20

ZERO WASTE AUSTRALIA

Allan Navratil
Ballinacurra House,
Midleton
County Cork, Ireland

Dear Allan,

I will put the email to Muna on the fax with this page.

I have tried to print out a comparative chart from the ACT Government web site but I could not get the full page. I will also put the bit I did get on the fax.

The web site address for those statistics is:
http://www.nowaste.act.gov.au/styles/progressreport2003.pdf

You could also get some very good statistics from our Zero Waste International Alliance web site. You may need to follow the links to get more detail on what is happening around the world. The web site is at:
www.zwia.org

Canberra is most definitely at 69% recycling, not 17%.

Please contact me if you require more information.

Regards,

Gerry Gillespie
President
Zero Waste Australia

P.O. Box 1594, Queanbeyan 2620 – Telephone 6124 3012

Gerry Gillespie

From: Gerry Gillespie
Sent: Tuesday, January 25, 2005 9:41 AM
To: 'muna@iafrica.com'
Subject: RE: [zwia] info and following up

Muna,

Re more jobs in recycling research.

A U.S. recycling information study by RW Beck for the National Recycling Coalition in July 2001 found that the reuse and recycling industries in the US, which comprises a vast number of small businesses, comprised 56,061 businesses with a total employment figure of 1,121,804.
Total annual payroll was $36,712,482,000.
Estimated total income $236,301,371,000.

The waste industry in the same year was valued at only $40,000,000,000 (Resource Recycling Magazine)

Total employment in recycling in Caberra, Australia is estimated at 250 (ACT No Waste - Graham Mannall) These majority of these jobs are in small business.
At a low income wage of $39,000, the total value of wages for recycling jobs in Canberra is $9,750,000. Flow on effects to the service industries X 3 = $29,000,000 plus resources sold and landfill recovered. (add another $20,000,000)
The ACT only invests around $5,000,000 in recycling each year. so for a $5 mill investment the Community gets a $50million return.

St Vincent de Paul, under Terry McDonalds direction in Eugene, Oregon had a total annual turnover last year of $US13 million. His businesses include:
Glass moulding and engraving
Books - resale and antique
Furniture - general resale and antiques
Motor vehicles - repair and sale
Motor accessories
Recycling and manufacture of mattresses, pet beds
Garneting manufacturing of mattress infill
Furniture manufacture for in store resale
White goods repair and resale
Refrigerator gas recovery, cleaning and resale
Metals Ferrous and nonferrous
Clothing - general resale and retro
Push Bikes
Computer rebuilds, resale and scrapping
Accommodation - refurbishment, leasing and sale
Trucking - general transport of their own and others materials
Import - export furniture business relationships with UK furniture recyclers

He has approximately 290 employees engaged in these businesses.

Population Eugene 200,000 with an additional 50,000 in the adjoining city of Springfield

A survey conducted by Waste Not Auckland on behalf of Zero Waste New Zealand in 1998 found that more than 1,700 people were employed in the Auckland region in recycling employment, or utilising materials that previously went to landfill. The regional population at the time was aroudn 1 million.
At a very low level wage for NZ of $30,000 this would provide an income to the region of more than $51 million per annum.

Hope this helps.

Gerry

:hain have signed a National Packaging
:ental impacts of consumer packaging
sustainable recycling systems.

'ects including audits and surveys
om these projects will not only
nade available to all jurisdictions
vards a sustainable system.

ceremony during National Recycling
n. Nominations will be sought from
early March.

waste

provide a home for businesses
ould otherwise end up in landfill.
be established within the Hume

source recovery business part
ste on 6207 2500.

pportunities

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:e recovery facility

ness programs

Jo waste happen

NO WASTE BY 2010

Turning waste into resources

Make No Waste happen.
We want your ideas on how to achieve the No Waste goal.

ACT NOWaste

Phone: City Management Hotline 6207 2500
E-mail: no.waste@act.gov.au
Internet: www.nowaste.act.gov.au

Translating and interpreting services phone 131 450

PRINTED ON RECYCLED PAPER

URBAN SERVICES

The whole community needs to be involved

No W
BY 2
Turnin
into re

4500 Design by Synergy

2003 Progress Report

e mean?

ased in December 1996.
society where the materials
ble resources, not 'waste',
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reduction

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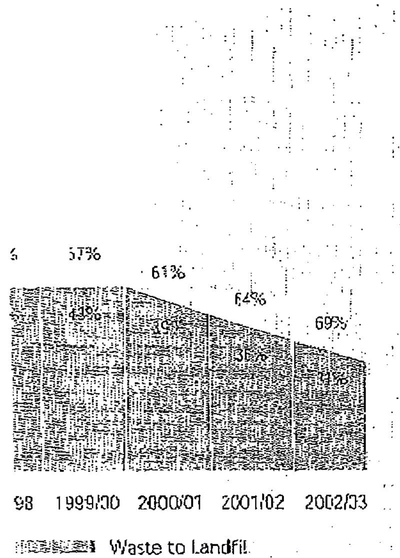
2/03. More than 466,000 tonnes
overy. That is an increase of more
d that would otherwise have

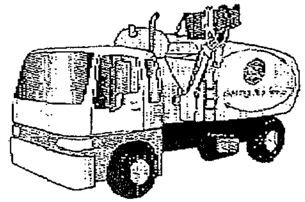
we are leading the way
resource recovery



4,000 tonnes of bushfire-damaged material

Achievements in 2003 include:

Improved Domestic Collection Services

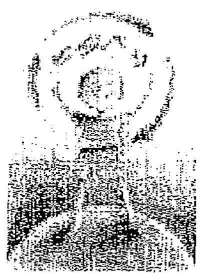


The new collection service commenced in April 2003. The removal of the divider from recycling bins makes it easy to recycle and enables a wider variety of mixed materials to be collected. Cardboard and all rigid plastic containers can now be placed in the recycling bin along with paper, glass bottles and jars, cartons, steel cans, foil, aluminium cans and trays. A new sorting facility was built in the Hume Resource Recovery Estate, which uses the latest technology to separate the mixed recyclable materials, maximising resource recovery.

For more information on what you can and cannot place in your recycling and garbage bin check the information sticker on the inside lid of your bin or contact Cleanaway. For recycling phone 6260 1472, for garbage phone 6260 1547, or see www.cleanaway.com.au

Waste Wise Schools Program

The Waste Wise Schools Program was launched in July 2003 and aims to educate students, teachers and the local community in sustainable waste management. The program can help schools reduce waste disposal costs, teach students lifelong waste management skills and reduce the amount of waste going to the landfill. Fifty-five schools have participated in workshops and are now implementing the program in their school. For information phone 6207 2500.



Second-hand Sunday

Second-hand Sunday was conducted in Canberra in March and November 2003. Second-hand Sunday will be held again on 21 March and 7 November 2004 and you are encouraged to participate.

Public Event Recycling

A Guide for Recycling at Public Events ir
developed to provide advice and assista
organisers to enable them to recover m
minimise waste disposal. Public event re
improved at Canberra Stadium, Exhibitic
(EPIC) and will feature at more and mor

For more information about event recyc

Ecobusiness

Is your business doing enough to reduce

BUSINESS

Business waste mi
reduction opportu
and cooperatively
environmental improvements in waste,

The Ecobusiness program teaches partic
to improve their environmental perform
will begin in April 2004.

Composting/Worm Farming W

FREE composting and worm farming wo
to teach skills in composting and worm
attended workshops during 2003.

If you are interested in attending an Ec
or Composting workshop contact ACT N
on 6207 2500 or see our internet site
www.nowaste.act.gov.au for more infor

ACT NOWaste is a business unit of the Department of Urban Services. Our role is to implement the Government's No Waste by 2010 Waste Management Strategy.

- Contacts
- Budget and staffing

ACT NOWaste manages contracts and service agreements for a range of waste and recycling activities to about 121,000 households and 322,000 residents of Canberra to protect public health and the environment.

Our Aim

Our aim is to serve the ACT Government and the Canberra community by providing strategic policy advice and commissioning waste services which encompass best practice, respond to community demand and meet budget expectations.

To provide the ACT Government with high quality policy advice in the area of waste minimisation and diversion from landfill.
To deliver outstanding customer service to the ACT Government and the Canberra community by purchasing domestic recycling and garbage collection services along with landfilling and a range of resource recovery programs which encompass best practice, respond to community demand and meet budget expectations.
We achieve these by implementing the Government's Next Step in the No Waste Strategy
ACT NOWaste is committed to continual improvement and is contributing to productivity and innovation in the waste management sector.

Outcome

Sustainable practices for the management of Canberra's wastes.

What We Do

ACT NOWaste is implementing the ACT Government's Waste Management Strategy by:

providing innovative strategic planning and policy advice on waste management issues;
commissioning and managing contracts for the delivery of recycling and waste services;
planning, developing and managing assets to optimise their effective and efficient use
implementing development control measures to minimise construction and demolition waste and to ensure onsite storage of waste and recyclables;
is facilitating maximum recovery of resources within the community;
is engaging, consulting and involving our community;
ensuring that our operations are environmentally sustainable; and
undertaking research to identify and develop innovative solutions to maximise resource recovery.

ACT NOWaste is meeting the Government's priorities by:

providing high quality garbage collection and disposal services that are hygienic and cost-effective;
providing high quality recycling services that are easily accessible and cost-effective; and
promoting sustainable waste reduction and recycling by encouraging new and innovative resource recovery industries.

