government Leadership*
- *Business No Waste Challenge*
- *Construction Waste*
- *Infrastructure and Services*
- *Research and Development*
- *Regulation and Incentives*
- *Monitoring and Review*

During 2007, a further review and planning process will be required to develop further initiatives to achieve No Waste.

Community Engagement

The No Waste Strategy clearly identifies that the acceptance and commitment of the community will impact heavily on the success of the Strategy. Community consultation during the review process strongly supports this. In fact, the Strategy cannot succeed without the full support of the wider community as it requires a culture shift, from thinking of unwanted materials as waste to be discarded, to thinking of unwanted materials as resources to be recovered. To achieve this culture shift, increased community and education programs are essential.

Waste Wise Schools

One of the most important areas to target to achieve culture change within the community is the future generation. ACT NOWaste will continue to work closely with government and non-government schools to incorporate waste minimisation programs and activities into the school curriculum. Waste Wise Schools focuses on the prevention (Reduce and Reuse) side of waste and litter management. The program involves the whole school community working to reduce waste.

During 2003 representative “Lighthouse” schools were established and the program was launched. To ensure that the program is effective, a team of teachers has been trained as Waste Wise Schools Facilitators to provide professional development to participating schools. In addition, a Waste Wise Advisory Committee has been established to oversee implementation of the Program. It is intended that sufficient support be provided to assist with the expansion of the Waste Wise Schools Program into all ACT schools. The program will be expanded into all ACT schools during 2004 - 2007.

In addition to the Waste Wise Schools program, ACT NOWaste will continue to work closely with the Department of Education on waste management systems and infrastructure to maximise recovery of recyclables at reduced costs to the schools.

No Waste Awards

Achievements in waste reduction need to be recognised and encouraged. An annual No Waste Awards program will be launched in 2004. The awards will recognise excellence in waste reduction and will be open to all businesses, schools and community organisations in the ACT who have actively implemented a waste management plan. Nominations will be sought from schools, businesses and community groups on an annual basis and will be promoted through the media. Awards will be issued in four categories.

Public Event/Place Recycling

The wider implementation of public event recycling will be pursued with the intention that all major public events in the ACT use a recycling system as part of their waste management. To facilitate this the Guide to Recycling at Public Events will be published and widely distributed and public event organisers will be actively pursued. All events managed by the ACT Government will be required to provide a Public Event recycling system. ACT NOWaste will also liaise with major public venue managers to encourage recycling at other sporting and social events.

With the change of kerbside services to a co-mingled recycling collection, the implementation of a public place recycling system that mirrors the kerbside collection can now be considered and this will be progressed.

Community Programs

Existing community programs like Second-hand Sunday, composting workshops and displays at public events will be continued and expanded. Progress reports will continue to be issued annually. An awards program will be developed encompassing all sectors of the community. The recognition of community waste reduction activities through the awards program will provide regular promotional opportunities.

Establishment of a permanent No Waste Education Centre will be progressed in the Hume Resource Recovery Estate to provide the focus for the delivery of waste education programs to the community. The co-location of the Education

Centre in the Hume Estate will allow it to also be utilised to both manage the Estate and provide ongoing waste education opportunities for tenants of the Estate as well as the community. The establishment of the permanent Education Centre is a major milestone in the No Waste Strategy and would be promoted as such.

Government Leadership

The No Waste Strategy cannot succeed without the full participation of the Canberra community and the ACT Government needs to provide a strong leadership role to engender wider ownership of the strategy and to allow the Government to set a challenge for other sectors including the Commonwealth, business and community to follow.

Government Leadership

ACT NOWaste will work more closely with other Government Departments to provide strong leadership and practical examples of recycling, waste minimisation and use of recycled products in capital works, new contracts and operations. Whole of Government support for the Strategy will be progressed through a Government Leadership Program to ensure that ACT Government Agencies become both leaders and role models. This will include:

- Establishing an ACT Government Leadership Committee with all agencies being represented by senior officers with appropriate delegation to make commitments on behalf of their agency.
- All agencies would be required to have effective waste minimisation practices and recycling services within their agency by the end of 2004/05 with the establishment of a whole of Government recycling contract framework to support agency service provision.
- All agencies would be required to establish action plans for approval by the Government Leadership Committee including performance targets and to annually report against set targets.

As discussed above, the wider implementation of public place and public event recycling will be pursued with the intention that all major public events in the ACT use a recycling system as part of their waste management and that all events managed by ACT Government businesses will be required to use a recycling system.

Purchasing Policies

Without markets for recovered products recycling cannot be sustained. Purchasing policies will be reviewed, and appropriate policies implemented to ensure that where price and performance are comparable, recycled products are given preference and the barriers to using recycled products are eliminated. It is proposed to then encourage the adoption of these policies in other areas including Commonwealth agencies and major institutions.

