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TASMANIA

THE AUDITOR-GENERAL

SPECIAL REPORT N0.5

MUNICIPAL SOLID WASTE MANAGEMENT

SEPTEMBER 1993

28 September 1993

The Honourable J Stopp
President
Legislative Council
HOBART

The Honourable G Page
Speaker
House of Assembly
HOBART

Dear Mr President
Dear Mr Speaker

In accordance with the provisions of Section 57 of the Financial Management and Audit Act 1990, I submit the Auditor-General's Special Report No 5 on Municipal Solid Waste Management.

Yours sincerely

A J McHugh
AUDITOR-GENERAL

TASMANIA

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SEPTEMBER 1993

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INTRODUCTION

Under the provisions of Section 44(b) of the Financial Management and Audit Act 1990, the Auditor-General may "carry out examinations of the economy, efficiency and effectiveness of Government departments, public bodies or parts of Government departments or public bodies". The conduct of such audits is a component of a comprehensive audit process adopted by audit offices within Australia and overseas.

After examining a number of proposals (across all public bodies) initiated by officers within the Tasmanian Audit Office, the Auditor-General decided to undertake a performance (value for money) audit into municipal solid waste management practices in Tasmania (refer page 13 for definition of solid waste management). The project was chosen because of its current public interest and significance in terms of present and future impact upon our population, the environment and resource sustainability.

Statewide it involves approximately $14 million of recurrent municipal expenditure and the management of approximately 130 sites having a significant current replacement value. The Industry Commission reported that in 1989 the replacement cost of Tasmanian sites was $12.3 million **but various estimates discussed with Audit indicate that current replacement costs are much higher.**

An Exposure Draft on valuation guidelines for physical assets in the Tasmanian Public Sector, issued in December 1992 by the Department of Treasury and Finance, advocates the valuation of certain assets on their *"best or highest-value use to the agency. This is determined by reference to the loss that the entity would incur if it were deprived of the asset's utility, that is that asset's* ***deprival value"****.* A similar valuation concept is being considered at the national level for government trading enterprises performance monitoring purposes.

If such a process of valuation was adopted then the deficit of revenue against expenditure would be significantly higher than $225 000 as determined on a historical cost/best estimate basis in this survey. The new Accounting Standard AAS27 for Local Government (effective from 1 July 1993) will require assets to be revalued at least every 5 years and should assist municipalities in identifying where total operating costs are not being recouped.

Furthermore a Tasmanian Solid Waste Management Survey completed by the Department of Environment and Land Management in April 1993 concludes that:-

> *"from best available estimates, about 50% of active land fills will have reached capacity in the next 5 to 10 years.*
>
> *It is therefore necessary for rationalisation, regionalisation and greater efforts towards waste reduction and reuse at all municipal disposal sites so that the maximum remaining life of sites can be achieved. Simultaneously, planning for refuse disposal needs should occur."*

The prime source for the information contained in this report is based on a questionnaire (refer Appendix A) distributed to all municipalities on 6 April 1993 of which 86% (25/29) were returned in time for inclusion in this Report.

Waste management income and expenditure calculations are based on the 1992-93 financial year and have been accumulated from responses to questions on cost management. The reasonableness of information provided was tested through comparison with municipal estimates and other records, discussions with municipal officers and the inspection of a large number of solid waste disposal sites.

The Department of Environment and Land Management has been included in the review under the "compliance with licence conditions" and other policy formulation criteria. Regular discussions have been held between Departmental and Audit officers on various aspects of the subject including the Department's role in the process. The Department has also participated in the completion of this review by providing documentary information on aspects of solid waste management, facilitating Audit perusal of inspection files on municipal waste disposal sites and through taking Audit staff to observe a site inspection by Departmental officers.

Audit appreciates the pressures from the various interest groups and complexities with which the Department has to deal in the area under review and other environmental pollution control and rehabilitation issues, the majority of which are not the subject of this report. The municipalities themselves are likewise subjected, to varying degrees, to many of these pressures and expectations of their ratepayers and residents, including the containment of costs and prioritising the services that they provide.

It is also acknowledged that some municipalities have recently announced or introduced certain waste management initiatives which are not recognised in this review.

The review has been performed in accordance with Australian Auditing Standards and included tests and other procedures considered adequate to support the findings reported, some of which are qualified. The recommendations made in the report are provided by Audit for the information of municipal managers and elected representatives, the Department, Parliament and the public generally. Consequently, Audit has no responsibility to implement recommendations although it is usual practice to undertake future reviews to assess improvements and developments that have taken place.

SUMMARY OF KEY FINDINGS

COST MANAGEMENT

Some municipalities did not fully recover their actual operating costs for 1992-93. On a Statewide basis the deficit of revenue against expenditure amounted to approximately $225 000 or the equivalent of $0.50 per head of population. This is generally a satisfactory result in terms of the traditionally acceptable historical cost accounting but it does not allow for current replacement cost of future sites which will be substantially more expensive to acquire and operate .

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Total municipal costs for waste management in Tasmania in 1992-93 was approximately $13 777 000 or the equivalent of $30.02 per tonne or $30.42 per head of population. This compares favourably when assessed against the Industry Commission's 1991 figures for Australia wide averages.

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Total 1992-93 municipal costs in Tasmania for waste disposal site and waste transfer station costs was approximately $6 340 000 or $13.82 per tonne which appears consistent with other national comparisons.

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Garbage collection costs for 1992-93 in Tasmania totalled approximately $4 514 000. The costs per capita within the respective municipalities range from $4.13 to $19.07.

(Page 30 and Appendix B)

Only eight of the municipalities in the survey charged entrance fees to solid waste disposal sites. Such fees totalled $1 527 000 in 1992-93 and represented 11.1% of the total waste management expenses of $13 777 000 projected for all municipalities for the year.

(Pages 23 and 30)

Audit found inadequate performance measurement. No municipalities used quantitative measures of performance for managerial purposes, although one response related to qualitative aspects of compliance with licence conditions. However it was found in the latter part of the review that some municipalities have commenced developing certain measures whilst others undertake performance type analyses on a needs basis.

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ENVIRONMENTAL ASPECTS

Current legislative requirements regulating the approval process could be rationalised without any detrimental environmental effects.

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Many sites inspected by Audit disclosed a variety of deficiencies and breaches of licensing conditions.

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Resources applied by the Department of Environment and Land Management to inspections have improved significantly since 1991. A review of a number of files maintained by the Department disclosed that licensed municipal solid waste disposal sites were inspected at least once during a twelve month period within 1992 and 1993, with the regularity of inspections averaging approximately seven months. The more frequent inspections were usually generated by complaints or persistent site problems.

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Audit review of fifty-nine inspection reports prepared by officers of the Department during 1992 and 1993 revealed that only seventeen inspection reports did not identify some form of deficiency in site management. The forty-two inspections in which deficiencies were identified represented varying degrees of non-compliance with licence conditions.

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The Tasmanian Fire Service and the Forestry Commission confirmed instances of fire activity at solid waste disposal sites across the state. Licence conditions prohibit the practice of "burning off" which appears to be a long-standing method employed by some municipalities to extend the life of disposal areas and thus reduce costs. Audit was informed that such fires have started a number of bush fires in the past 20 years.

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Audit review of Departmental files disclosed that inspecting officers had identified serious and continuing breaches of licence conditions by certain municipalities. Despite repeated correspondence and regular inspections some municipalities had continued not to act in accordance with licence conditions and the directives of the Department of Environment and Land Management.

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Audit review of prosecutions initiated by the Department of Environmental and Land Management revealed that no successful action had been undertaken against any municipality for a breach of licence conditions.

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The Australian and New Zealand Environment and Conservation Council has released a discussion paper which deals with financial liability for contaminated site remediation and raises certain areas in which the Department of Environment and Land Management may be exposed to financial risk.

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Tasmania does not have a register of contaminated sites although such a register has already been introduced in two other States. Contaminated sites in Tasmania have been estimated to be substantial in number.

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During 1991-92 only fifty-six percent of hazardous waste contractors submitted Returns in accordance with the conditions of their licences and of these not all forwarded four quarterly Returns. The position was similarly unsatisfactory at 1992-93 year end.

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MINIMISATION OF WASTE

Audit found that nineteen of the responding municipalities (19/25, 76%) were aware of the Australian and New Zealand Environment and Conservation Council (ANZECC) target for a fifty percent reduction in solid waste going to landfill by the year 2000 (based on 1991 amounts).

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Although the majority of responding municipalities were aware of the ANZECC target, no municipality provided documentation for a strategic reduction in the amount of waste, calculated by weight per capita, going into landfill.

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Of responding municipalities more than three quarters (20/26, 77%) provide recycling facilities at the solid waste disposal site. However the effectiveness of the recycling facilities vary considerably. Of the six responding municipalities that do not provide such facilities three provide recycling facilities at separate recycling depots or waste transfer stations and the remaining three provide no recycling facilities. Current licensing conditions require recycling facilities to be provided.

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The current system of setting licence fees for waste disposal sites does not encourage waste minimisation practices. Alternate systems could be introduced which link into the short and longer term waste minimisation strategies.

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Government action towards recycling has been initiated but is yet to be formally adopted. Nearly all government agencies are involved with some form of recycling practice.

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STRATEGIC PLANNING

Audit found that approximately half (52%, 13/25 responses) of the responding municipalities have some form of strategic plan primarily for specific site solid waste management practices. Of the remaining twelve respondents three (3/25, 12%) had completed a strategic plan which had not yet been adopted, six (6/25, 24%) were in the process of completing a plan and three (3/25, 12%) had taken no action at all at the time of the survey although some have taken action since.

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RESPONSES FROM DEPARTMENT OF ENVIRONMENT AND LAND MANAGEMENT, OFFICE AND MUNICIPAL ASSOCIATION

The body of the Report contains a number of specific references in respect of individual findings and comments made by respective managements whilst the general responses by the Department of Environment and Land Management and the Municipal Association of Tasmania are contained below.

GENERAL RESPONSE provided by The Secretary, Department of Environment and Land Management

I wish to commend Audit for undertaking this project. As you are aware this Department has spent considerable resources in the last 3-4 years in the waste management area particularly through the development of the Solid Waste and Hazardous Waste Management Strategies. Consequently, the overall management of solid wastes throughout the State has improved considerably. As such this report is extremely timely and I believe will add significant impetus to the work already undertaken.

In regard to specific aspects of the report I shall provide my comments under each section of the report. Please note that comments are provided to either enhance the report, or provide a constructive response. Comments have not been given to any aspects which do not relate to the Department and are stand alone comments.

GENERAL RESPONSE provided by The Executive Officer, Municipal Association of Tasmania

Thank you for the opportunity provided to the Association to review early drafts of the above report and to discuss possible amendments to it with your staff. This is much appreciated.

The balanced approach taken in the report, and the manner in which it recognises differences among municipalities and their circumstances is a welcome change, for all too often such differences are completely ignored. The Association also appreciates the effort taken to obtain responses from councils and to include their comments in the document.

It is noted that considerable attention is given to waste minimisation and recycling. In this context it is noted that the report supports the principle being mooted by the Division of Waste Management to the effect that the licence fees payable by municipalities in respect of each waste disposal area should be scaled to the volume or mass of waste being deposited, with the proceeds being used to facilitate waste minimisation practices. The Association has discussed this matter at some length, and has concluded that there should be no changes to existing arrangements for the time being.

Rather, it is the Association's view that this whole issue (embracing the scale of the fees, the uses to which the funds should be put and who should be responsible for those activities) should be referred to the Protocol Review of Municipal Roles, Functions and Finances which is to commence shortly. This review will enable all State-Local functions and their funding to be considered as a whole, rather than each item being considered singly. A wholistic approach, it is hoped, will result in a better division of responsibilities between the two spheres of government and yield improved strategic capacity for the state as a whole. The Association, therefore, is opposing any measure which could pre-empt the findings and recommendations of the Protocol Review.