ABN 3730-7569-373

Contact

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Contact Numbers	
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Email	no.waste@act.gov.au

ACT Government

URBAN SERVICES

no.waste@act.gov.au (general comments & technical problems)
ACT NOWaste, 12 Wattle St, Lyneham ACT 2602 ph: +61 2 6207 2500

Last updated on: 15 April 2004
URL: http://www.nowaste.act.gov.au/aboutus.html

ZeroWaste INTERNATIONAL ALLIANCE
working towards a world without waste

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news

standards

membership

links

contact us

about us

Working towards a world without waste through p education and practical application of Zero Waste

The Zero Waste International Alliance has been es to promote positive alternatives to landfill and inc and to raise community awareness of the social a economic benefits to be gained when waste is reç resource base upon which can be built both empl and business opportunity.

The simple technology and methods required to a Zero Waste exist in every community around the \ Zero Waste International Alliance can connect yoı leaders in the field who can provide your commur the models, the projects, the people and the mear you develop Zero Waste as your ultimate goal.

The Zero Waste International Alliance will:

- **Initiate and facilitate research and informat sharing for the promotion of Zero Waste**
- **Build capacity to effectively implement Zer**
- **Set standards for the application of Zero W**

The Zero Waste International Alliance operates at international, national and local level and will invc sectors of society.

ZWIA PLANNING GROUP

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From UN DRAFT (REF. PHO070)

7.2.5. Handling of residues

Bottom and fly ash from the incinerator must be properly handled, transported and disposed of. Covered hauling and dedicated landfills are a common practice for managing these residues. Particularly if reuse of the residues is contemplated, an evaluation of the content and potential environmental mobility of chemicals listed in Annex C is required, and guidelines adopted by the Basel Convention and subsequently adopted by the Conference of the Parties of the Stockholm Convention should be followed. Periodic analysis of the ash can also serve as an indicator of incinerator performance or the introduction of illegal or unpermitted wastes or fuels (for example, the detection of high metal content in the ash as a result of burning construction debris in an incinerator permitted to burn only virgin wood).

Scrubber effluents, including the filter cake from wet flue gas cleaning, is regarded as hazardous waste in many countries and must be properly treated and disposed of. If the concentration of chemicals listed in Annex C or other toxic materials (for example, heavy metals) is sufficiently high, these materials may be consigned to landfilling as hazardous waste.

7.2.6. Operator training

Regular training of personnel is essential for proper operation of waste incinerators. In the United States, for example, training and certification of operators is provided by the American Society of Mechanical Engineers. (See also section III.C (iv) of the present guidelines.)

7.2.7. Maintaining public awareness and communication

Creating and maintaining public goodwill towards a waste incineration project is critical to the success of the venture. Outreach should begin as early in the planning of the project as possible. The public and citizens' advocacy groups will have understandable concerns about the construction and operation of a facility and dealing with these openly and honestly will help prevent misinformation and misunderstanding.

Effective practices for improving public awareness and involvement include: placing advance notices in newspapers; distributing information to area households; soliciting comment on design and operational options; providing information displays in public spaces; maintaining pollutant release and transfer registers; and holding frequent public meetings and discussion forums.

Successful incineration projects have been characterized by: holding regular meetings with concerned citizens; providing days for public visitation; posting release and operational data to the Internet; and displaying real-time data on operations and releases at the facility site.

8. Incinerator design and operation

Incinerators come in a variety of furnace types and sizes as well as combinations of pre- and post-combustion treatment. There is also considerable overlap among the designs of choice for municipal solid waste, hazardous waste and sewage sludge incineration. To avoid unnecessary duplication, this guidance focuses on the predominant configurations for each source category as well as any special considerations for the type of waste being fed.

8.1. General incinerator design

Incinerators are designed for full oxidative combustion over a general temperature range of 850°–1,400° C. This may include temperatures at which calcinations and melting may also occur. Gasification and pyrolysis represent alternative thermal treatments that restrict the amount of combustion air to convert waste into process gas, increase the amount of recyclable inorganics, and reduce the amount of flue gas cleaning (see Section III, C, iii. above).

Waste incinerator installations can be characterized into five component areas: waste delivery, storage, pretreatment, incineration/energy recovery, and flue gas cleaning/residue management. The nature of the input waste will have a significant bearing on how each component is designed and operated.

3. The additional benefits of these techniques may be small, and the cost-effectiveness disproportionate, if effective upstream techniques are already being applied.
4. Flue gas polishing may have greatest utility at large installations and in further cleaning of gas streams prior to selective catalytic reduction.

12.2.4. Nitrogen oxides (NO_x) removal techniques using a catalyst

1. Although the primary role of selective catalytic reduction is to reduce NO_x emissions, this technique can also destroy gas phase chemicals listed in Annex C (for example, PCDD/PCDF) with an efficiency of 98–99.5% (European Commission 2004).
2. Flue gases may have to be reheated to the 250°–400° C required for proper operation of the catalyst.
3. Performance of selective catalytic reduction systems improves with upstream flue gas polishing. These systems are installed after dedusting and acid gas removal.
4. The significant cost (capital and energy) of selective catalytic reduction is more easily borne by large facilities with higher gas flow rates and economies of scale.

12.3. Residue management techniques

Residues from incineration include various types of ash (for example, bottom ash, boiler ash, fly ash), and residues from other flue gas treatment processes, including liquid effluents in the case of wet scrubbing systems. Table 3 illustrates the relative solid residue volumes for a typical municipal solid waste incinerator.

Table 3. Solid residues from municipal solid waste incineration

Types of solid residue	% (per ton waste incinerated)
Bottom ash	21%
Fly ash + gas cleaning residue + wet scrubber sludges	4.2%
Scrap recovered from bottom ash	1.2%

Source: European Commission 2004.

Because constituents of concern may vary considerably, maintaining the separation of residues for treatment, management and disposal is often appropriate. The presence and concentration of chemicals listed in Annex C in these residues is a function of their presence in the incoming waste, survival or formation in the incineration process, and formation and capture during flue gas treatment. The following techniques are relevant to preventing releases to the environment of these substances, once present in the residues.

12.3.1. Bottom and boiler ash techniques

Bottom ash from modern incinerators tends to have a very low content of chemicals listed in Annex C, in the same order of magnitude as background concentrations in urban soils (i.e., < 0.001–0.01 ng PCDD/PCDF/g ash). Boiler ash levels tend to be higher (0.02–0.5 ng PCDD/PCDF/g ash) but both well below the average concentrations found in fly ash (European Commission 2004).

Because of the differences in pollutant concentration, the mixing of bottom ash with fly ash will contaminate the former. Separate collection and storage of these residues provides operators with more options for disposal. Bottom ash (or slag from fluidized bed incinerators) may be reused in construction and road-building material. Prior to such use, however, an assessment of content and leachability should be conducted and upper levels of persistent organic pollutants, heavy metals and other parameters have to be defined.

Leachability of chemicals listed in Annex C is known to increase with increasing pH and humic (presence of organic matter) conditions. This would suggest that disposal in lined and dedicated landfills is preferable to mixed waste facilities.

If levels are found to be excessive, bottom ash may be treated for chemicals listed in Annex C by reincineration or other thermal treatment (for example, high-temperature plasma).

12.3.2. Fly ash and other flue gas treatment residue techniques

Unlike bottom ash, air pollution control device residuals, including fly ash and scrubber sludges, may contain relatively high concentrations of heavy metals, organic pollutants (including PCDD/PCDF), chlorides and sulphides.

Whenever bottom ash is to be further used (for example, as construction material) mixing with other flue gas treatment residues is not a best available technique.

Treatment techniques for these residues include:

- Cement solidification. Residues are mixed with mineral and hydraulic binders and additives to reduce leaching potential. Product is landfilled;
- Vitrification. Residues are heated in electrical melting or blast furnaces to immobilize pollutants of concern. Organics, including PCDD/PCDF, are typically destroyed in the process;
- Catalytic treatment of fabric filter dusts under conditions of low temperatures and lack of oxygen;
- The application of plasma or similar high-temperature technologies.

Fly ash and scrubber sludges are normally disposed of in landfills set aside for this purpose. Some countries include ash content limits for PCDD/PCDF in their incinerator standards. If the content exceeds the limit, the ash must be stabilized or treated further.

12.3.3. Effluent treatment techniques

Process waste water in incineration arises mainly from the use of wet scrubbing technologies. The need for and treatment of waste water can be alleviated by the use of dry and semi-wet systems.

One waste-water-free technique involves the neutralization and subsequent treatment of the scrubber effluent to produce sedimentation. The remaining waste water is evaporated and the sludge can be landfilled (dedicated) or further processed to recover gypsum and calcium chloride (European Commission 2004).

Recirculation of process water also helps to reduce the volume for eventual treatment. Use of boiler drain water as scrubber feed may also reduce the total volume of process water and subsequent treatment capacity.

Depending on the design of the incinerator, some effluent streams can be fed back through the process and any surviving pollutants concentrated in the solid rather than liquid residues.

12.4. Impact of best available techniques and best environmental practices on other pollutants

The description of techniques and practices in this provisional guidance is primarily focused on their demonstrated effectiveness in the prevention, minimization or reduction of the formation and release of chemicals listed in Annex C. Many of these practices also serve to reduce releases of other pollutants, and some may be primarily designed for this purpose (for example, source separation of metals and other non-combustibles from waste streams, selective catalytic reduction for NO_x control, acid gas controls for reducing SO_2, carbon adsorption for mercury control). Some that may have been designed for the capture of other pollutants (for example, higher inlet temperature electrostatic precipitators) have had to be redesigned or replaced to avoid increasing formation and release of chemicals listed in Annex C.

From IPTS Study (Ref. ...)

Very fine mineral dust (fly ash), and in particular the famous PM10 (particles of less than 10 microns) is mostly a problem for the lungs if breathed and should therefore be captured and fixed. Apart from the gases, all the other flue gas contaminants are bound to each other and form particles because of their electrostatic and adsorption properties. Bottom ash is a coarser type of mineral dust removed from the bottom of the furnaces.