National Waste Issues

Industry waste reduction agreements provide the ACT with the ability to influence materials before they become inputs to the waste stream. These are

being pursued in the context of national agreements through the Environment Minister's Council. An example of this is the National Packaging Covenant, which is a voluntary agreement between governments and all sectors of the packaging chain. Other areas under consideration for national waste agreements are electronic wastes, tyres and end of life vehicles. The ACT will continue to actively progress these and other national problematic waste issues through the National Waste Working Group established under the Environment Ministers Council.

Business Waste

Business waste has continued to increase each year despite significant increases in disposal charges. To reverse this situation it is proposed to establish a Business Waste Challenge to actively engage the business sector, encourage them to reduce waste and divert recyclable materials. This will be progressed by:

- Facilitating the establishment of increased commercial recycling collection services.
- Progressively implementing differential pricing between sorted and unsorted wastes.
- Targeted education programs such as Ecobusiness and the No Waste awards.
- Establishment of business advice and support services.
- The establishment of recycling businesses within the Hume Resource Recovery Estate (HRRE).
- Encouraging the establishment of a mixed business waste sorting facility within the Hume Estate.

Ecobusiness

Ecobusiness will continue to be refined and delivered to businesses in the ACT to assist with their environmental performance. In addition the program will be expanded beyond the delivery of workshops to further promote strategic environmental management by local business. New elements will include the development of case studies across a range of business sectors to identify examples that can be promoted within each business sector. An awards program will also be established to recognise and encourage business participation. These elements will highlight the savings and benefits to be gained through sound environmental management. ACT NOWaste will promote these positive outcomes in partnership with industry associations and government agencies.

The Ecobusiness workshops have to date focused on awareness raising and encouragement in relation to the development of environmental management plans. The workshops will be evaluated and re-focused with consideration given to assisting businesses in the preparation of environmental management plans. Work will also be conducted with identified larger waste producers to assist them to identify and implement measures to reduce waste disposal.

If the business sector fails to make a significant contribution to reducing waste generation/disposal regulation will be developed in 2007 to reinforce the need for better waste management in this sector and achieve the desired outcome.

Construction Waste

Over 80% of construction waste is readily recyclable yet much of this still goes to landfill. The Construction Waste Program will include the following:

- Facilitating the establishment of industry funded and operated construction waste sorting facilities including one within the Hume Resource Recovery Estate.
- Proposal to introduce regulations to prohibit the disposal of unsorted material at any sites, including Pialligo, by 2006.
- Market development activities will also be pursued to increase the demand for recovered materials.
- Ecobusiness, No Waste awards, promotional activities and business advice and support services, aimed at this sector will also be pursued.
- An appropriate site for the disposal of virgin excavated material will be established by 2007.

Infrastructure and Services

The development of waste systems that facilitate the sorting and recovery of mixed residual material is essential for the maximum recovery of resources. Significant progress has been made on the rationalisation and establishment of waste management infrastructure that increases the potential for resource recovery.

Resource Recovery Estates

In the next three years the emphasis will be on the continued development of the Hume Resource Recovery Estate with the intention that the Estate eventually becomes self-funding. It is proposed to encourage a range of businesses to apply to establish within the Estate. Applicants will be sourced by a variety of means including:

- calls for Expressions of Interest/Tenders;
- direct approaches by applicants to ACT NOWaste;
- identification of relevant operators arising from industry-specific reports commissioned by ACT NOWaste (eg the Timber Pallet Report June 2002);
- invitations to operators dealing with targeted waste streams identified under the *No Waste Strategy*;
- successful tenants of the Parkwood Road Recycling Estate; and
- other avenues such as Business ACT, etc.

The collocation of enterprises on the Estate has the potential to generate significant synergies through the collaborative development of opportunities to turn the outputs or by-products of one enterprise into the inputs of another. Feasibility studies indicate the potential for significant employment generation and development of new business opportunities across a range of resource recovery industries. The Estate will also form a focal point for educating the community about waste minimisation as well as fostering investment, creating

local jobs and reducing disposal, which will significantly assist the ACT to achieve the *No Waste* goal.

The new Materials Recovery Facility (MRF) for the processing of the domestically collected recyclables has opened in stage 1 of the Hume Estate. Some initial infrastructure, including sewerage, water and roads, for part of stage one of the Estate has been constructed under the MRF contract. Further infrastructure will be developed under the capital works program and through the sublease arrangements as blocks are progressively allocated.