AUDIT OBJECTIVES, SCOPE AND TIMING

Audit Objectives

The audit objectives were to survey and report, **under four broad classifications**, on municipal solid waste management practices on a statewide basis and to determine whether procedures and mechanisms exist which ensure efficient, effective and economic solid waste collection and disposal. Procedures and mechanisms that should be in place include:-

Cost Management:

- the full recovery of all solid waste management costs;
- the existence of adequate measures of performance (for example, cost per capita and percentage of waste removed from the waste stream); and
- the use of appropriate technology (e.g. equipment affording maximum compaction) at solid waste disposal sites.

Environmental Aspects:

- compliance by municipalities with licence conditions;
- monitoring and enforcement of licence conditions by the Department of Environment and Land Management;
- regular review of the potential for the rationalisation of solid waste disposal sites (ie. conversion to waste transfer station or closure); and
- the adequate control of sites to prevent hazardous or prohibited solid waste from being deposited.

Minimisation of Waste Going to Landfill:

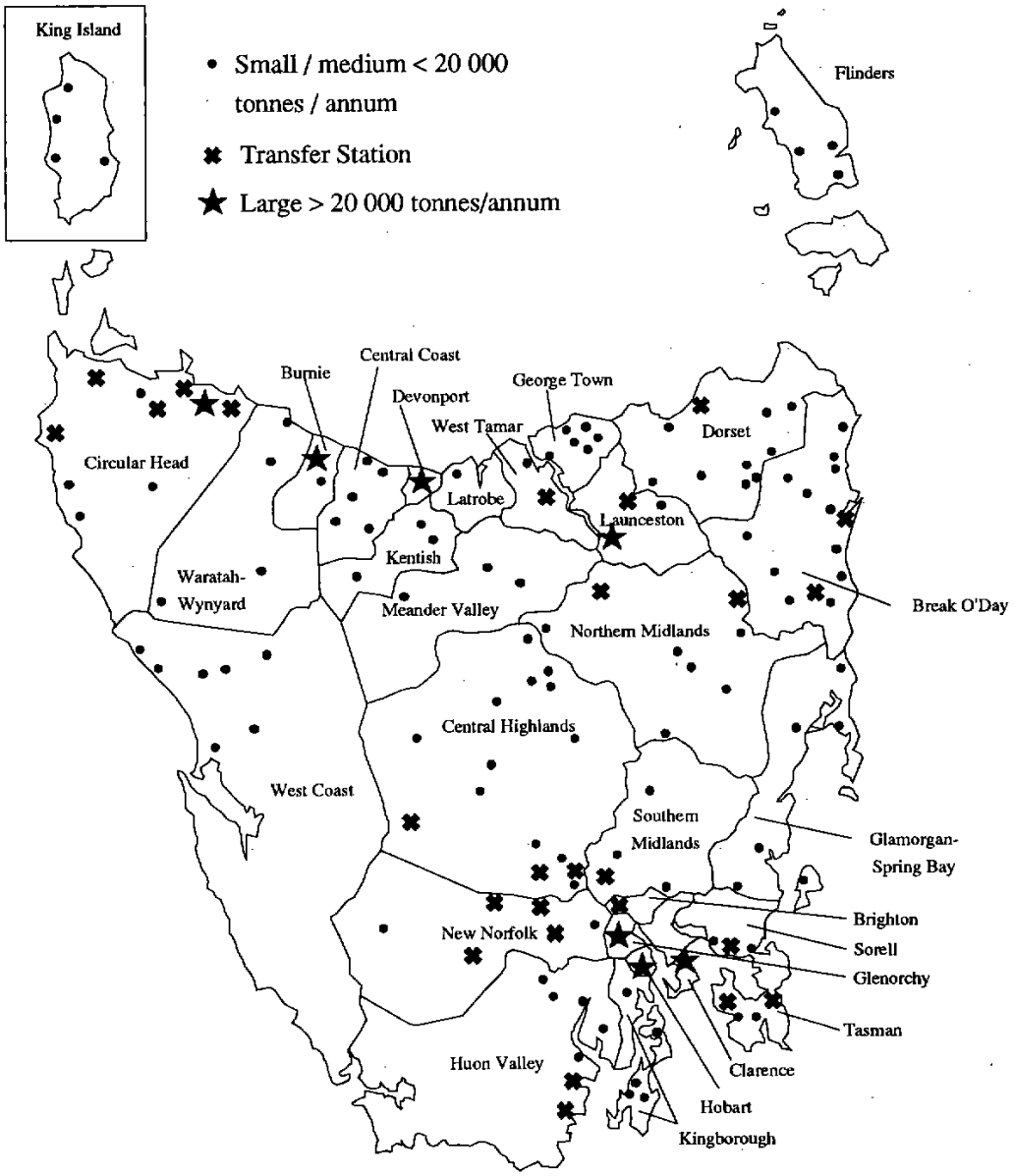
- the existence of solid waste minimisation practices that encourage and provide for adequate recycling.

Strategic Planning:

- the formulation of strategic plans for solid waste management.

SCOPE OF THE REVIEW

The project did not cover municipal liquid waste management (ie. sewerage collection, treatment and disposal) or industrial waste management other than that deposited at municipal solid waste disposal sites. The scope of the review covered all municipal solid waste disposal sites within the State, as depicted in the following map. The map is adapted from one presented in the "Tasmanian Solid Waste Management Policy - Position Paper, June 1992" (page 6) upon which the new municipal boundaries have been superimposed and adjustments made with Departmental assistance to reflect broadly the current position. The site classification is subject to the estimates provided in the survey and current licence quantities.



The following municipalities were those selected for discussions with senior management and inspection of solid waste disposal sites:-

Municipality of Beaconsfield
City of Burnie
Municipality of Campbell Town
Municipality of Circular Head
City of Clarence
Municipality of Deloraine
City of Devonport
Municipality of Evandale
Municipality of Fingal
Municipality of George Town
Municipality of Glamorgan
City of Glenorchy
City of Hobart
Municipality of Huon
Municipality of Kingborough
Municipality of Latrobe
City of Launceston
Municipality of Port Cygnet
Municipality of Ringarooma
Municipality of Spring Bay
Municipality of Ulverstone
Municipality of Westbury
Municipality of Wynyard

The inspections were undertaken prior to a municipal rationalisation, effective from 2 April 1993, which resulted in some name changes and a reduction in the number of municipalities across the State from forty-six to twenty-nine.

Initial discussions were also held with senior officers of the Department of Environment and Land Management to gain an understanding of solid waste management and the Department's role in this area.

On 6 April 1993 Audit distributed a detailed questionnaire to each of the twenty-nine newly rationalised municipalities. Despite numerous requests, the questionnaires from the municipalities of Central Highlands, Glamorgan/Spring Bay, Huon Valley and Waratah-Wynyard had still not been received at the time of finalisation of this report.

An incomplete response was received from the Municipality of Huon Valley on 6 August 1993. This was too late for inclusion in the review except for the Table summarising municipal recycling practices.

Three municipalities completed the questionnaire for only a component of their municipality, these were:-

- Dorset Municipality completed the questionnaire for the precinct of the "old" Scottsdale Municipality;
- Northern Midlands Municipality completed the Questionnaire for the precinct of the "old" Evandale Municipality; and
- Break O' Day Municipality completed the questionnaire for precinct of the "old" Fingal Municipality.

Subject to the above exceptions, the information provided by the municipalities has been processed and included in all analyses and calculations.

All responses were reviewed by Audit for overall reasonableness. Unusual or inconsistent responses were investigated and resolved with the municipality concerned. A number of questionnaires were tested on a sample basis by visiting the following municipalities to assess the accuracy of all or most responses to questions and schedules:-

Municipality of King Island
Municipality of Circular Head
City of Launceston
Municipality of George Town
Municipality of Beaconsfield
City of Glenorchy
Municipality of Sorell

Due to inconsistencies between particular components of revenue and expenditure included in the responses, statutory estimates for all municipalities were reviewed and the details initially provided were amended where appropriate.

The financial information used as a basis of compiling the various tables in this Report was referred to each municipality in the final stages of the review. An opportunity was provided to make adjustments that any municipality deemed appropriate. A small number of municipalities did not respond.

AUDIT RESOURCES AND TIMING

The project was selected in November 1992, the preliminary survey was commenced in December 1992 and the project was designated as a performance audit in late February 1993. Surveys were forwarded to municipalities on 6 April 1993 and the fieldwork was completed in July 1993. A draft report was issued for comment in August 1993.

The cost of the audit was $71 000, based on salaries of project officers and supervisor and average office wide salary on-costs which include funded and unfunded superannuation costs, plus travel expenses and administrative on-costs i.e. based on full accrual costs.

BACKGROUND

WHAT IS SOLID WASTE MANAGEMENT?

The Tasmanian Solid Waste Management Policy - Position Paper, described in Appendix E provides the following definition:-

> **"Solid waste includes the following wastes:**
>
> ***Council Waste***
> All waste collected by or on behalf of local councils including domestic garbage, clean-up waste, beach, street, parks and garden and local government engineering waste, trade waste and items of hazardous domestic waste.
>
> ***Small Vehicle Waste***
> Waste transported by individuals in cars, station sedans, utilities and the like.
>
> ***Commercial and Industrial Waste***
> Non-hazardous waste collected from industry and commerce.
>
> ***Demolition Waste***
> Hardfill type waste resulting from reconstruction projects."

Municipal solid waste management encompasses the practices by which municipalities provide for the collection, transfer and disposal of solid waste.

Waste collection responsibilities primarily extend to the provision of regular (usually weekly) waste collection services to population centres. Other types of collections which are provided include kerbside collection of recyclable waste materials and special collections of large items of household waste (e.g. washing machines), the provision of refuse bins along public streets and large waste collection bins at waste transfer stations.

The transfer of waste involves the use of municipal equipment or that of private contractors employed by the municipality. Private contractors are also employed, usually by business enterprises to dispose of various commercial and demolition wastes.

The disposal method employed by municipalities throughout Tasmania is landfill, whereby solid waste is deposited in excavated trenches or natural gullies and covered with layers of earth and/or other suitable materials. In 1990, approximately 150 municipal solid waste disposal sites were being operated in Tasmania (Position Paper, p.5) all of which were landfill sites. Currently there are approximately 130 sites operating throughout the State.

ENVIRONMENTAL IMPACT - WHAT DOES IT MEAN?

The Position Paper (pp. 56-59) states that among other issues the environmental impact of new municipal solid waste disposal sites should be addressed in an Environmental Management Plan. The term "environmental impact" means the effect of solid waste disposal sites upon:-

- waste water emissions to surface waters (e.g. the risk of leachate contaminating rivers and dams);

- ground water contamination (e.g. leachate contaminating groundwater);
- atmospheric emissions (e.g. odours, gasses and smoke contaminating the air);
- noise emissions (e.g. noise from the site affecting surrounding land users);
- disease vectors (e.g. the risks posed by flies and vermin from the site);
- litter control (e.g. the nuisance caused by litter from the site);
- conservation values (e.g. the impact of the site upon flora and fauna);
- fire risk (e.g. the risk of fires escaping from the site);
- hazardous wastes (e.g. the risk of off-site impact from hazardous wastes); and
- visual impact (e.g. the effect of the site upon the aesthetics of the area).

The Department imposes conditions upon licences to operate solid waste disposal so that the environmental impact of the sites is minimised.

GOVERNMENT POLICY - CURRENT POSITION

The Tasmanian Government has not yet formally adopted a solid waste management policy for Tasmania. A comprehensive policy is currently in the process of being finalised based on the publication by the Department of Environment and Land Management of a "Tasmanian Solid Waste Management Policy - Position Paper, June 1992" the Ministerial Foreword to which provides a summary of the wide consultative background for its preparation and its current status (refer to Appendix E). This "Paper" sets out the following goals:-

- to promote waste minimisation and resource recovery; and
- to protect existing and anticipated beneficial uses of segments of the air environment, surface waters and groundwaters and protect residents and the environment from off-site effects arising from landfills receiving municipal wastes.