While in the case of dedicated waste incineration all the mineral elements in the emissions come from the waste and the combustion air, in the case of co-incineration, they also come from the other fuels used and in the case of cement production mainly from the raw materials used. The exact nature of emissions is also a function of process conditions (e.g. amount of air, process temperature, time).

For example, in a cement kiln, gas temperatures are typically 800°C to 1200°C higher than in a waste incinerator. This creates conditions that are much more favorable to the formation of thermal NOx from the combustion air. This chemical reaction cannot be avoided. Therefore, NOx production in a cement kiln is largely independent from the presence of waste. Along similar lines, flue gas concentrations of non-volatile heavy metals and often SO_2 from a cement kiln are usually more related to natural levels in the raw materials and fuels used than to the waste, as long as the waste is fed at the flame end of the kiln.

If process conditions have allowed an efficient combustion, solid residues contain little organic matter but concentrate most of the heavy metals that entered the process. The main environmental issue to solve here is to avoid a remobilisation (in particular leaching) of the heavy metals. Therefore, use of this material as ballast or road building material or landfilling must not allow their leaching. This is usually not perceived by the technical experts as difficult. Fixation of the heavy metals can be performed by vitrification, sintering or fixation in concrete blocks. This latter technique is commonly used in landfills to fix fly ashes. In cement kilns, the non-volatile fraction of the metals entering the process gets trapped and fixed in the clinker (e.g. lead) and the volatile metals such as mercury and thallium must be caught in the flue gas. Cement naturally contains variable levels of heavy metals from the raw materials and existing studies indicate minimal leaching of heavy metals from cement blocks. Therefore, limited input of heavy metals from waste is unlikely to raise serious issues. However, this should not be an open door for wastes containing high levels of heavy metals and the controversy on this point between incinerators and cement producers is still very alive. A better recognition of standard leaching methods followed by solid environmental safety assessments are needed in this area.

On the other hand, because thermolysis functions in a closed reactor, there are no emissions at the thermolysis step. Atmospheric emissions occur downstream, when the char or the gas are burned. Washing and sorting the solid after the thermolysis step produces a char with a chlorine bleed and a separation of metals and minerals before the energy recovery step (combustion, co-incineration or gasification). Moreover, an efficient combustion of the chars, due to their characteristics, is possible with low excess of air. When the thermolysis char is burned in a cement kiln, the ashes are entrapped in the clinker.

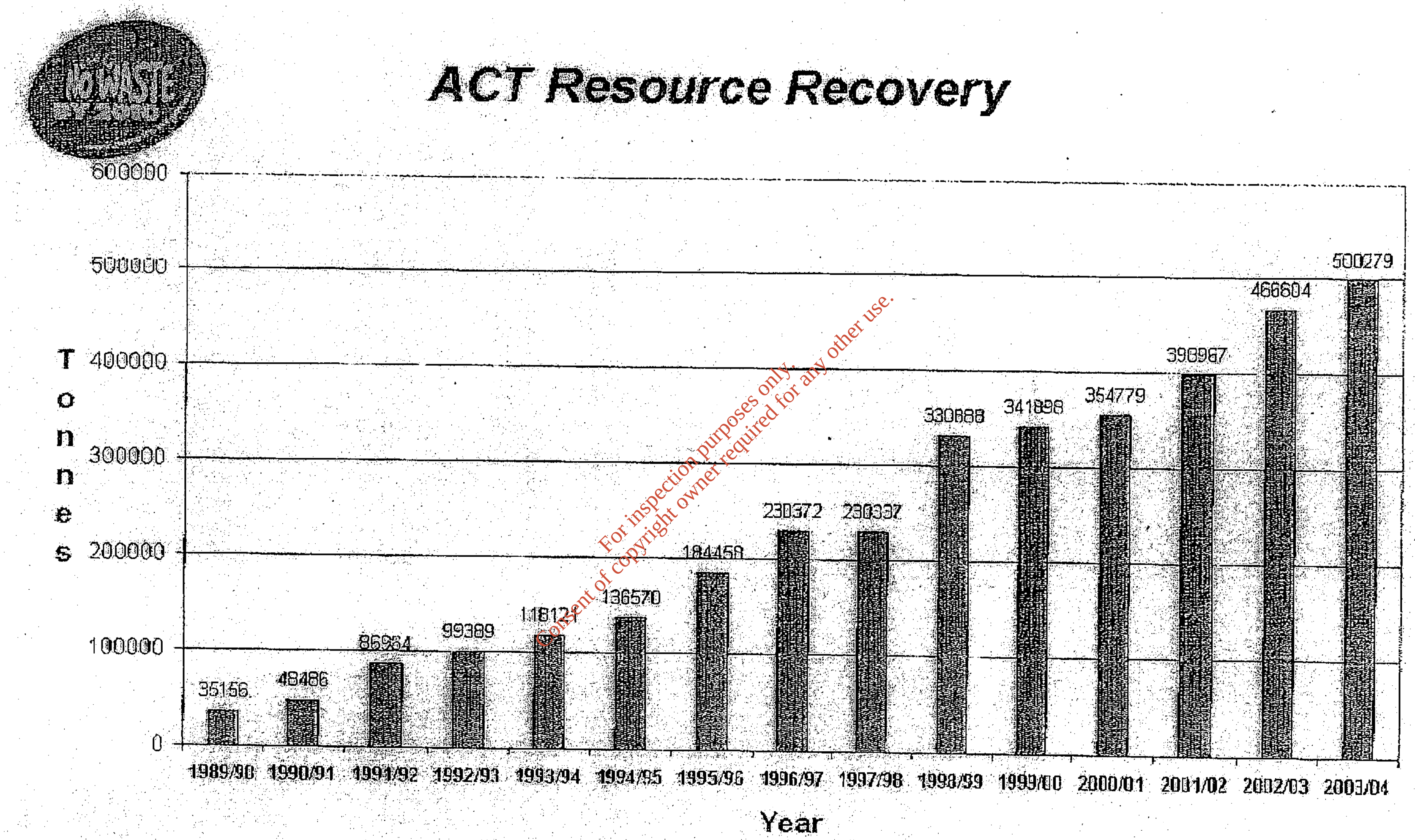
Ash production by the various incineration technologies varies. While cement kilns do not produce any ash (most of the minerals are incorporated into the clinker, but dust is collected in the flue gas and may have to be landfilled), the other alternatives produce from from 10% to 30% depending on the nature of the waste and the efficiency of thermal destruction.

Flsh IPC

Table 3: Relative merits of dedicated waste incineration, co-incineration, thermolysis, fuel fired electricity production and cement production.

Technique	Advantages	Costs and Disadvantages
Dedicated waste incineration	• Rapid inertisation of waste • Reduction of volume by up to 90% • No need for pre-treatment • Can be located near large waste generation centers, and therefore reduce transport needs compared to landfills and facilitate the possibility of district heating • Unlike landfills, do not produce methane • Recovery of ferrous and non-ferrous metal scrap in many incinerators • Recovery of energy in most incinerators. In these cases, waste replaces fossil fuels. • Long-term security for waste handling • Low sensitivity to input variability	• Problems to operate below capacity for grate furnaces • Ashes, slags and flue-gas residues to be disposed of, often as hazardous waste, usually by landfilling • In the case of energy recovery, the average electricity production efficiency is only about half of what is achieved in fuel or coal power plants (in the order of 20% instead of 40%). New plants are better (30%) and total efficiency can be boosted to about 75% in combined heat and power systems, but the applicability of these systems remains limited. • High investment and operating costs and long lead times before an incinerator becomes operational. • Once installed, creates a high inertia in waste management decisions because of the high investment costs involved and the need for long-term waste supply contracts to fill the capacity.
Thermolysis	• Reportedly more flexible than traditional incineration • Recovery of gas, char and metals • Char can be stored • Reportedly, small capacity overall cheaper (<75000 t/yr)	• Further technology development needed • Today, problematic mineral residues, especially for char in non-integrated thermolysis • Not very well suited to large tonnages (>200 000 t/yr) • Non-integrated thermolysis requires a third party for the recovery of the coke. • Liquid effluents in non-integrated thermolysis
Steam (and electricity) production	• Waste replaces non renewable fuel • Takes advantage of investments made anyway for other purposes	• Waste needs to be pre-treated • Process requirements need to be respected • Commitment to dispose of waste essentially commercial, no long-term guarantee
Cement production	• Waste replaces non renewable fuels and/or clinker raw materials • Strong organics destruction capacity • Little residue to dispose of because the mineral fraction is used as raw material in the cement • Can handle waste with no calorific value as raw material • Can be allowed to handle hazardous and non hazardous wastes • Takes advantage of investments made anyway for other purposes	• Not all wastes can be used, except if a thermolysis pre-treatment is done • Waste needs to be prepared to specifications • Release of volatile heavy metals (e.g. Hg, Tl, Cd) • Product specifications and process requirements need to be respected • Different requirements for wet and dry processes. • Commitment to dispose of waste essentially commercial, no long-term guarantee