To help facilitate the recovery of building and demolition wastes, it is planned to progress the establishment of a business in the Hume Estate for the acceptance and processing of mixed builders waste. It is proposed that this service and establishment costs be funded by the selected commercial operator with waste generators paying gate fees directly to the operator to cover operational and establishment costs. Such a facility has capacity to separate up to 85-90% of this material for recycling.

A similar approach will also be taken to encourage establishment of a mixed commercial waste sorting operation to also be located within the Hume Estate. Canberra's commercial waste has a significant proportion of readily recyclable material such as paper, cardboard and timber. It is anticipated that this facility has capacity to separate up to 40-50% of commercial waste for recycling.

Education Centre

The establishment of a permanent No Waste Education Centre in the Hume Estate will be progressed. A suitable block has been reserved at the entrance to the Estate for the Education Centre. The Centre will need to be constructed to reflect excellence in environmental design as well as promoting the potential to reuse and use recycled materials. The Centre will have many important roles to play within the Estate including:

- Operate community education programs, tours etc
- Undertake business and market development activities
- Be a resource centre with a significant library of information on waste and recycling with links to similar centres around the world
- Provide estate management role (when the Estate has grown to a point where this is required)
- Allow for training of professional and host international delegations

Participation in industry and local government organisations such as the Waste Management Association of Australia (WMAA) and South East Resource Recovery Group (SERRG) will continue to foster waste reduction solutions in the ACT and across the region.

Changed contract arrangements at disposal sites

It is proposed to identify opportunities to encourage contract operators to separate and recover ever-increasing quantities of materials. If possible this will initially occur as variations to existing contracts but as new contracts arise for

Mitchell Resource Management Centre and Mugga Lane Landfill it is proposed to significantly alter the contract requirements to provide appropriate incentives for recovering materials and to actively discourage waste disposal.

Research and Development

The development of innovative solutions to maximise recovery of materials as well as monitoring developments in other areas to ensure that appropriate technology is applied locally is an important element of sustainable waste management. The current priority in this area is the progression of a new technology to reprocess the mixed residual solid waste.

Research

Research and development programs will continue for the more problematic materials. Much of this will be progressed through linkages to regional and national initiatives such as the Waste Working Group examining waste issues for national consideration. Research and Development programs are important in establishing new markets and to apply appropriate technology locally.

An example of such a program is the ACT Government's involvement in the establishment of a technology to produce a clean-burning briquette, as a replacement for firewood, from woody green waste. It is essential that the Research and Development programs continue to identify, develop and promote new markets for sustainable resource recovery as well as innovative solutions to maximise resource recovery.

Reprocessing Technology

In 2001 an EOI process identified various combinations of technologies that were available and suitable to reprocess the mixed residual waste stream. These included a range of mechanical sorting, biological treatments from composting to anaerobic digestion, as well as a range of thermal treatments to generate green energy involving pyrolysis, gasification and incineration. While incineration is not currently, socially acceptable in Australia, a technology using a combination of these other technologies could potentially be used to process the mixed residual waste stream and is necessary to make substantial progress towards No Waste.

Mixed solid waste (MSW) technologies are undergoing rapid development in Australia and internationally. Of the technologies established in Australia over the last few years, some have shown promise while others have failed to achieve expected outcomes, for example, an MSW composting plant in WA and a gasification plant in NSW. Others, such as the MSW composting facility in Port Stephens, are producing material with very limited product value.

Monitoring of developments in the industry following the 2001 EOI process suggested that a number of technical deficiencies still existed with many of the waste reprocessing plants in Australia and overseas. Of particular concern was the marketability of products recovered from these facilities because of problems with contamination. However, a recent inspection tour of European

waste technologies indicates that these problems can now be largely overcome with a combination of suitable technologies.

The European tour identified that there were technologies that could be added either to the front end of the process or following the processing of the waste, that removed much of the contamination from the finished product. One of these technologies was producing high quality compost in Germany and is currently being established at Eastern Creek in Sydney in an integrated technology approach. The Eastern Creek facility is expected to be operational around late 2004, allowing close monitoring of some of the technologies in the Australian context.

ACT NOWaste will continue to closely monitor progress of national and international alternative waste technologies and when they are considered to be sufficiently robust, approval will be sought to proceed to a Request for Tender (RFT) process. Following the RFT, options to proceed would then be submitted to Government for approval. This will help ensure that when the time comes for the ACT to decide on a technology the decision is well informed and the technology chosen is proven and able to provide appropriate outcomes.

A 3.5 ha site at the Hume Resource Recovery Estate is earmarked for a future mixed solid waste reprocessing facility. The reprocessing facility will eventually be a major component of the Estate, as it would take the mixed residual wastes that are currently being land filled and process these into useful resource streams. It would also have the capacity to take the wastes from other Estate operators and supply these recyclers with streams of material to be turned into products.