Having established the policy goals this document provides a number of strategic principles under the following classifications:-

- waste minimisation;
- recycling and re-use;
- energy recovery;
- safe and secure disposal; and
- site rehabilitation and future use.

Within these classifications, standards have been set and performance targets developed with the aim of reaching specified goals. These goals, summarised in the Position Paper under the above headings, are contained in Appendix E.

The existing core legislation (referred to later in this Report) which has operated for many years is planned for replacement with one that will link into the policies to be adopted by the Government.

The Position Paper also identifies a number of sites which, due to site and management problems, require an alternative management approach.

PUBLIC OPINION

Community attitudes are evolving with the result that preservation of the environment has become an important consideration. A "greening" of community attitudes has resulted in recycling being seen as a sustainable necessity and a viable alternative to landfill disposal of certain types of "waste". In addition, there is a wider realisation that common household waste (e.g. floor wax, flea powder, disinfectants, herbicides, solvents, batteries and oven cleaner) and other waste have a potentially harmful environmental impact.

Solid waste management has not, in the past, had the high profile that other environmental areas have experienced such as wilderness degradation or sewage disposal. This higher level of public awareness has resulted in increased sensitivity to solid waste management activities. The following excerpt from a recent newspaper article illustrates public reaction to the intention to establish a new solid waste disposal site:-

> "A protest group of 43 Beaconsfield and Beauty Point residents will oppose a proposed new tip site in Greens Beach Road.
>
> Most of those protesting have farms adjoining or close to the chosen 22 hectares of Crown Land, and all fear their livelihoods will be irreparably affected if the site is licensed.
>
> The protest group ... has independent reports which show that water supplies could be contaminated."
>
> *(The Examiner, 1 April 1993)*

Despite the current trend in community attitudes there are many individuals within the community that do not act in an environmentally responsible manner. From a municipal solid waste management perspective, this element includes those who intentionally light fires on waste disposal sites and those who dump their waste on the verges of roads and highways.

Municipalities which resist complying with the conditions for operation of a solid waste disposal site would also fall into this category. The Department of Environment and Land Management must cope with varying degrees of resistance from some municipalities. The reaction by one municipality to an inspection report was:-

> "... Council are not keen to:
> 1. pursue any rigorous education campaign.
> 2. extinguish fires immediately unless notified to do so by the Department.
> 3. follow up on extinguished fire incidents or notify the Department in the first instance."
>
> *(Source: Department files)*

The Department perceived the attitude of the municipality in the following way:-

> "Commitment to solid waste management appears minimal in terms of money and compliance to licence conditions", and
>
> "... clearly indicates consistent fire frequency and a lack of regular compaction and covering of refuse are the two major areas of concern at the site. Council have not acted in a responsible manner in addressing these issues which are 17 years old."
>
> *(Source: Department files)*

Audit acknowledges that municipalities often are subjected to demands from various sources such as individual ratepayers and pressure groups in relation to solid waste management practices.

RESPONSE provided by The Secretary, Department of Environment and Land Management

> *The Department considers that the proposed municipal waste management plans described in more detail below, will provide a clear and public statement of the waste management programs to be put in place by councils over a 5 year timeframe. The development of such plans should minimise specific demands from various pressure groups in relation to waste management activities.*

LEGISLATION GOVERNING SOLID WASTE MANAGEMENT

Municipal solid waste management is regulated by the following legislation:-

- Environment Protection Act 1973 and associated regulations;
- Local Government Act 1962;
- Groundwater Act 1985; and
- Public Health Act 1962.

Although the Local Government Act 1962 requires municipalities to collect and dispose of solid waste the Environment Protection Act 1973 is the principal legislation regulating municipal solid waste management.

ENVIRONMENT PROTECTION ACT 1973

The Department is responsible for administering the Environment Protection Act 1973. A major responsibility for the Department under the Act is to issue and monitor licences and registrations for municipal solid waste disposal sites and waste transfer stations.

The Act requires municipalities to use their powers to mitigate and prevent pollution of the atmosphere, sea, watercourses and other land within their municipal districts. Furthermore, Section 21 of the Act and Regulation 4 of the Environment Protection (Waste Disposal) Regulations 1974 prohibit the lighting of fires on solid waste disposal sites.

Solid waste disposal sites used for disposing more than 25 tonnes (100 tonnes prior to 1990) of waste per annum are designated "scheduled premises" in accordance with Section 22A of the Act. A scheduled premise may not be operated unless it is licensed to do so by the Department who may, under Section 25(1), attach certain conditions to the licence.

Licence conditions imposed upon municipalities include both standard conditions common to most sites and specific conditions peculiar to certain sites. Standard licence conditions include the following requirements:-

- to operate the premises in accordance with the Act;
- not to change the nature of the site or of site operations so as to increase the emission of a pollutant or noise unless approved by the Director of Environmental Control;
- to notify the Department of any event that may or does increase or vary the type of pollution; and
- the erection of signs warning that hazardous wastes are not to be dumped and fires are not to be lit.

Specific conditions attached to licences include the following:-

- maximum depth of trenches;
- hours of operation;
- width of the face of the landfill site;
- covering frequency;
- manning of the site during operating hours;
- recycling of materials; and
- the restriction of public access outside operating hours.

The Department is responsible for monitoring the extent of compliance with licence conditions. This is usually undertaken through a process of site inspections and in response to public complaints.

Where the Department's Director of Environmental Control is satisfied that the pollution, if any, from a municipal solid waste disposal site does not warrant licensing he may, under Section 35 of the Act, register that site. Registered sites are considered to be of low environmental risk and so are not subject to conditions. Currently the Department only registers transfer stations.

Municipalities holding a licence or a registration cannot change any process, the type of materials handled or quantities thereof in such a way as to substantially increase the emission of pollution on the premises without the approval of the Department (Section 29 of the Act).

The Act was amended in April 1993 to give the Director of Environmental Control the power to delegate to any person employed in any Agency, State Authority or Municipality any or all of his functions.

New environmental legislation is currently under development. It appears that it is intended to delegate to municipalities many of the Department's responsibilities for smaller "premises" in relation to:-

- the assessment of an application and, where appropriate, the issuing of a permit incorporating certain conditions relating to operations; and
- the enforcement of the conditions of a permit, including the power to prosecute in instances where conditions are not being complied with.

LOCAL GOVERNMENT ACT 1962

Municipalities are required by the Local Government Act 1962 to provide for the removal and disposal of household refuse and other rubbish within their districts. In order to satisfy this obligation, municipalities are empowered to acquire land for use as solid waste disposal sites. In acquiring such land municipalities must conform to any recommendations which the Minister for Health may make. The recommendation of the Minister for Health is usually sought by the Minister for Local Government as part of his approval under Section 535 of the Act.

Prior to opening and operating a waste disposal site the Local Government Act 1962 requires a municipality to obtain the approval of the Minister for Local Government. Subject to compliance with other legislation, municipalities may, in the absence of instructions from the Minister for Local Government, destroy, sell or dispose of waste as they see fit.

In order to fund their affairs, including waste removal and disposal, municipalities are empowered to levy rates on property owners within their districts. Municipalities may apply a rate across all ratepayers (e.g. for the operation of the municipal solid waste disposal site) or apply a specific rate for a certain locality (e.g. where a waste collection service is provided for a certain population centre).

Although the Local Government Act 1962 is presently in the process of being re-drafted, present indications are that there will be no change to the responsibility and power of municipalities in fulfilling their waste removal and disposal obligations.

GROUNDWATER ACT 1985 AND PUBLIC HEALTH ACT 1962

The Groundwater Act 1985 and Public Health Act 1962 both prohibit the contamination of groundwater and, where this has occurred, provide authority for the closure of a solid waste disposal site.

The Director of Mines is empowered by the Groundwater Act 1985 to prevent a municipality from using land for a waste disposal site. This power is only applicable where the operation of the waste disposal site would be detrimental to groundwater which could be used for human consumption and so present a threat to safety or health.

The Minister for Health is empowered by the Public Health Act 1962 to forbid the discharge or drainage of insanitary matter into any source of water supply. Where the Minister believes that a nuisance or risk of infectious disease exists he can order the occupier to rectify the problem.

Under the Groundwater Act 1985 and the Public Health Act 1962 the Director of Mines and Minister for Health may, if considered necessary, prevent the operations of solid waste disposal sites.

CO-ORDINATION OF CERTAIN LEGISLATIVE REQUIREMENTS

Discussions with the Department of Environment and Land Management have indicated that they have taken upon themselves, in consultation with other Agencies, the role of coordinating body when assessing approvals for new waste disposal sites. **Audit considers that relevant legislative requirements could be rationalised,** ideally under one Act. Further comments are contained later in this report.

PART 1 - COST MANAGEMENT AND TECHNOLOGY

Audit examined the mechanisms by which municipalities account for solid waste management. The main focus of the review was to establish whether municipalities were recovering the full costs of solid waste management.

NATURE OF COSTS

In relation to solid waste disposal sites and other garbage services, costs can be classified in the following way:-

Site Establishment

The costs involved in site selection, establishment and construction. Usually includes the cost of environmental impact studies, planning fees, engineering fees, excavations, fencing, access roads and recycling facilities. These costs should be initially capitalised and then gradually expensed over the life of the site. For example, consider a solid waste disposal site with establishment costs of $500 000, annual operating costs (including progressive rehabilitation) of $100 000 and an anticipated life of ten years. The annual cost for that site would be $100 000 operating costs plus an annual apportionment of establishment costs (depreciation) of $50 000 (one-tenth of the establishment costs) representing the cost to the municipality of space consumed within the site during the year.

Site Operating Costs

The costs associated with maintaining and operating the site. Usually comprise transfer of waste from stations, direct labour, direct materials, maintenance charges, equipment and site depreciation, interest charges, supervision and indirect overheads and other costs of complying with environmental standards and licensing conditions. Such costs should be expensed each year.

Site Rehabilitation Costs

The cost of rehabilitating the site. Costs involved are for purchase of top soil, revegetation, irrigation, labour, equipment and the ongoing monitoring of the site. Site rehabilitation may occur during the gradual filling up of the solid waste disposal site, at the time when the solid waste disposal site is full or some combination of both methods. Site rehabilitation works which are undertaken progressively throughout the life of the site should be expensed. Where site rehabilitation works are deferred until the closure of the site an annual expense should be recognised which equates to the rehabilitation works that were up until that point in time attributable to the proportion of site volume filled.

Other Costs

These would involve garbage collection, street cleaning etc not within the above categories and would be expensed each year unless of a capital nature.

FULL COST RECOVERY AND SUMMARIES OF STATEWIDE COSTS AND REVENUES 1992-93

Full cost recovery means the raising of revenue to meet all of the expenses attributable to municipal solid waste management. Audit considers full cost recovery to be an important issue **as any shortfall when waste disposal expenses exceed revenue must be funded from other sources such as a non-specific component of municipal rates, government grants, the imposition of higher rates and charges in subsequent years or some other form of cross subsidisation.**

In determining their annual rates, municipalities assess the yearly costs of running their services, a component of which is waste disposal costs. Municipalities decide whether to charge a single rate across the municipality or local rates for those ratepayers that benefit from specific services or a combination of both rates.

By adopting this process municipalities are able to, and should, recover their annual operating costs in respect of the services that they provide. Consequently, the only costs that may not be provided for are those which are unforeseen and those they will incur at some future time, for instance the costs of site rehabilitation upon closure. Generally, under existing bases of accounting (commented on later) the recoveries are mostly based on cash movements through the rating process.

MUNICIPAL COSTS AND REVENUES 1992-93

Audit requested municipalities to provide details of the revenues and expenditures applicable to solid waste management for 1992-93. As the questionnaire was issued in April 1993, it was necessary for municipalities to provide details of estimated revenues and expenses to 30 June 1993. Revenues include specific garbage rates, charges for admittance to solid waste disposal sites and the waste management component of municipal rates. Waste management expenses include annual solid waste disposal site operating costs, operating costs for garbage collection services, a component of site establishment costs (depreciation) and site rehabilitation costs.