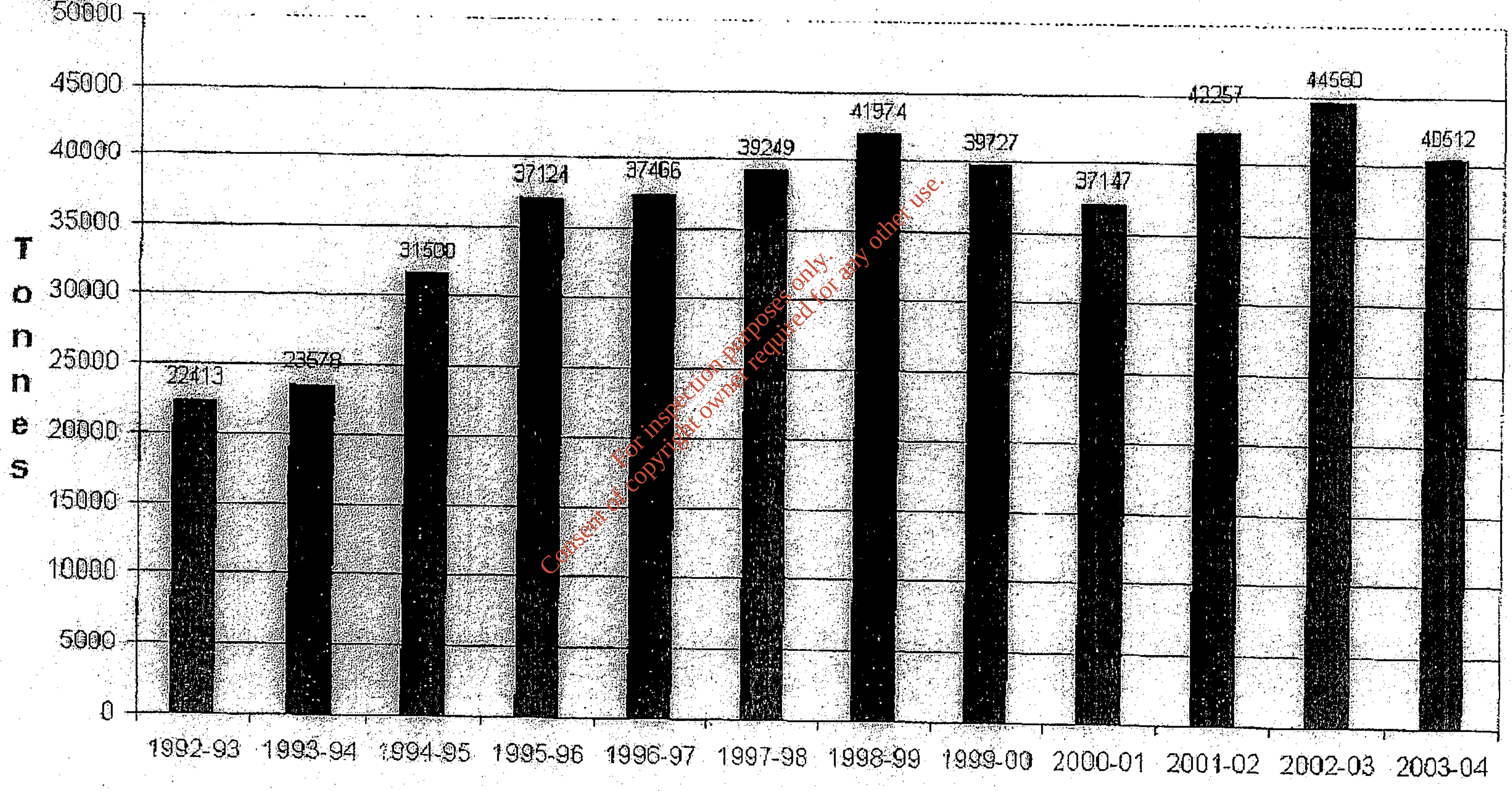
Resource Recovery in the ACT



Waste data derived from landfill database. Recycling compiled from data provided by ACT Resource Recovery industries. Not all recycling data is received and care should be taken with use and interpretation of results.

Resource Recovery in the ACT

PAPER



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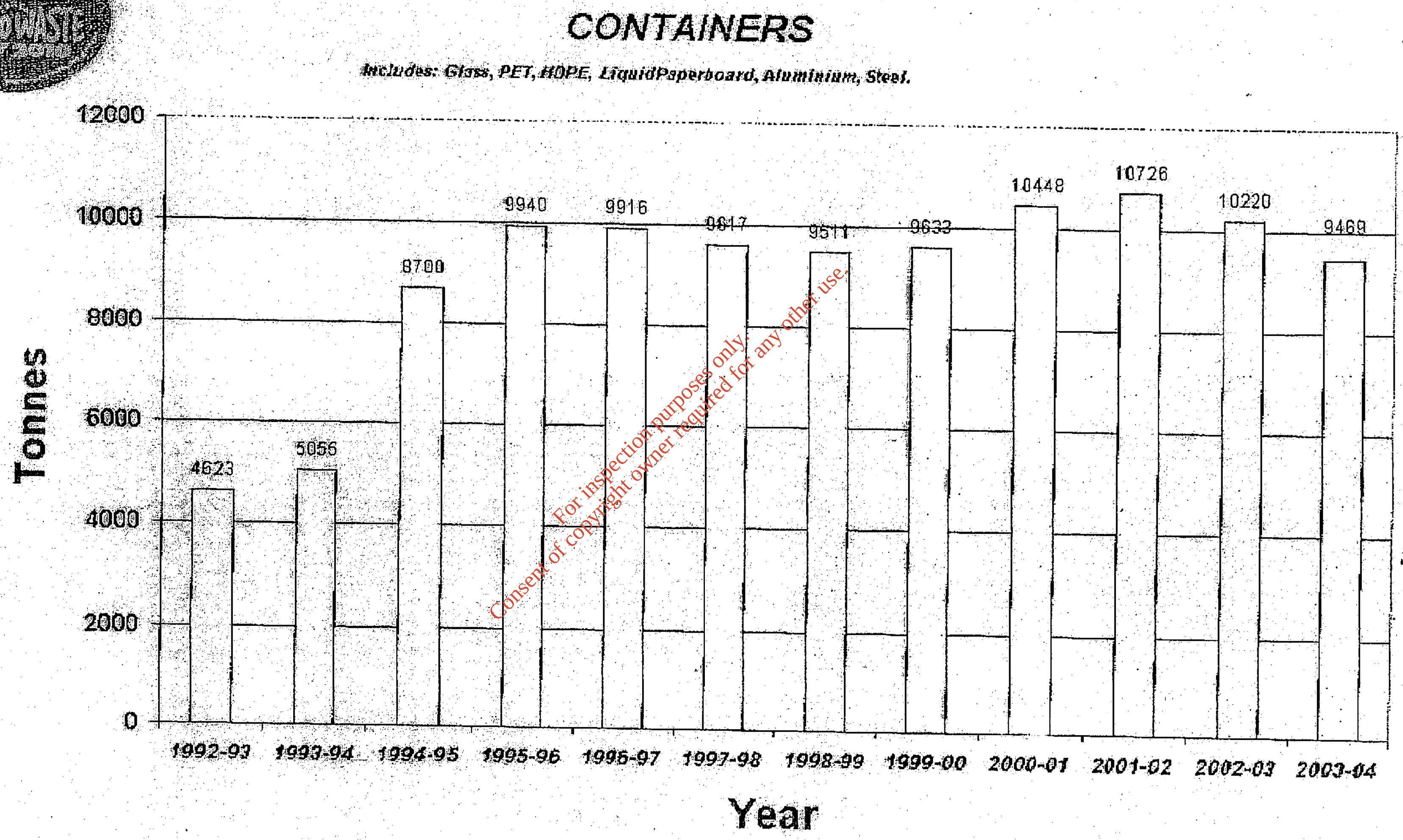
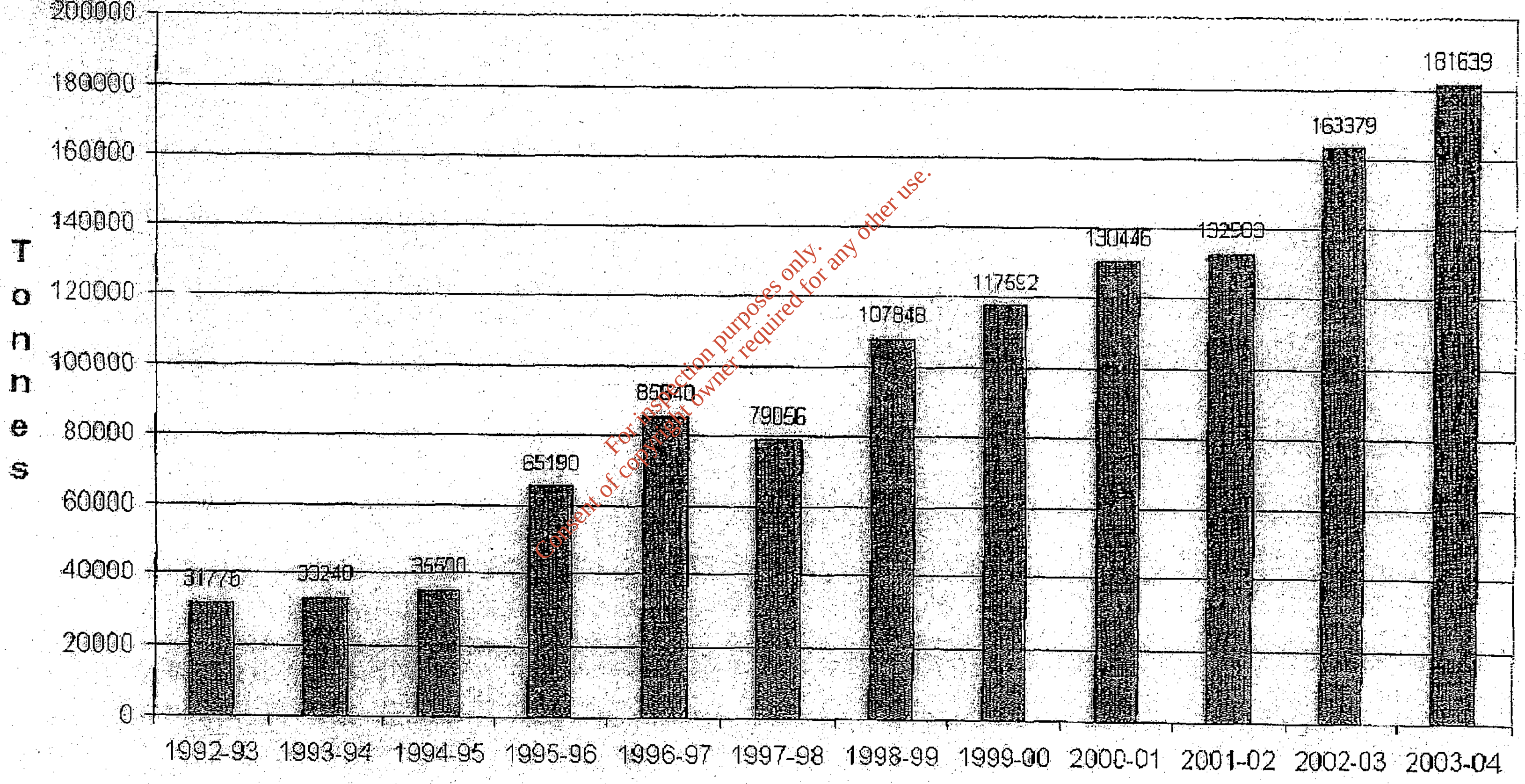
Resource Recovery in the ACT