Regulation and Incentives

The No Waste Strategy recognises that the principles of cleaner production and smart buying are necessary to break the link between waste generation and GDP in order to avoid and reduce waste. In the future it will be necessary to look at waste reduction agreements in both a national context and with local industries, for some of the more problematic or higher volume waste streams where voluntary efforts have failed to achieve desired outcomes.

Waste Pricing

The ACT Waste Pricing Strategy reflects the principle that waste generators should pay the actual costs of waste disposal and provide incentives to reduce waste disposal. It is also important that waste pricing is implemented in such a way that illegal dumping is limited while waste generators are provided with viable alternatives to landfill disposal.

Waste pricing need to be adjusted in such a way that discourages interstate companies disposing of their waste in the ACT as well as ensuring that local councils in the region pay the true costs of disposal so that ACT ratepayers are not subsidising this disposal. It is also important for the ACT to become more strategic about targeting particular materials in the waste stream. For instance,

it would be effective to signal to the wider community that unless serious efforts are made to separate recyclable material from waste then differential charges or regulations may be needed to achieve the desired outcome.

Further pricing increases are needed to make resource recovery a more attractive option and consideration of differential charging for easily recyclable materials such as cardboard and green waste to further promote resource recovery, is needed. Implementation of the Waste Pricing Strategy will continue with further refinements of differential pricing for materials that contribute most to greenhouse gas emissions, are easily recyclable or are otherwise problematic in landfill.

Development Control Code

Building and demolition waste comprises a significant proportion of waste going to landfill. In 1999 the *Development Control Code for Best Practice Waste Management in the ACT* was released. The Code directs building professionals on how to ensure their projects comply with best practice waste management requirements for demolition, refurbishment and construction. The Code refers to the requirement under *The Building Regulations 1998* for a Waste Management Plan to be included in the development application.

Since implementation of the Code, ACT NOWaste has undertaken some audits of waste management plans to identify whether demolishers are managing their waste in accordance with the submitted and approved waste management plans. These have highlighted that more work is needed in this area. However, the effectiveness of the Code is currently limited by the lack of ability to enforce its requirements. Additionally, the mandatory requirements of the Code are limited to demolition only and do not currently cover building work.

It is clear that not only is more effective enforcement of the Code required, but that it is also necessary to expand the requirements to cover building work. In this context, the Development Control Code will be reviewed for appropriateness and effectiveness and a revised Code implemented. To enable the Code to be better enforced, regulations will be developed for building and demolition wastes under the Waste Minimisation Act 2001. In addition, ongoing auditing of compliance with the revised Code will be conducted.

Monitoring and Review

While the data obtained in the 1997 inventory provides valuable benchmark information, the waste to landfill has been reduced and resource recovery increased significantly since 1997. This has potentially resulted in changes to the composition of the waste streams with the result that the percentages used from the 1997 inventory are unlikely to be sufficiently accurate for future planning purposes.

A further inventory will be developed to provide more accurate data and up to date information on the waste streams to assess previous targets, provide valuable comparative data and set further benchmarks to help determine how

the ACT is tracking towards the waste reduction targets. During 2007 a further review and planning process will be required to develop initiatives to progress further towards No Waste.

Conclusion

Since its introduction in 1996 the No Waste Strategy has seen significant reductions in waste disposed at landfill and even greater increases in the amount of material recycled. Although ambitious, achieving No Waste by 2010 is achievable with the willingness, co-operation and participation of all sectors of the Canberra community. Continuing implementation of the Strategy will allow the ACT to remain a world leader in the field of sustainable resource management.

References

ACT Department of Urban Services (1996) *No Waste by 2010 – A waste management strategy for Canberra*

ACT NOWaste, ACT Department of Urban Services (March 2000) *The Next Step in the No Waste Strategy.*

ACT Waste, ACT Department of Urban Services (June 1997) *ACT Waste Inventory.*

ACT Waste, ACT Department of Urban Services (1999) *Development Control Code for Best Practice Waste Management in the ACT*

Morris Consultants, Synectics Creative Collaboration (1999) *Pre-feasibility Study for the National Resource Recovery Estate*

Morris Consultants, Synectics Creative Collaboration (1999) *Preliminary Business Plan for the National No Waste Education Centre*

RPM Pty. Ltd, Kenney Lin & Associates and Energy Strategies Pty. Ltd, (January 2001), *The Actual Costs of Waste Disposal in the ACT.*

URS Australia, (November 2002), *Environmental/Social/Economic Review of the ACT Strategy.*



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