The data provided was assessed by Audit for reasonableness and, after inspecting the general ledgers and statutory estimates produced for determining the municipal rates and holding discussions with the finance staff of a number of municipalities, it was concluded that in certain cases the estimated data required amendment. In some instances the expense estimates provided to Audit had excluded interest on loans for the waste disposal site, administration costs, supervision costs and indirect overheads. As a consequence, Audit compared responses for revenue and expenditure to the statutory estimates for each municipality and, where necessary, amended the details previously provided.

STATEWIDE SUMMARY OF MUNICIPAL COSTS AND REVENUES 1992-93

Having established, in consultation with the municipalities, the reasonableness of the data provided, the revenue and expense details were then analysed by Audit to determine whether or not municipalities were recovering the full costs of solid waste management. **Although the figures shown have been assessed by Audit as reasonable they should not be regarded as being precise.** The following is a table summarising the findings of the analysis:-

REVENUE/EXPENDITURE SUMMARY 1992-93 (a)

Municipality	REVENUE				EXPENDITURE				
	Tip Fees	Rates (c)	Other (d)	TOTAL REVENUE	Site Waste Disposal and Waste Transfer Station Costs	Waste Collection, Recycling & Street Cleaning	TOTAL EXPEND-ITURE	SURPLUS/ (DEFICIT)	Percentage Expenditure Unfunded
	$	$	$	$	$	$	$	$	$
Break O' Day (Fingal)	0	45,585	0	45,585	40,248	6000	46,248	(663)	-1.4%
Brighton	0	347,495	1,600	349,095	258,419	89,250	347,669	1,426	0.4%
Burnie City	0	769,236	42,480	811,716	312,197	518,250	830,447	(18,731)	-2.3%
Central Coast	22,900	794,709	750	818,359	402,256	440,479	842,735	(24,376)	-2.9%
Central Highlands (b)	...	...	...	...	...	...	...	...	...
Circular Head	25,000	422,129	0	447,129	269,009	176,584	445,593	1,536	0.3%
Clarence City	160,000	904,400	0	1,064,400	385,731	693,300	1,079,031	(14,631)	-1.4%
Devonport City	0	807,424	88,610	896,034	463,022	460,944	923,966	(27,932)	-3.0%
Dorset (Scottsdale)	0	91,756	2,000	93,756	31,830	62,256	94,086	(330)	-0.4%
Flinders	0	17,850	0	17,850	13,355	5,250	18,605	(755)	-4.1%
George Town	0	186,819	0	186,819	54,575	116,045	170,620	16,199	9.5%
Glamorgan-Spring Bay (b)	...	...	...	...	...	...	...	...	—
Glenorchy	425,236	544,596	0	969,832	520,268	570,243	1,090,511	(120,679)	-11.1%
Hobart City	290,000	1,568,533	55,000	1,913,533	785,852	1,157,168	1,943,020	(29,487)	-1.5%
Huon Valley (b)	...	...	...	...	...	...	...	...	...
Kentish	0	50,400	0	50,400	52,500	0	52,500	(2,100)	-4.0%
King Island	0	59,795	0	59,795	30,511	9,870	40,381	19,414	48.1%
Kingborough	0	541,979	1,300	543,279	245,652	253,322	498,974	44,305	8.9%
Latrobe	0	147,317	33,331	180,648	102,740	85,354	188,094	(7,446)	-4.0%
Launceston City	572,000	1,130,440	0	1,702,440	747,120	1,029,498	1,776,618	(74,178)	-4.2%
Meander Valley	10,000	289,406	724	300,130	100,468	205,630	306,098	(5,968)	-1.9%
New Norfolk	0	398,547	0	398,547	248,675	161,022	409,697	(11,150)	-2.7%
Northern Midlands (Evandale)	0	70,932	2,310	73,242	33,212	40,230	73,442	(200)	-0.3%
Sorell	0	219,000	9,000	228,000	157,388	32,000	189,388	38,612	20.4%
Southern Midlands	0	97,060	0	97,060	75,423	27,000	102,423	(5,363)	-5.2%
Tasman	0	41,500	0	41,500	34,490	200	34,690	6,810	19.6%
Waratah-Wynyard (b)	...	...	...	...	...	...	...	...	...
West Coast	0	460,376	6,254	466,630	137,630	312,200	449,830	16,800	3.7%
West Tamar	22,000	394,088	2,100	418,188	192,433	228,663	421,096	(2,908)	-0.7%
Total (Respondents)	$1,527,136	$10,401,372	$245,459	$12,173,967	$5,693,004	$6,680,758	$12,375,762	($201,795)	-1.6%
Population adjustment factor for non-respondents (b)	1.1132	1.1132	1.1132		1.1132	1.1132			
Total (State)	$1,700,077	$11,579,278	$273,256	$13,552,611	$6,339,936	$7,437,322	$13,777,258	($224,647)	-1.6%
Percent Revenue/Expense	12.54%	85.44%	2.02%		46.02%	53.98%			
Per Capita (State)	$3.75	$25.57	$0.60	$29.92	$14.00	$16.42	$30.42	($0.50)	

(a) Care should be taken when interpreting the information shown in the table due to limitations in the data used in its compilation which was extracted from Municipal Rating Estimates and estimates provided in direct response to the questionnaire.

(b) To determine a statewide cost an adjustment was made for the municipalities that had not responded with the information requested. The figure was projected from the average per capita for responding municipalities.

(c) Rates include imputed administration charges where appropriate.

(d) Other revenue comprises sundry charges and allocated grants.

CARE TO BE EXERCISED WHEN INTERPRETING DATA

As stated earlier, care should be exercised when interpreting the data provided in the aforementioned table due to the fact that **it has been formulated from a combination of actual and estimated expenses and revenues**. Although the information shown in the table has been calculated as accurately as possible, the details shown are nevertheless subject to the following qualifications:-

- in many cases estimates by municipalities were the most accurate information available on the establishment costs of solid waste disposal sites. Uncertainties inherent in accepting such estimates means that, for a number of municipalities, there may be some differences between the amounts calculated as depreciation of establishment costs and what the amount would have been if actual data was available;

- it was necessary for municipalities to provide estimates for the rehabilitation costs of solid waste disposal sites. Where estimates were not provided by municipalities Audit estimated an amount for rehabilitation consistent with other responses; and

- in many instances statutory estimates have been used as the basis for the revenues and operating costs generated through the provision of solid waste management services. Audit is satisfied that, although minor variations to actual revenues and costs may have occurred, this would not have had a material impact upon the accuracy of the analysis (based upon previous Audit experience which has shown the statutory estimates of municipalities to be reliable).

Various analyses of the information shown in the table are included in Appendix B.

ANALYSIS OF STATEWIDE COSTS, REVENUES AND DEFICITS 1992-93

On a statewide basis for 1992-93 total expenditure applied to municipal solid waste management amounted to $13 777 000, total revenue amounted to $13 552 000 and the total deficit of revenue against expenditure amounted to $225 000. This represents a deficit of approximately $0.50 per capita for the 1992-93 year. This means that an additional $0.50 would need to be charged to each person in the State to recover the full costs based on currently established sites. It is expected that future sites, subjected to more stringent licensing requirements, will be more expensive to operate. However it should be noted that a number of sites do not fully comply with current environmental licencing requirements and as such their total expenditure would be much higher if they conformed.

This is a generally satisfactory result using a historical cost/best estimate basis of accounting and which is what would be expected having regard to the manner in which municipalities determine and raise revenues to cover costs. However as mentioned previously it does not allow for current replacement cost of sites.

As mentioned earlier, an Exposure Draft on Asset Valuation Guidelines, issued by the Tasmanian Department of Treasury and Finance in December 1992 advocates the recognition and valuation of certain assets on a "deprival value" replacement concept. If such a process was adopted then the deficit of revenue against expenditure would be significantly higher. In any case the new Accounting Standard AAS27 for Local Government (effective from 1 July 1993) will require asset revaluations to be undertaken at least every 5 years.

RESPONSE provided by The Secretary, Department of Environment and Land Management

Audit found that a 50c per person deficit exists for 1992/93 using historical cost/best estimate basis. However, Audit also notes that this figure would be "much higher" if current environmental licensing requirements were complied with. This extra cost remains an historical cost and does not include, current replacement cost of sites and the loss in value of the land as a result of its use as a disposal site.

Taking all the above into account, DELM asks how much higher this deficit would be with full licence compliance and questions the comment that this is generally a satisfactory result.

The deficits shown in the table are directly attributable to the allocation of capital costs over the life of the solid waste disposal site (depreciation). Depreciation represents the "hidden cost" of solid waste management and is typically not included in the calculations used by municipalities to reckon their costs and thus their rates. (although the original costs of sites would have been included in rate determination at the time of acquisition). Simply expressed depreciation comprises:-

- an annual apportionment (depreciation) of the establishment costs of the solid waste disposal site. The basis of the apportionment is most accurately the volume of the site filled during the year relative to the total volume of the site although one year as a proportion to the total life of the site may be acceptable; and

- an annual expense representing the requirement of the municipality to rehabilitate the solid waste disposal site where this is done after the closure of the site. In effect, this expense represents accelerated depreciation of the site during its operative life. The basis of this calculation is usually the estimated final rehabilitation costs of the site apportioned on the basis of the volume of the site filled during the year relative to the total volume of the site. Where rehabilitation work is done on an annual basis, and so included in operating costs, this calculation is not required.

Annual apportionment (depreciation) of the purchase costs of plant and other equipment used in the provision of a municipality's solid waste management services has been adequately accounted for by municipalities. Municipalities account for this element of depreciation through plant hire charges included in the operating expenses of solid waste disposal sites. These charges include a component for the depreciation of plant.

Municipalities were not depreciating the establishment costs of solid waste disposal sites nor were they recognising an expense for ultimate site rehabilitation. Consequently Audit has estimated site depreciation costs and included them in the costs analyses undertaken. This was primarily due to the modified cash basis of accounting used by municipalities. This method has certain shortcomings which include:-

- assets, other than cash and investments, are not recorded in the accounts. The effect is that the construction of solid waste disposal site facilities or the purchase of a waste collection vehicle is only recorded in the accounts as a payment. There is no continuing record in the financial statements of the existence of these municipal assets; and

- depreciation (annual apportionment of costs) of assets does not occur. As a result municipalities have not recognised the gradual consumption of space within solid waste disposal sites as an expense.

As a consequence municipalities have not, in the past, maintained accurate or detailed records of the costs involved in the establishment of solid waste disposal sites. Some municipalities did not initially provide an estimate of these costs until directly asked to do so by Audit.

It could be argued that having written off the entire cost of the asset against revenue there is no need to reinstate and depreciate the asset. However, it is generally accepted that the funding of an asset is a different issue to the "consumption" of the asset over its useful life. This consumption represents a true periodic cost, which together with other operating costs comprises the total annual cost of a particular programme.

Total depreciation charges in relation to site establishment and rehabilitation after closure (excluding depreciation of plant and equipment) for the State are conservatively estimated by Audit to be approximately $450 000 for 1992-93 (representing approximately $1.00 per capita). Audit expects that if all sites were depreciated at their current replacement cost this figure would be significantly higher.

When reviewing the types of costs included for solid waste management Audit found that whilst site operating costs were correctly expensed, in some instances municipalities were not identifying all of the costs related to municipal solid waste management. The types of costs not included by certain municipalities were the supervision and inspection costs of engineers, health inspectors and works managers, administration costs and interest on loans raised for solid waste management. **Consequently, Audit has conservatively imputed a 5% cost adjustment to cover such costs compensated for by an equivalent increase in municipal rates from which source such costs are funded.**

Audit found that:

- **municipalities were not allocating establishment costs nor the costs of defined rehabilitation works over the lives of solid waste disposal sites; and**
- **no depreciation had been recorded and when accounting for operating costs certain relevant overhead costs had not been included.**

Audit acknowledges that the application of a new accounting standard (AAS 27 - "Financial Reporting by Local Governments") for the 1993-94 financial year will require municipalities to consider these issues on a program basis.