Waste data derived from landfill database. Recycling compiled from data provided by ACT Resource Recovery Industries. Not all recycling data is received and care should be taken with use and interpretation of results.

Resource Recovery in the ACT

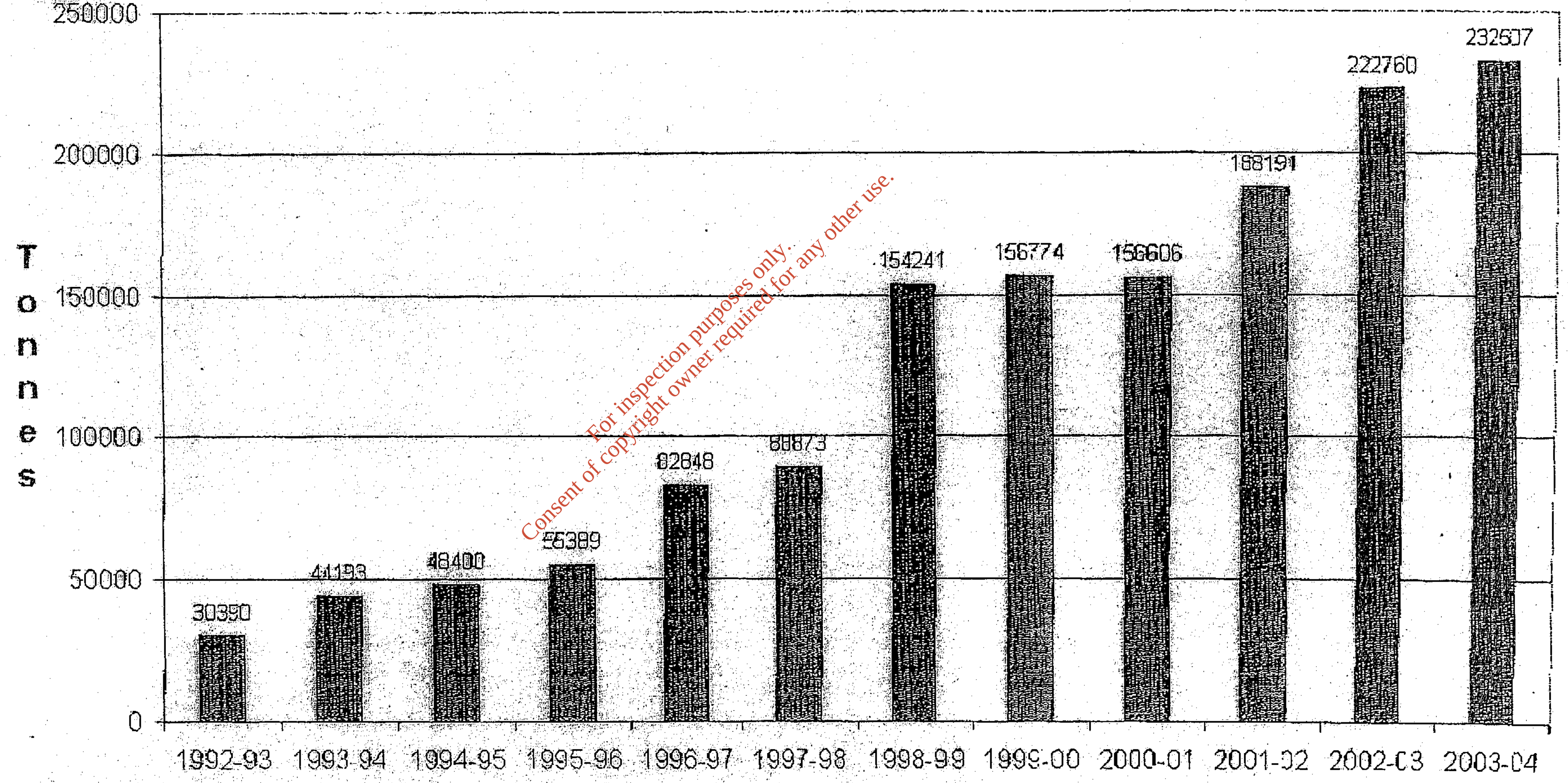
GARDEN WASTE/COMPOST



Waste data derived from landfill database. Recycling compiled from data provided by ACT Resource Recovery industries. Not all recycling data is received and care should be taken with use and interpretation of results.

Resource Recovery in the ACT

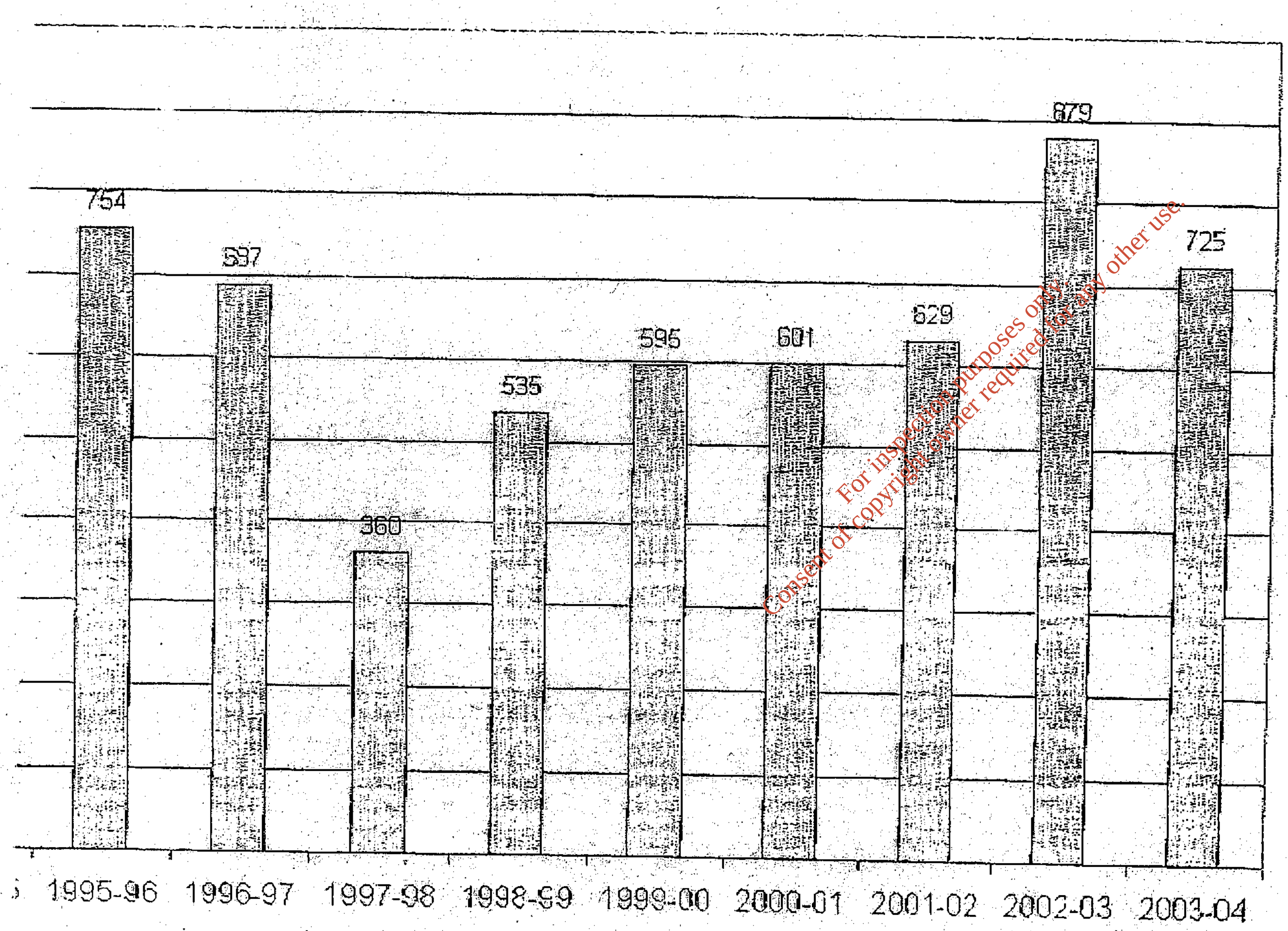
DEMOLITION WASTE



Waste data derived from landfill database. Recycling compiled from data provided by ACT Resource Recovery Industries. Not all recycling data is received and care should be taken with use and interpretation of results.