It is recommended by Audit that municipalities implement accounting procedures which will enable them to better account for the full costs of municipal solid waste management on a program basis.

COST PER TONNE

The table summarises cost per tonne for each municipality based upon the total costs and revenues for each municipality as shown earlier and is subject to the limitations detailed earlier.

Furthermore, the tonnages used in this table are based upon responses given by municipalities or where no response was provided licensed tonnages were used. Tonnages supplied by municipalities are based on their estimates of volumes converted to tonnage by them. No municipality at the date of the survey had the means during 1992-93 to measure weight directly, although the Municipality of Circular Head had introduced a weighbridge in December 1992.

The disparities between tonnage's provided by respondents and those advised by the Department (refer Appendix B "Populations and Tonnage's Used by Audit, page 79) can be explained in some instances by the existence of registered sites whilst others need further analysis and explanation. Care should therefore be taken when interpreting the data in the following table.

REVENUE/COST PER TONNE 1992-93 (e)

The revenue determined consists of rates, charges, tip fees, grants and a component imputed for administrative charges.

		TOTAL REVENUE TONNE		TOTAL EXPENDITURE PER TONNE		SITE WASTE DISPOSAL AND WASTE TRANSFER STATION COSTS PER TONNE	
Municipality	Tonnes(a)	Total Revenue	**Total Revenue Per Tonne**	Total Expenditure (b)	**Total Expenditure Per Tonne**	Site Waste Disposal and Waste Transfer Station Costs (c)	**Site Waste Disposal and Waste Transfer Station Costs Per Tonne**
		$	$	$	$	$	$
Break O' Day (Fingal)	2,990	45,585	**15.25**	46,248	**15.47**	40,248	**13.46**
Brighton	4,428	349,095	**78.84**	347,669	**78.52**	258,419	**58.36**
Burnie City	20,000	811,716	**40.59**	830,447	**41.52**	312,197	**15.61**
Central Coast	23,500	818,359	**34.82**	842,735	**35.86**	402,256	**17.12**
Central Highlands (d)	...	...	...	...	...	...	—
Circular Head	11,000	447,129	**40.65**	445,593	**40.51**	269,009	**24.46**
Clarence City	18,500	1,064,400	**57.54**	1,079,031	**59.33**	385,731	**20.85**
Devonport City	20,000	896,034	**44.80**	923,966	**46.20**	463,022	**23.15**
Dorset (Scottsdale)	2,000	93,756	**46.88**	94,086	**47.04**	31,830	**15.92**
Flinders	605	17,850	**29.50**	18,605	**30.75**	13,355	**22.07**
George Town	7,750	186,819	**24.11**	170,620	**22.02**	54,575	**7.04**
Glamorgan-Spring Bay (d)	...	...	...	...	...	...	...
Glenorchy	50,000	969,832	**19.40**	1,090,511	**21.81**	520,268	**10.41**
Hobart City	72,000	1,913,533	**26.58**	1,943,020	**26.99**	785,852	**10.91**
Huon Valley (d)	...	...	...	...	...	...	...
Kentish	3,300	50,400	**15.27**	52,500	**15.91**	52,500	**15.91**
King Island	1,078	59,795	**55.47**	40,381	**37.46**	30,511	**28.30**
Kingborough	15,350	543,279	**35.39**	498,974	**32.51**	245,652	**16.00**
Latrobe	13,000	180,648	**13.90**	188,094	**14.47**	102,740	**7.90**
Launceston City	100,800	1,702,440	**16.89**	1,776,618	**17.63**	747,120	**7.41**
Meander Valley	2,525	300,130	**118.86**	306,098	**121.23**	100,468	**39.79**
New Norfolk	15,000	398,547	**26.57**	409,697	**27.31**	248,675	**16.58**
Northern Midlands (Evandale)	3,000	73,242	**24.41**	73,442	**24.48**	33,212	**11.07**
Sorell	5,600	228,000	**40.71**	189,388	**33.82**	157,388	**28.11**
Southern Midlands	4,500	97,060	**21.57**	102,423	**22.76**	75,423	**16.76**
Tasman	1,000	41,500	**41.50**	34,690	**34.69**	34,490	**34.49**
Waratah-Wynyard (d)	...	...	...	...	...	...	...
West Coast	8,460	466,630	**55.16**	449,830	**53.17**	137,630	**16.27**
West Tamar	5,800	418,188	**72.10**	421,096	**72.60**	192,433	**33.18**
Total (Respondents)	**412,186**	**$12,173,967**	**$29.54**	**$12,375,762**	**$30.02**	**$5,695,004**	**$13.82**
Population adjustment factor for non-respondents (d)	**1.1132**	1.1132		1.1132		1.1132	
Total (State)	**458,864**	**$13,552,611**	**$29.54**	**$13,777,258**	**$30.02**	**$6,339,936**	**$13.82**

(a) Tonnes used by Audit are the responses provided by municipalities for the quantities of waste disposed. Where no response has been provided the licensed tonnage has been used. Refer to Appendix B for further details.

(b) Total expenditure comprises all solid waste management expenditure on solid waste disposal sites, rehabilitation, operation of waste transfer stations, garbage collection, street cleaning and recycling schemes.

(c) Solid waste disposal costs are the operating costs of solid waste disposal sites (including a depreciation component). Where a municipality transfers its waste for disposal to another municipality the amount charged for disposal has been included.

(d) To determine a statewide cost an adjustment was made for the municipalities that had not responded with the information requested. The figure was projected from the average per capita for responding municipalities.

(e) Care should be taken when interpreting the information shown in the table due to limitations in the data used in its compilation which was extracted from Municipal Rating Estimates and estimates provided in direct response to the questionnaire.

ANALYSIS OF STATEWIDE COSTS PER TONNE 1992-93

This table indicates the total municipal cost for solid waste management in Tasmania (which includes waste collection, transfer, recycling and disposal costs) is $30.02 per tonne. This is consistent with the costs of waste collection and disposal on the mainland which have been calculated by the Industry Commission (1991) as being $37 per tonne. The slightly higher mainland costs would be expected to represent relatively higher land and transportation costs.

The total cost for solid waste disposal (waste disposal site and waste transfer station costs only) in Tasmania is approximately $6 340 000 or $13.82 per tonne. This is consistent with the Victorian Parliamentary Natural Resources and Environment Committee (1990) estimate of between $9.00 and $15.00 per tonne.

Cost per tonne for solid waste disposal across all municipalities reveals a range from $7.04 per tonne to $58.36 per tonne. This is due to various factors and any comparisons should be treated with caution. Some municipalities have only transfer stations.

Furthermore, **a higher cost per tonne is not necessarily indicative of inferior solid waste management performance** but may reflect the expenses incurred by the municipality in order to fully comply with the conditions for operation of the solid waste disposal site.

Audit considers **that cost per tonne should not be viewed as the sole performance measure across municipalities.** For example it is apparent that, in relation to total waste management expenditure, cost per tonne can provide distorted results in situations where a municipality is incurring extra expenditure on waste minimisation incentives. If such expenditure is effective then per tonne costs may still rise when tonnes disposed decrease even though tip life is extended and site depreciation is decreased. Consequently where the returns for Tasmania from recycled products are sub-economic, it may be necessary to look beyond such a narrow measure of efficiency.

Comparison of the cost efficiency of waste management by municipalities is also affected by the differing levels of services provided by municipalities and extent of compliance with licence conditions.

In relation to the calculation of cost per tonne Audit considers that it would be desirable for municipalities to calculate cost per tonne for each solid waste disposal site. This would help identify (within the municipality) those sites which are costly to operate and may warrant attention.

Audit recommends that municipalities should review cost per tonne for solid waste disposal for individual sites within the municipality and where necessary rationalise the existing sites by considering environmental and cost effective alternatives such as the establishment of waste transfer stations or, where warranted, site closure.

RESPONSE provided by The Secretary, Department of Environment and Land Management

> *The report notes that the total cost for solid waste disposal in Tasmania is approximately $13.82 per tonne which is consistent with a Victorian Parliamentary Natural Resources and Environment Committee (1990) estimate of between $9-15 per tonne. It should be noted however that this figure of $13.82 per tonne is considerably higher than the figure currently used by councils throughout the State in estimating the value of landfill space currently*

available at the respective sites. This will clearly have implications when assessing the viability of waste minimisation and recycling programs.

Audit found the total municipal cost for solid waste management (including collection, transfer, recycling and disposal costs) to be $30.02 per tonne which is consistent with the average mainland costs, based on the Industry Commission (1991) of $37 per tonne.

In examining the Industry Commission Report however with respect to disposal costs per person, figures are given for the Hobart region ($17) and other Tasmania ($15) for costs per person in 1989. The average of other places in Australia is about $25 per person (1989), which compares with $20.45 per person in Tasmania in 1993.

GARBAGE COLLECTION PER HEAD OF POPULATION

Total cost of garbage collection in Tasmania is approximately $4 514 000. The costs per capita range from $4.13 to $19.07 as detailed in Appendix B.

"USER PAYS" PRINCIPLE

Audit has reviewed full cost recovery in line with the "user pays" principle. Under this principle only "users" from whom revenue is being raised contribute towards the costs of services provided to them. Audit considers this principle to be an important issue in relation to cost management of waste disposal on the basis of equity, as it would be inequitable (having regard to principles of materiality) for non-users to be charged for a service they do not receive.

The three main sources of revenue for municipal solid waste management are:-

- the waste management component of consolidated rates. A consolidated rate is charged across all ratepayers within the municipality and usually includes a component to meet the costs associated with the provision of solid waste management services; and/or

- specific garbage rates. These are rates imposed upon a particular locality of ratepayers, usually for the provision of a garbage collection and disposal service; and/or

- charges for admittance to solid waste disposal sites. Some municipalities apply a charge to users of the solid waste disposal site which varies depending upon the volume of waste which the user wishes to dispose.

In relation to specific garbage rates Audit found that twenty-one (21/25, 84%) of the responding municipalities provided a garbage collection service. These municipalities raised garbage rates in the following way:-

Municipal rates	4
Urban garbage rates only	12
Separate urban garbage and rural garbage rates	2
One flat urban garbage/rural garbage rate	3

The raising of garbage rates through a waste management (or garbage) component of Municipal rates is an equitable method by which to raise rates for all ratepayers where no garbage collection service is provided, or alternatively, where the garbage collection service is provided to all ratepayers. All ratepayers would be responsible for paying for the general cleaning up of waste around the municipality, and so it would appear reasonable for a component of Municipal rate to be charged for such a service.

The raising of garbage rates through combinations of urban and rural specific rates is an equitable method of raising revenue. However, whilst urban municipalities raise their garbage collection rates through a Municipal rate component Audit considers that this should not be the case for rural municipalities. Some municipalities with small urban centres fund garbage collection services to urban ratepayers through a component of Municipal rates levied on all ratepayers. Audit is of the opinion that in such circumstances it would appear that rural ratepayers are subsidising the garbage collection service provided to urban ratepayers. On the other hand, the existence and thus cost of maintaining sites used predominantly by non-urban ratepayers at which no tip fees are charged, may compensate to some extent since these costs are shared equally.

Where a garbage collection service is provided a **further refinement of the user pays principle would be to charge ratepayers on a volume or weight basis** a system which is being trailed by municipalities on the mainland, e.g. through the adoption of variable bin or bag sizes.

The charging of admittance fees to solid waste disposal sites is a fair and equitable method by which to assist in funding the operation and rehabilitation of the site. However, as one would expect, these fees are not charged by predominantly rural councils. The admittance fee raises an average of 45% of total site disposal and transfer station expenditure for those councils that do impose such a fee. The major municipalities recovering such charges were:-

Clarence	41%
Hobart	37%
Launceston	77%
Glenorchy (of which 11% relates to acceptance of Brighton's wastes, it also accepts large amounts of industrial waste)	82%

Municipalities were requested to indicate whether or not they charged fees for admittance to their principal solid waste disposal site. Of the responding municipalities two (2/25, 8%) did not operate solid waste disposal sites because they operated transfer stations, eight charged fees (8/25, 32%) and fifteen (15/25, 60%) did not.

The fees charged by municipalities for admittance to solid waste disposal sites are usually related to the volume of waste to be disposed, although the scale of fees varies significantly between municipalities. The following is an example of a scale of fees for selected types of waste:-

Car/Wagon with seat up	$1.50
Ute/Van/Wagon with seat down	$3.00
Tandem axle trailer	$6.00
Small truck	$6.00
Domestic and Trade Refuse	$9.00
Compacted (per cubic metre)	$9.00
Loose (per cubic metre)	$5.00
Motor Vehicle Bodies	$8.00

The next step in sophistication is the imposition of variable charges which would be imposed on different categories of waste, e.g. on entry to a disposal site an assessment is made of what is in a vehicle and a certain rate is applied.

None of the seventeen municipalities with multiple solid waste disposal sites charged fees for admittance to sites other than the principal site. Audit is aware that in some instances ratepayers from a municipality charging site entrance fees will travel to another municipality and use a site that has no entry fees. As a result, ratepayers of one municipality are paying for a service used by the ratepayers of another municipality. Consequently, there is the possibility of an inequitable burden being placed upon ratepayers who fund the operation of waste disposal sites without entrance fees. Furthermore if a fee is charged, those ratepayers who use the tip most often will, equitably, bear the largest proportion of the cost.

Factors which affect the imposition of site charges include the cost of supervision of the site as well as the frequency of usage by the public. The imposition of site charges at smaller, infrequently used sites may be impractical as the cost of supervision may be difficult to recover and may result in people being influenced to illegally dump or burn their waste.

Audit recommends that, to ensure an equitable allocation of the charges for the provision of solid waste management services, municipalities should implement the following:-

- **municipalities with an urban locality receiving a garbage collection service should not be levying a municipal rate upon all ratepayers within the municipality. These municipalities should consider the introduction of a specific garbage collection rate for those receiving such a service; and**

- **municipalities that do not charge entrance fees for solid waste disposal site should, on the basis of equity, consider the introduction of such charges where this is cost effective.**

RESPONSE provided by The Secretary, Department of Environment and Land Management

It is noted that the imposition of site charges at smaller and infrequently used sites may result in illegal dumping of waste. However, it is the experience of both the Department and councils in the State that with appropriate education campaigns that this illegal dumping is minimised and may only occur immediately following introduction of such fees.

DELM advises Councils, when introducing a trip site charge, to link this with limited hours of operation and an education campaign of the pending change.

DELM further believes that the introduction of a specific garbage collection rate should be coupled with a system of volume or weight charges so as to fully articulate the User Pays Principle.

PERFORMANCE MEASURES

Performance indicators can be classified within the following two categories:-

- quantitative performance measures: gauges of performance based upon the measurement of specific attributes and usually involving the generation of

ratios and percentages over a number of reporting periods. Examples of quantitative performance measures are cost per tonne and cost per capita. Municipalities may decide that such measures warrant disclosure in their annual reports; and

- qualitative performance measures: gauges of performance which measure judgemental issues, for example, compliance with the conditions of a licence agreement. Some municipalities may decide that as a measure of performance they will summarise the results of inspections of, or tests on their solid waste disposal sites conducted by their own officers and by the Department of Environment and Land Management for publication in their annual reports.

By identifying performance measures and accumulating relevant data municipalities will place themselves in a position where they can assess the adequacy of their municipal solid waste management practices. Managements will be informed as to the level of compliance by the municipality with externally imposed requirements, financial performance over a number of periods and obtain information for future strategic direction of waste disposal.

Audit requested municipalities to identify indicators used as a measure of performance. The questionnaire provided four examples of the types of measures that could be used as well as providing an option for municipalities to show any other indicators used. The responses provided showed no municipalities used quantitative performance indicators although one response related performance qualitatively to compliance with licence conditions. However evidence obtained in the latter part of the audit indicates that some Municipalities have commenced developing certain measures whilst others undertake performance type analyses on a needs basis.

With the application in Tasmania from 1 July 1993 of a new accounting standard (AAS 27 - "Financial Reporting by Local Governments"), municipalities are required (by paragraph 75) to disclose the nature and probable financial impact of non-compliance with externally imposed requirements (e.g. licence conditions). Furthermore, where performance indicators are included in the financial report the new accounting standard requires that they be understandable, relevant, reliable and comparable.

Audit recommends that municipalities take steps towards the development of appropriate (ie. understandable, relevant, reliable and comparable) performance measures for inclusion in reports to Council and in their published annual reports. This could involve the introduction of weighbridges or require periodic site surveys to determine the volumes being disposed. Audit considers that certain qualitative measures could be developed around licensing conditions, strategic plans and other management or environmental aspects and complaints received.

RESPONSE provided by The Secretary, Department of Environment and Land Management

The Department considers that it is only with a thorough knowledge of the quantity and composition of waste going to landfills that appropriate management regimes can be introduced. As such it is essential that councils move towards formalised measurement of their waste streams either through the establishment of weighbridges at larger sites or through site surveys for some of the smaller sites, coupled with an appropriate waste composition studies.

APPROPRIATE TECHNOLOGY

Appropriate technology that is utilised at solid waste disposal sites will vary depending upon such factors as the size of the site and the type and quantity of waste deposited. Technology which Audit considers appropriate for municipal solid waste management includes the utilisation of equipment for compacting, mulching, rubble crushing, equipment for weighing and measuring their wastes, composting and other energy recovery initiatives such as gas extraction.

EQUIPMENT

Audit requested municipalities to indicate what equipment had been considered for use and ultimately purchased. Replies from the twenty-five responding municipalities are summarised below:-

	Considered		Purchased	
Mulching Equipment	12	(48%)	5	(20%)
Compactors	6	(24%)	2	(8%)
Rubble Crushers	2	(8%)	1	(4%)
Composting Equipment	7	(28%)	2	(8%)
Incineration	3	(12%)	0	(0%)
Wood Chipper	1	(4%)	1	(4%)

It was impractical for Audit to perform a detailed cost analysis on this area, however it was noted during site inspections and discussions that compaction at some sites could be improved through the use of more advanced compaction techniques.

Audit recommends that municipalities review equipment presently used and explore the potential for extending site life through purchase or other use of the most appropriate equipment, including sharing of equipment on a regional basis.

LANDFILL GAS EXTRACTION

Audit requested municipalities to indicate whether or not they had considered the collection and use of gas from solid waste disposal sites. Landfill gas extraction requires certain conditions to exist for recovery to be feasible. The Policy Paper (page 24) states that the conditions suitable for potential landfill gas recovery are:-

- at least one million cubic metres of mixed domestic waste;
- a depth of filling of at least 20 metres; and
- a site which is subjected to relatively high precipitation rates.

Of the responding municipalities nine (9/25, 36%) had considered landfill gas extraction of which four (4/25, 16%) were undecided as to whether to proceed to the testing stage or not, one (Glenorchy, 1/25, 4%) had made the decision to proceed, two (Hobart and Launceston, 2/25, 8%) had begun site testing and (West Tamar, 1/25, 4%) had found its site to be unsuitable, whilst Devonport had recently commenced trials.

Site tests currently being undertaken at Hobart and Launceston have produced positive preliminary results. Testing at Hobart is producing 600 cubic metres of gas per hour comprising approximately 55% methane and 45% carbon dioxide and oxygen. It appears that significant revenue will be generated through royalties from the sale of the gas to commercial users thus improving the efficiency and effectiveness of waste disposal processes.

Audit commends the municipalities of Glenorchy, Hobart and Launceston and more recently Devonport, for the initiatives they have taken towards landfill gas collection.

The Position Paper (page 24) proposes a policy whereby all sites serving a minimum of 10 000 people which exhibit the characteristics outlined above should be investigated for potential gas recovery.

Audit supports the policy proposed in the Position Paper and recommends that municipalities adopt (as policy) the proposal to extract the landfill gas where this is cost effective.

PART 2 - ENVIRONMENTAL ASPECTS

Audit examined environmental aspects relating to municipal solid waste disposal sites. The focus of the review was the mechanisms which are in place in order to minimise the impact of solid waste disposal sites upon the environment.

The environmental impact of a solid waste disposal sites relates to the extent of contamination of surrounding land, groundwater, surface water and atmosphere and the resultant effect upon surrounding land users, flora, fauna and the general public.

The major mechanism by which the environmental impact of solid waste disposal sites is minimised is through the imposition of licence conditions which must be complied with by municipalities and which are monitored by the Department. These licence conditions prohibit certain activities which would environmentally affect the site and stipulate the measures required to lessen the environmental impact.

Due to the significant role that the Department performs in relation to the environmental aspects of municipal solid waste management certain areas of their operations have been included within the scope of this review.

THE ROLE OF THE DEPARTMENT OF ENVIRONMENT AND LAND MANAGEMENT

The Department is responsible for administering the Environment Protection Act 1973. The Department's responsibilities include the issuing and monitoring of licences and registrations for municipal solid waste disposal sites and waste transfer stations in accordance with the requirements of the Environment Protection Act 1973. For further details of the Department's legislative responsibilities and powers refer to the section "Environment Protection Act 1973" earlier in this report.

THE ROLE OF MUNICIPALITIES

Municipalities are required by the Local Government Act 1962 to provide for the removal and disposal of household refuse and other rubbish within their districts. In order to satisfy this obligation the Act empowers municipalities to acquire land for use as solid waste disposal sites. Furthermore they are required to ensure that sites are appropriately licensed. For further details of the legislative responsibilities and powers of municipalities refer to the section "Local Government Act 1962" earlier in this report.

SITE ESTABLISHMENT - LEGISLATIVE OVERLAP

As stated earlier, prior to establishing a solid waste disposal site, municipalities (in addition to an appropriate planning approval), require approval or consultation from the following:-

- the Department's Director of Environmental Control under the Environment Protection Act 1973;
- the Minister for Local Government (on recommendation of the Minister for Health)under the Local Government Act 1962; and
- Consultation must occur with the Director of Mines under the Groundwater Act 1985.

Audit considers that the number of approvals required could be lessened without any detrimental environmental effects. The present process of approvals appears to involve a large degree of legislative overlap. Appendix F summarises the tasks required in approving new sites.

Audit is aware that, in the past, a draft Cabinet submission had been prepared with the intention of streamlining the approval process through the deletion from the Local Government Act 1962 of the requirement for the approval of the Minister for Local Government and the inclusion in the Environment Protection Act 1973 of a requirement for consultation with the Minister for Health. It would appear that no action has yet been taken towards implementing the recommendations made within the submission.

Audit recommends a review be undertaken aimed at rationalising the present legislative approval process (ideally under one Act) for the establishment, maintenance and rehabilitation of solid waste disposal sites and future monitoring and control of disused sites.

LICENCES

Depending upon its environmental impact a site may either be registered or licensed. Where sites are licensed, municipalities are required to comply with all conditions applied to that licence. The following extract from a Departmental letter issued with the licence to operate a solid waste disposal site clearly informs the municipality of its responsibilities:-

> "Please note that you are legally required to comply with the conditions attached to the licence. Non-compliance with licence conditions is an offence under Section 49 of the Environment Protection Act. You should also note that the Minister for Environment and Planning has the power, under Section 32 of the Act, to revoke a licence if he is sufficiently satisfied that pollution from the site is sufficiently hazardous or detrimental."
>
> (Department Files)

Failure to comply with the conditions of a licence exposes the municipality to a fine not exceeding 500 penalty units ($50 000) and a daily fine not exceeding 100 penalty units ($10 000) for each day that the offence continues (Environment Protection Act 1973, Section 49).