;ource Recovery in the ACT

COOKING OIL & FAT

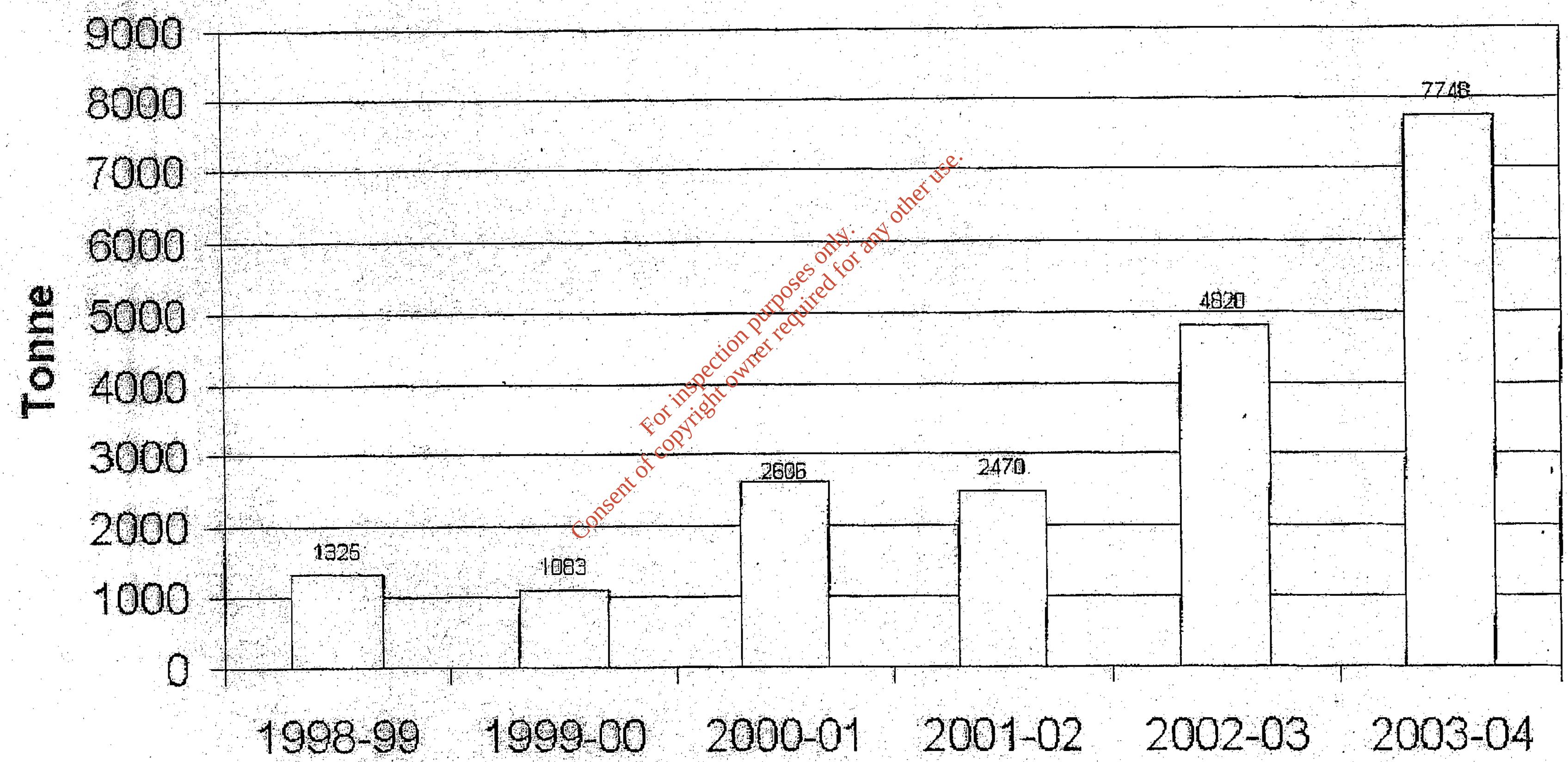


ompiled from data provided by ACT Resource Recovery industries. Not all recycling data is received and care should be

Resource Recovery in the ACT

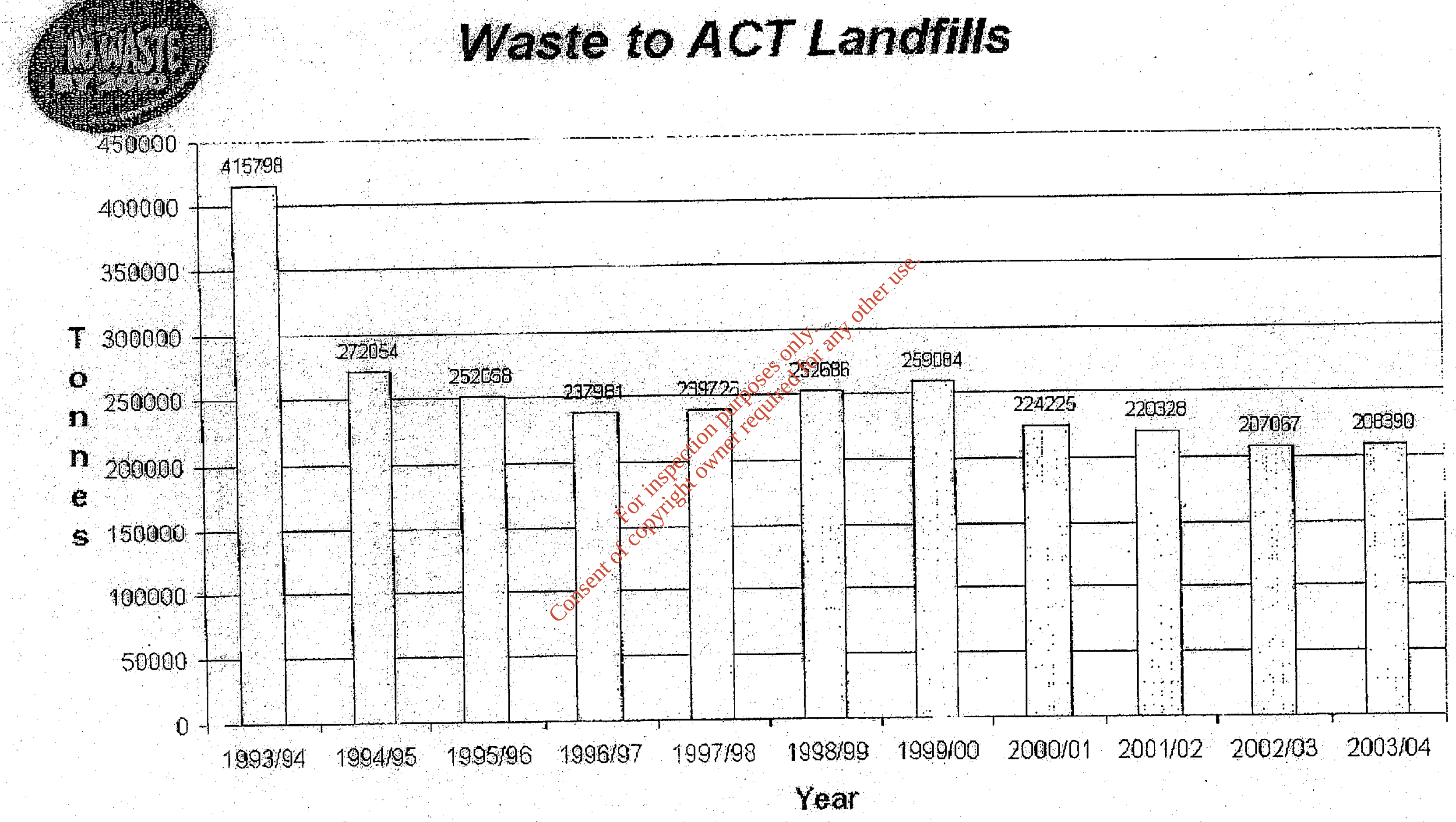
Other

(Batteries, Tyres, Paint, Carpet, Sullage, Wood/Timber.)