Licence conditions are usually grouped in the following way:-

1. General Conditions

   Conditions relating to the general operation of the site including such requirements as not to alter the operations of the site in such a way as to increase the emission of a pollutant or noise from the site and the setting of tip operating hours.

2. Hazardous Wastes Conditions

   Conditions directing that, with minor exceptions, hazardous wastes are not to be deposited at the site without the approval of the Director of Environmental Control.

3. Air Pollution Conditions

Conditions that reduce the possibility of air pollution such as the provision of fire fighting equipment and the regular covering of waste.

4. Water Pollution Conditions

Conditions that reduce the possibility of water pollution such as the collection and containment of all leachate and the diversion of stormwater.

5. Monitoring Conditions

Conditions that require the regular monitoring of the solid waste disposal site to detect instances of contamination.

6. Rehabilitation Conditions

Conditions that require the rehabilitation of the waste disposal site. Conditions are usually for the progressive rehabilitation of the site.

7. Recycling conditions

Conditions require the provision of facilities for the collection and removal of recycling materials.

More recently, the Department has required the preparation of Development Proposals and Environmental Management Plans as a part of the licensing process for new sites. The Development Proposal includes a description of the site and details of the proposed development including the type and quantity of waste to be to be deposited and a description of the method of operating the site. The Environmental Management Plan describes how the waste disposal site will be developed and operated in order to minimise the environmental impact of the site. By incorporating the prescriptions set out in the Development Proposal and Environmental Management Plan, the Department has made the licences more comprehensive. In addition, the Department has required the operators of existing larger sites to prepare Environmental Management Plans for their operations.

The Position Paper (page 2) commented that licence conditions for many sites had not been reviewed since being issued in the early 1970's and that since 1989 review and amendment to the conditions had taken place to reflect current and expected management practices. Audit testing confirmed that the Department is continuously reviewing solid waste disposal site licences and, where necessary, consulting with Councils to update the conditions. In some instances this has involved public consultation under Section 29 of the Act.

COMPLIANCE WITH LICENCE CONDITIONS AND BEST AND WORST SITES INSPECTED

Testing to assess municipal compliance with licence conditions involved site inspections by Audit officers and an examination of the Department's files.

Inspections of solid waste disposal sites were primarily undertaken in the familiarisation stage of the review. The overall aim of these inspections was to enable Audit to establish concepts of "worst case" and "best case" scenarios for solid waste disposal sites.

BEST SITE

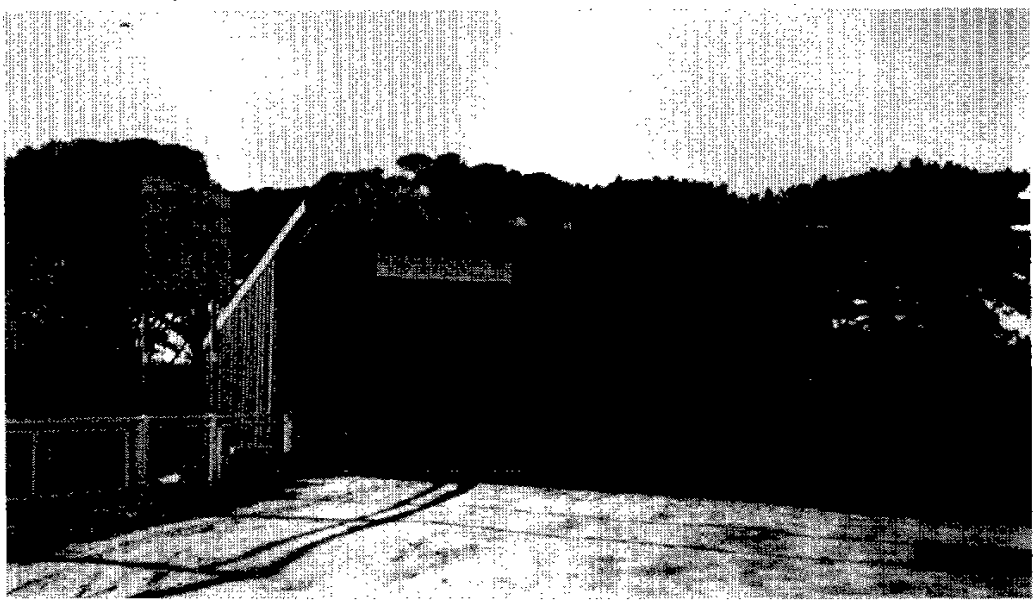
The most recently established solid waste disposal site inspected by Audit was situated at Port Latta and operated by the Municipality of Circular Head. This site was opened in December 1991 and was established to service the municipalities of Circular Head and Wynyard (now Waratah-Wynyard).

Port Latta site leachate settling ponds which also provide a source of water in case of a fire on the site.

This site possesses the following desirable characteristics:-

- access to the site was prohibited (transfer stations are provided for public use). Only licensed contractors were able to deposit waste at the site;
- contractors depositing waste at the site were charged on a user pays basis;
- good management practices, in accordance with licence conditions;
- weighbridge operation to measure weight of wastes deposited;
- collection of leachate and total containment on the site to prevent contamination;
- provision of a compacted clay liner to prevent leaching from the site;
- computerised card entry system to log details of access to the site;
- the provision of fire prevention and fire fighting equipment;
- the site has been designed with an expected useful life of approximately sixty years based on current waste quantities;
- site inspection did not detect odours, insects or vermin present at the site;
- it operates as a regional waste disposal site; and
- remote location, reducing the impact of the site upon surrounding landowners.

This site represented the most complete site with regard to location, design and operation, although on the day of inspection audit observed some medical waste which was not buried completely.



Waste Transfer Station at Stanley within the Municipality of Circular Head

WORST SITE

Audit inspection of the site operated at Southbridge by the former Municipality of Huon (now in the Municipality of Huon Valley) revealed a poorly managed and badly situated solid waste disposal site. The site possessed the following undesirable characteristics:-

- unrestricted public access was provided to an unsupervised site;
- no leachate collection and management system was operated;
- the site was situated on the banks of the Huon River;
- unlimited opening hours;
- a history of management problems;
- apparent lack of regular covering of waste;
- site appeared to have exceeded its useful life with waste being gradually built up over the site; and
- inspection by audit noted substantial odour, significant presence of flies and other insects as well as vermin (rats) and feral cats.

Documentation obtained by Audit noted that in 1990 the site was almost fully utilised and that, because of likely pollution of the Huon River by leachate, it had been under threat of closure by the Department. Correspondence from the Department to the Municipality, bringing attention to poor management practices including not covering waste, pooling of surface waters and numerous fires had not resulted in improved site management. As previously stated this Municipality was also one of the few that failed to respond to the full questionnaire in time for inclusion in the report.

Recent inspection of Southbridge site Huonville on banks of the Huon River

The former Huon Municipality had been seeking a replacement site for more than eight years but has so far been unsuccessful in locating a site which satisfies all the necessary approval criteria. This inability to locate a suitable alternative site has prevented the Department from exercising its power to close the site. Closure of the site without the provision of an alternative would create more potential for environmental problems through the likelihood of significant illegal dumping occurring although Audit notes that these are other sites within relatively close proximity. Audit also found that since the initial site inspection in January 1993 and the formation of the new Municipality, solid waste management was identified as a priority issue needing to be addressed as soon as possible (Municipal Minutes 10 May 1993).

RESPONSE provided by the General Manager, Municipality of Huon Valley

The Huon Valley Council as you are aware only came into being on 2 April 1993. As a priority it has addressed Municipal Solid Waste Management.

A remedial plan for Southbridge is currently with the Department of Environment seeking endorsement. There is not unrestricted access to the site and it does not have unlimited opening hours. A current inspection will reveal that the management of the tip is in control, and, whilst the situation is not ideal it is far better than it has been prior to amalgamation.

The Huon Valley Council has also addressed the problem of a Regional Tip site and is currently, through its Engineers Gutteridge Haskins and Davey carrying out test hole drilling to determine the viability of the site.

OTHER SITES INSPECTED

All other solid waste disposal sites inspected by Audit, when considered on the basis of responsible management and location of site ranged between the two extremes referred to earlier. During a number of the site inspections and other operational reviews, instances of the following were noted:-

- the potential threat from what appeared to be asbestos sheets (commonly known as fibro sheeting) lying exposed at the site;
- the use of saw dust as a cover material which posed a potential fire hazard;
- the use of other dubious materials as cover (e.g. by-products from paper production which could be combustible and may have been treated with chemicals);
- evidence of the recent lighting of fires on the sites;
- exposed containers of pesticides and poisons;
- the siting of solid waste disposal sites in very close proximity to rivers (and in one instance on swampy ground). These were older sites established under outdated environmental guidelines which would not meet current environmental standards;
- an instance of high levels of contaminants from leachate tests at one site which is initiating action required to contain the contaminants within the site;

- second hand selling facilities situated very close to the tip face. Ideally these facilities should be situated outside immediate tip area;
- lack of regular covering;
- lack of comprehensive recycling facilities;
- unrestricted access; and
- unsupervised sites.

INSPECTIONS BY THE DEPARTMENT OF ENVIRONMENT AND LAND MANAGEMENT

A review of the Department's inspection reports shows that during 1992-93 the Department had two to three staff regularly involved in undertaking the inspection of solid waste disposal sites with other staff members also participating on an irregular basis.

Resources currently applied to the inspection process have improved significantly since 1991. Present indications are that this situation may not continue due to the necessity for resources to be applied to other areas such as assisting municipalities in developing appropriate management plans.

RESPONSE provided by The Secretary, Department of Environment and Land Management

> *It is noted in the report that resources allocated to inspection of sites within the Department may alter in the future. This will occur as a part of the implementation of the solid waste policy including the development of a more strategic approach to solid waste management in the State. Departmental officers will become more involved in assisting councils to develop strategic waste management plans for their municipality.*

FREQUENCY AND DOCUMENTATION OF INSPECTION PROCEDURES

Files maintained by the Department disclosed that all licensed sites were inspected at least once during a twelve month period within 1992 and 1993 (average regularity was approximately once every seven months). Sites with a history of management problems received between four and six inspections during 1992 and 1993. The Department aims to inspect all licensed sites at least annually. Registered sites, those with a low environmental risk, are not licensed but are subject to spot checking on an irregular basis.

Audit found that inspections were a combination of random visits and those generated through public complaints. There did not appear to be any formal coordination of the timing and location of inspections.

The structure of Department inspection files included pro-forma inspection sheets and management letters as well as other correspondence relating to complaints. Audit observed that in some instances the findings by the inspection officer were not fully supported by the information on the inspection sheet and that the files bore no evidence of review. Audit considers that, to ensure quality control, files should be reviewed by a senior officer after the completion of an inspection report and prior to the issuing of a letter to the municipality.

Following discussions with senior staff of the Department it has been resolved that the Department will review the inspections process giving consideration to the introduction of

a coordinated approach to the timing and location of site inspections and documented review of inspection.

RESULTS OF INSPECTIONS

Audit review of fifty-nine inspection reports prepared by officers of the Department during 1992 and 1993 revealed that only seventeen inspection reports did not identify some form of deficiency in relation to the solid waste disposal site. The forty-two inspections in which deficiencies had been identified represented varying degrees of non-compliance with licence conditions. In a number of cases problems had persisted despite extended correspondence from the Department. For example, it was noted in Departmental files that a certain municipality had "... not acted in a responsible manner in addressing ... issues which are 17 years old".