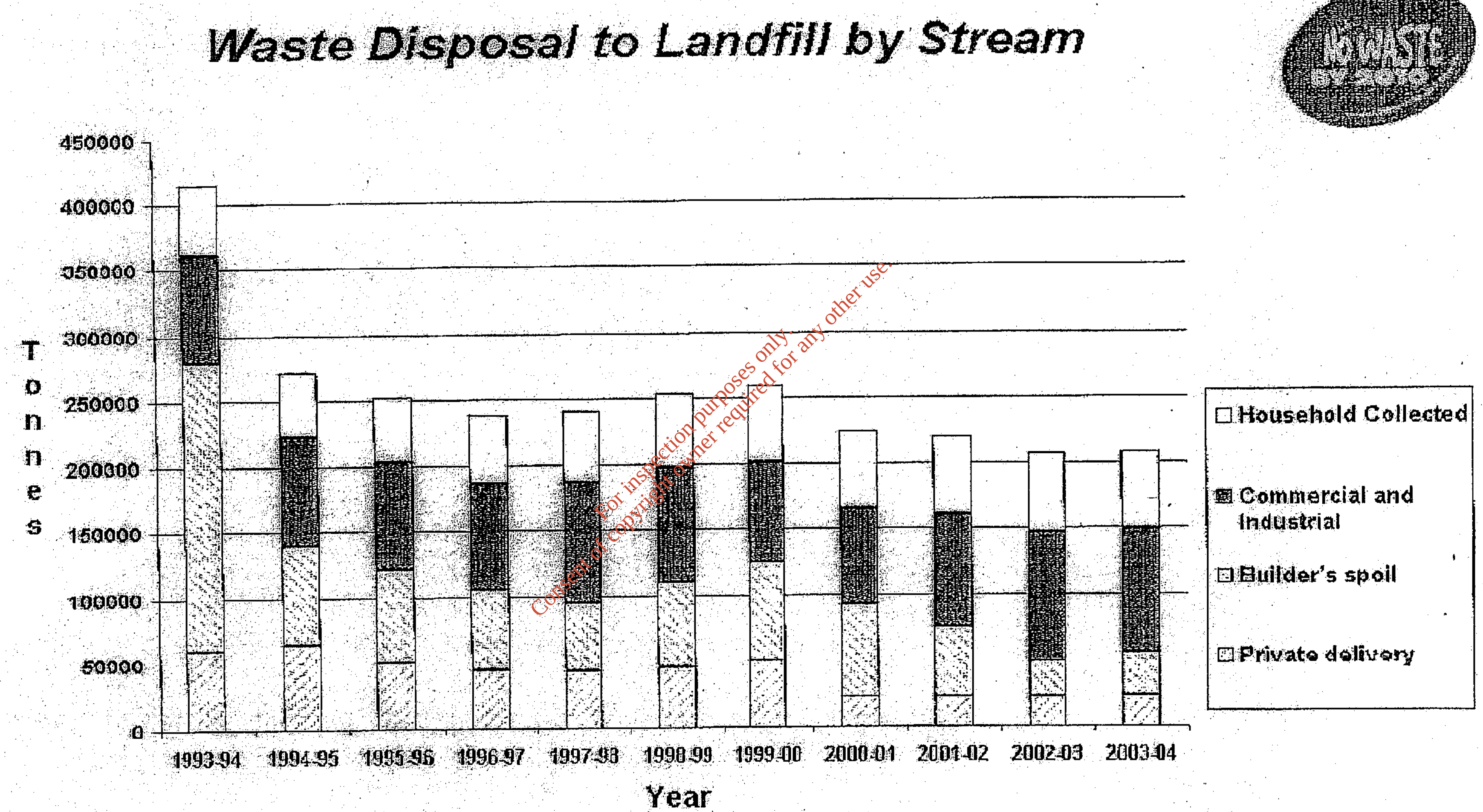
Waste data derived from landfill database. Recycling compiled from data provided by ACT Resource Recovery industries. Not all recycling data is received and care should be taken with use and interpretation of results.

Waste to Landfill in the ACT



Waste data derived from landfill database. Recycling compiled from data provided by ACT Resource Recovery industries. Not all recycling data is received and care should be taken with use and interpretation of results.

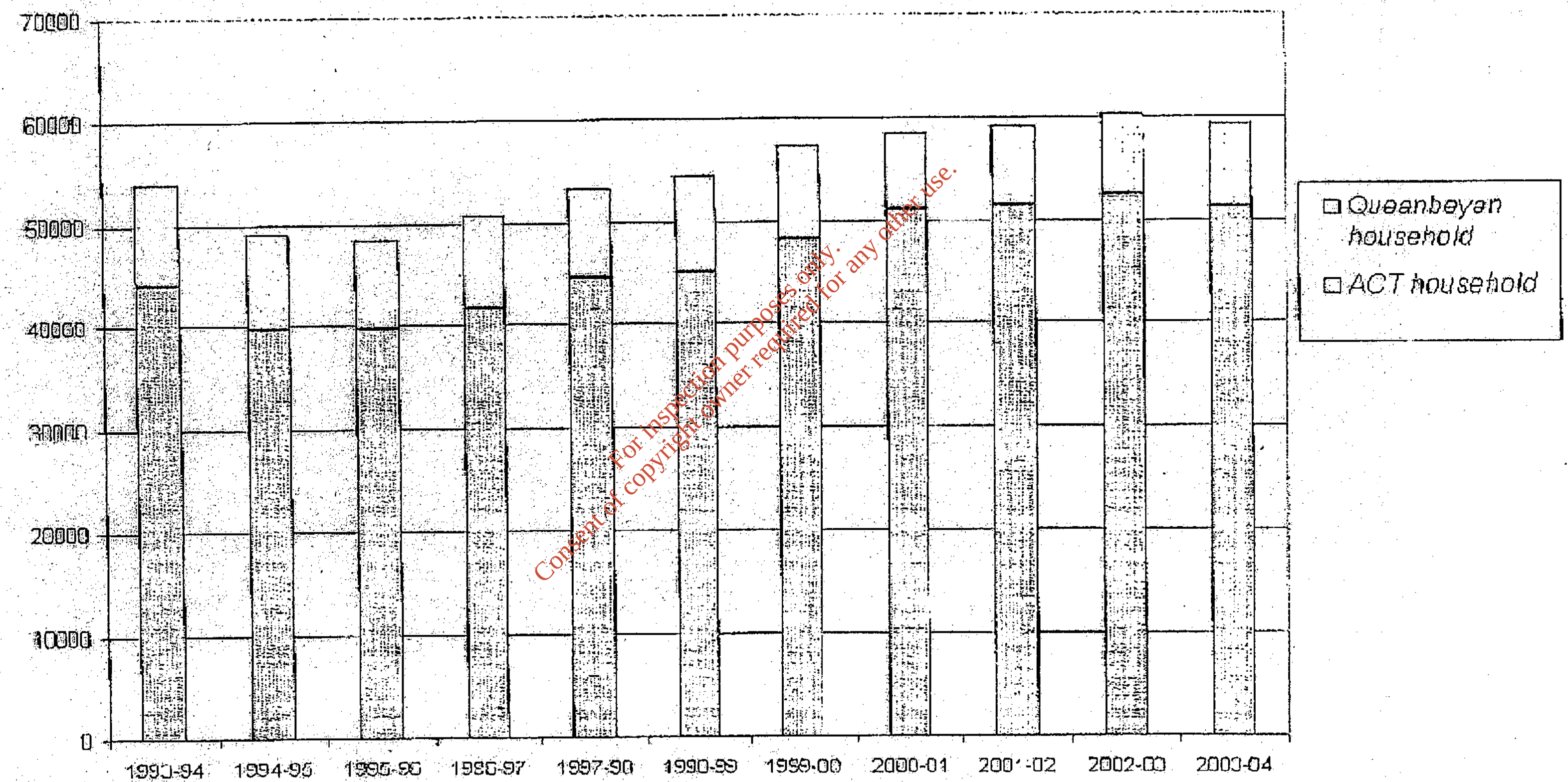
Waste to Landfill in the ACT



Waste data derived from landfill database. Recycling compiled from data provided by ACT Resource Recovery industries. Not all recycling data is received and care should be taken with use and interpretation of results.

Waste to Landfill in the ACT

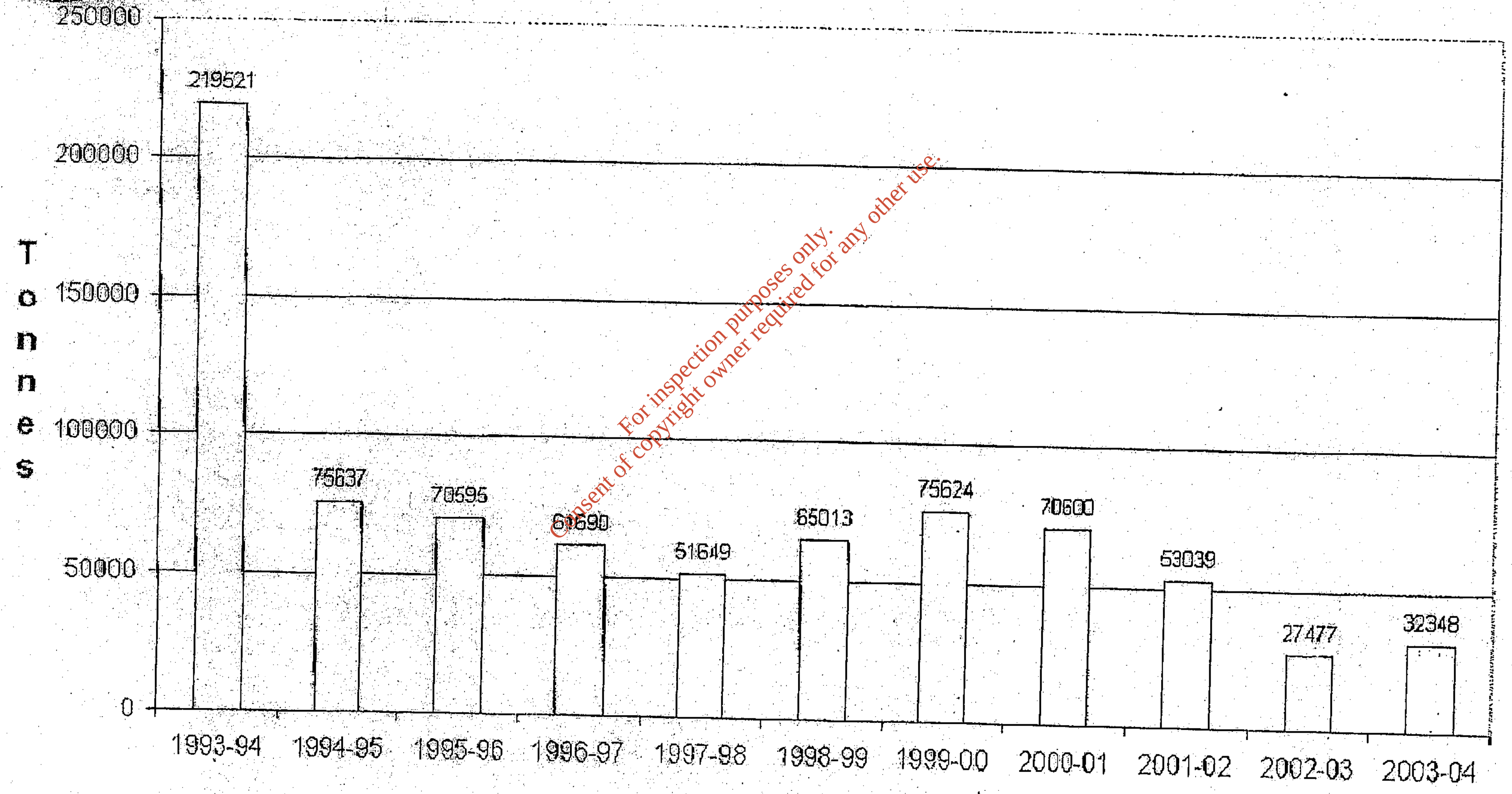
DOMESTIC COLLECTION



Waste data derived from landfill database. Recycling compiled from data provided by ACT Resource Recovery Industries. Not all recycling data is received and care should be taken with use and interpretation of results.

Waste to Landfill in the ACT

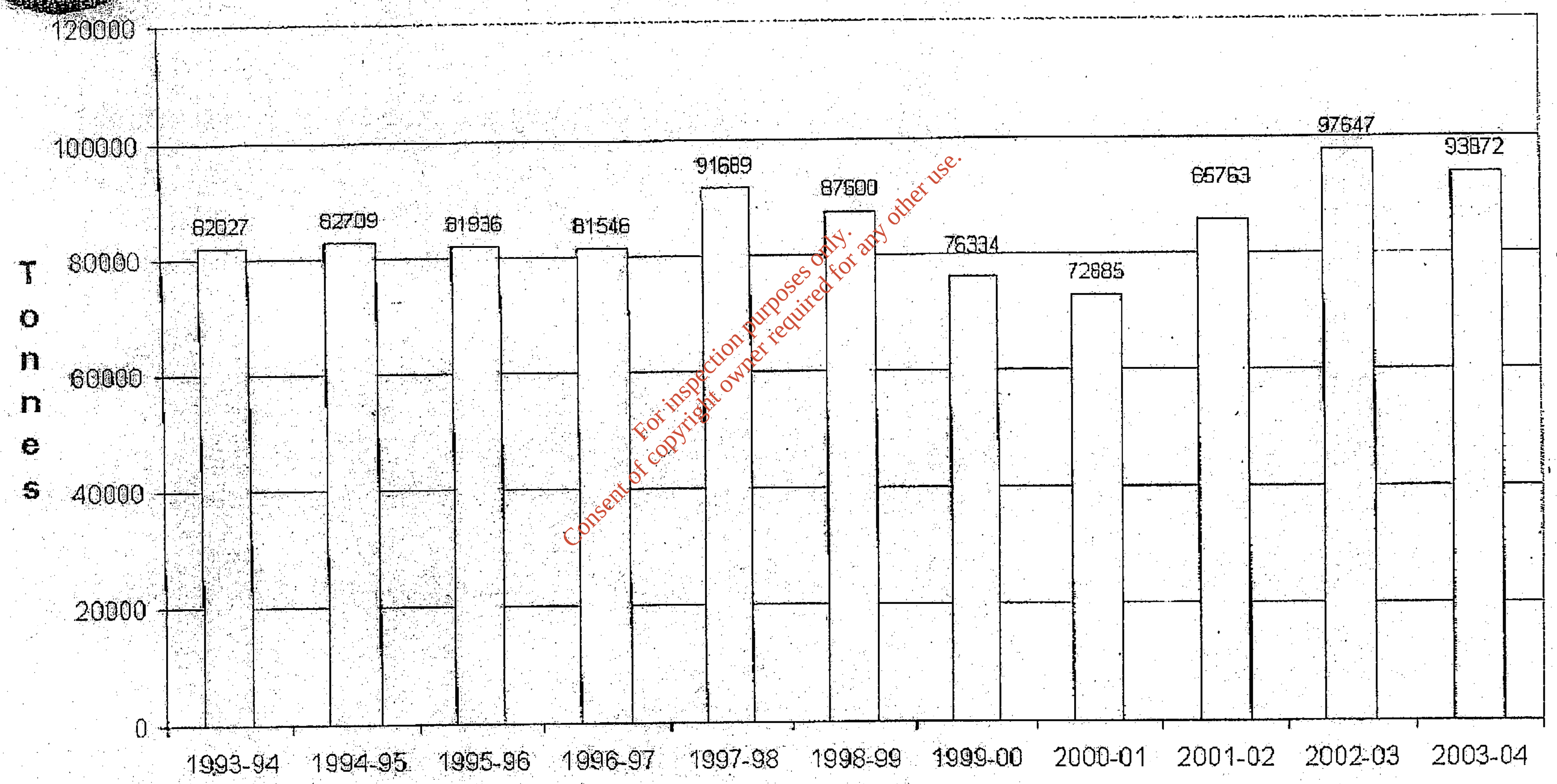
BUILDING and DEMOLITION



Waste data derived from landfill database. Recycling compiled from data provided by ACT Resource Recovery industries. Not all recycling data is received and care should be taken with use and interpretation of results.

Waste to Landfill in the ACT

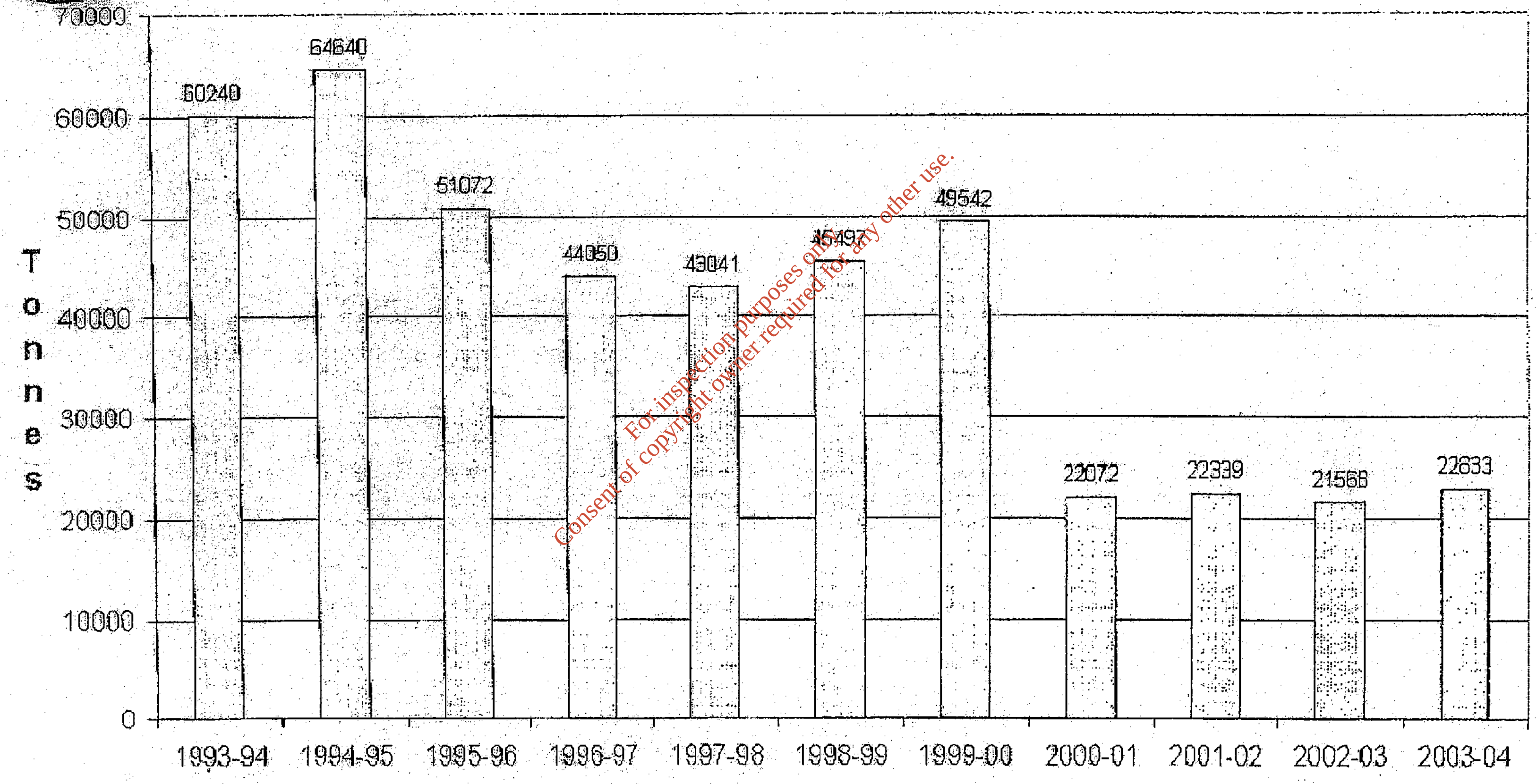
COMMERCIAL & INDUSTRIAL



Waste data derived from landfill database. Recycling compiled from data provided by ACT Resource Recovery industries. Not all recycling data is received and care should be taken with use and interpretation of results.

Waste to Landfill in the ACT

PRIVATE DELIVERY



Waste data derived from landfill database. Recycling compiled from data provided by ACT Resource Recovery industries. Not all recycling data is received and care should be taken with use and interpretation of results.