Those sites with continuing problems have been identified by the Department in a schedule of forty-five problem sites published in the 1992 Position Paper. The following is a summary of the percentages of these forty-five sites where problems relating to site management exist (refer Appendix C for the full extract):-

Characteristics	**Ratio**
History of fires	67%
Likely surface water contamination	60%
Management problems	53%
Probable groundwater contamination	35%

(Position Paper, 1992, page 33)

The Position Paper (page 29) states that problems at the above sites will be addressed either through improved management, conversion to a waste transfer station, or by relocation, closure or reassessment by supportive documentation showing that each criteria is not applicable. **Audit observed that some improvements had, in fact, taken place during 1992-93.**

In relation to the issue of "history of fires", Audit enquiries to the Tasmanian Fire Service and the Forestry Commission confirmed instances of fire activity at solid waste disposal sites across the state. Information was also obtained confirming that in the last 20 years fines on municipal sites had caused a number of bush fires throughout the State. **Legislative requirements and licence conditions prohibit the practice of "burning off" which appears to be a long-standing method employed by some municipalities to extend the life of disposal areas and so reduce costs**. The following photo was obtained as evidence of fires burning at the Swansea solid waste disposal site:-

Fire at Swansea Disposal site 19 August 1992 - Source Department of Environment and Land Management Inspection File

Although many of the site deficiencies recorded by the Department's inspectors were relatively minor in nature (e.g. inadequate signs), other deficiencies were more significant (e.g. exposed medical waste, surface water infiltration into refuse, leachate draining into creeks and fires burning at the time of inspection).

During the review of Departmental files it was noted by Audit that inspecting officers had identified serious and continuing breaches of licence conditions by certain municipalities. Subsequent correspondence outlining the breaches had, in a number of instances, not resulted in corrective action being taken by the municipality. Despite repeated correspondence and regular inspections some municipalities had continued not to act in accordance with the licence conditions and the directives of the Department. The Position Paper (page 2) states that problems at disposal sites continue to arise and often result from poor site location, inadequate management and fires. In a recent letter to a municipality the following strong comments were made by the Department in relation to the Port Cygnet refuse disposal site:-

> "... I cannot stress the importance of burying such waste [medical waste and empty sachets of insecticide] within the tip site in virgin ground, preferably clay, immediately upon receipt. Blatant disregard for licence conditions and the health of the public have been displayed by recent actions."

Compliance with licence conditions is required by the Environment Protection Act 1973. Conviction of a breach of licence conditions will expose a municipality to a fine not exceeding $50 000 for the initial offence and a daily fine not exceeding $10 000 for each day that the offence continues. Audit review of prosecutions initiated by the Department revealed that there had been no successful prosecutions against any municipality for a breach of licence conditions for a solid waste disposal site. One action was commenced but was not proceeded with on the advice of the Director of Public Prosecutions.

The reasons provided by the Department for the lack of successful prosecutions were the high cost of legal action and the specialised nature of environmental law. Audit acknowledges that prosecution is expensive, however it would be expected that successful legal action would result in increased levels of compliance by municipalities with their licence conditions.

Audit recommends that:-

In relation to municipalities:-

- **all municipalities should review their practices and procedures to ensure that their solid waste disposal sites are being operated in accordance with licence conditions.**

In relation to the Department:-

- **instances of non-compliance with licence conditions should be classified by the Department into critical breaches (e.g. leachate contamination of rivers or dams) and non-critical breaches (e.g. lack of appropriate signs for the location of garden waste);**

- **the Department should, as a priority, take steps to prosecute municipalities that do not take corrective action in relation to critical breaches of licence conditions; and**

- **municipalities committing critical and <u>continuing</u> non-critical breaches should be identified in the Department's Annual Report.**

In relation to the new environmental legislation being developed:-

- **further to comments made earlier, consideration should be given to the implications of the existence of the power to delegate to municipalities certain responsibilities in relation to the assessment of applications and the enforcement of permit conditions which were previously the domain of the Department. There would appear to be a conflict of interest in situations where municipalities are required to assess proposals and enforce conditions in relation to their own activities. Audit considers that a Central Agency should continue to have a monitoring role.**

RESPONSE provided by The Secretary, Department of Environmental Land Management

Audit has made four recommendations in relation to the Department and these have been addressed in turn below.

1. *DELM does classify between critical and non critical breaches of licence conditions and this is done by the inspecting officer at their discretion. As identified by Audit however,*

such a classification of breaches is not apparently identifiable from examinations of Departmental files. Consequently, the Department is reviewing its site inspection sheet format with the view to include this aspect.

2. *The Department has a wide ranging and diverse function in administering its charter of environmental protection. The current 1973 Act is based on a system of licences, with the onus of proof of pollution resting with the regulatory authority as was the case in the early seventies in the USA and other Australian States. It is likely that with the enactment of new environmental management legislation this command and control approach will be surpassed by a more collaborative approach with a wider range of environmental management tools.*

   To complete a successful prosecution requires an enormous amount of time and resources by the Department and with limited resources available, such an approach has to be carefully considered. Nevertheless, the Department has, as mentioned by Audit, commenced proceedings against two Councils although these were not proceeded with by the Director of Public Prosecutions because of technical problems which have since been corrected. There are also numerous examples of prosecution warning letters being forwarded to councils resulting in immediate corrective action.

   Prosecution has been viewed by DELM as a last resort following a more consultative aproach which has included the opportunity for progressive improvement in management practices over specific timeframes.

   A further cause for DELM not appearing to pursue prosecutions for breaches of licence conditions has been that, due to a severe lack of resources over the years, many of the licence conditions have remained outdated. This situation has altered over the last few years with a program to update and review all licence conditions.

   Many other prosecutions attempted by DELM have been dismissed by Magistrates because of legal technicalities. This with the lack of resources has exacerbated attempts to achieve successful prosecutions.

   Given these problems and the likely changes in approach from command and control to a broader more flexible collaborative approach, DELM is not of the view that, as a priority, putting its limited resources to prosecuting municipalities is the best strategy to follow.

3. *Identification of non critical breaches in the Department's Annual Report is a recmmendation that concurs with the new approach to environmental management and recognises that current enforcement mechanisms are limited. DELM will give consideration to adopting such a practice.*

4. *It is correct to suggest that consideration is being given to delegating to municipalities certain environmental management responsibilities. It has not yet been determined if responsibility for facilities which are currently owned and operated by municipalities will be delegated to them. DELM needs to liaise closely with local government in the first instance on functions and resources. Nevertheless, any delegation will be coupled with auditing powers of DELM. It is noted that future responsibility for solid waste management matters are likely to be one of the matters subject to review by the Tasmanian Roles and Function Review Committee in the course of its activities. If any potential conflicts of interest exist, DELM will not pursue such delegation.*

LIABILITY FOR REMEDIATION OF CONTAMINATED SITES

The Australian and New Zealand Environment and Conservation Council (ANZECC) has recently prepared a discussion paper entitled "Financial Liability for Contaminated Site Remediation". Among the issues discussed is the mitigation of or exemption from liability for a landowner responsible for contaminating a site, in particular the potential for government liability in certain circumstances:-

> "An important question is whether parties who comply with the laws of the day should be penalised at a later date for activities which subsequent changes in the law, or in the standards upon which the law is based, have rendered illegal or otherwise liable. This may be particularly relevant where a government authority has directed an activity or granted a licence or permit for the activities causing contamination, as government approval for the activity may be clearly implied.
>
> It is a possibility, at least in some cases of 'lawful polluting', that financial liability for remediation should, in whole or in part, shift to such a responsible authority ..."
>
> *(page 23)*

Furthermore, there is some concern as to who is liable when site contamination has resulted from an activity conforming to past environmental standards. When discussing this issue the following comments were made:-

> "It has also been proposed that government authorities at any level should be liable for the adverse consequences of decisions they make in regard to contaminated sites, where they owe a duty of care to the community or others affected by such decisions. These decisions may include the setting of environmental standards, the issue of a compliance certificate, the removal of a site from a register and the licensing of particular polluting activities. Liability in such circumstances would appear to accord with normal common law principles of liability for negligence."
>
> *(page 31)*

It is unclear from the paper whether the "liability" is supposed to be moral or strictly legal. In either case the paper identifies two areas in which the Department may be exposed to financial risk, in whole or in part from claims for:-

- remediation of contaminated sites where previously lawful (ie. approved by the Department) contaminating activities have been rendered illegal through changes to legislation or standards; and

- negligence where damage has been incurred which is attributable to a decision or function of government. To be liable, the government authority responsible for the decision or function must have owed a duty of care to the party suffering damage and must have failed in the performance of that duty.

Audit recommends that the Department assess the implications of the matters raised in the discussion paper "Financial Liability for Contaminated Site Remediation" in regard to solid waste disposal sites and other <u>departmental activities where exemptions are provided</u> (e.g. sewage and industrial exemptions) and, if necessary, take appropriate action to minimise its exposure to the types of risks identified.

RESPONSE provided by The Secretary, Department of Environment and Land Management

The Department has established a contaminated Site Task Force which is currently reviewing the Departmental discussion paper on contaminated sites and the national paper on financial liability. Following this review the task force will make recommendations as to

the legislative regime that should be introduced into Tasmania including the important issue of liability.

RATIONALISATION OF SITES

According to the Position Paper there were approximately one hundred and fifty municipal waste disposal sites operating in the State in 1990. Information obtained from the Department shows that current site numbers are approximately one hundred and thirty but, according to the targets set by the Department in its Position Paper further site rationalisation is necessary, with particular emphasis on a regional approach to solid waste management.

A regional approach would include the establishment of waste transfer stations, regional waste management centres and major disposal facilities (see glossary). The expected benefits from the establishment of these facilities would include:-

- recycling facilities established at all sites to enable the maximum amount of recyclable materials to be removed prior to disposal;
- staffing of the disposal sites to prevent the risks of environmental contamination from the disposal of hazardous materials at inadequate sites or by inappropriate methods;
- operation of the site in such a way as to fully comply with the requirements of licence conditions and so minimise the potential risk of environmental contamination; and
- charging of fees on a user pays basis to act as a deterrent to excessive waste and to recover the full costs of establishing and operating the site.

As part of this review Audit asked municipalities to indicate whether or not they had undertaken any reviews of the number of solid waste disposal sites operated by them. In the last two years, nine responding municipalities (9/25, 36%) had undertaken a review of the number of waste disposal sites being operated. Of those municipalities that had undertaken reviews, two municipalities had the results of the review under consideration, five had accepted the findings of the review and were implementing the recommendations and two had fully implemented the recommendations made.

It is considered that all municipalities should review the potential for rationalisation of waste disposal sites within their precinct. Such a review would include the potential for the conversion of solid waste disposal sites to waste transfer stations as well as the complete closure of particular sites.

Furthermore, Audit fully supports the Position Paper instruction that Regional Waste Management Plans be developed by municipalities. The issues to be addressed by such plans include:-

- a waste minimisation and resource recovery program;
- a replacement schedule for all existing sites;
- an evaluation of the suitability for deposition of municipal waste of existing landfill sites;

- a schedule showing a proposed sequence for the filling of available landfill sites over the long term; and

- a list of all equipment and facilities which are or will be necessary for the protection of groundwater and surface waters and to control off-site effects.

(Source: Position Paper, pages 34,41)

Audit recommends that all municipalities should regularly review the potential for rationalisation of solid waste disposal sites within their precincts and with other regional municipalities.

RESPONSE provided by The Secretary, Department of Environment and Land Management

As noted above the Department is about to implement a program of municipal waste management plans. These plans will cover both solid and liquid waste management within a municipality and will provide a 5 year program covering all aspects of waste management within that municipality or where appropriate within the region. The plan will have both Department's and Council's endorsement and will provide a publicly available program of works and management for all waste management facilities including refuse disposal sites and sewage treatment plants. Plans will provide a clear program for the council to undertake over a specified timeframe.

HAZARDOUS WASTE

Hazardous waste is defined by the Position Paper (page 11) as any waste whose nature and/or quality poses an unacceptable risk to public health or the environment unless the material is appropriately handled (page 15 provides examples of domestic hazardous waste and page 53 provides examples of commercial hazardous waste).

Hazardous wastes such as asbestos and contaminated medical waste should only be deposited at a solid waste disposal site with the approval of the Department's Director of Environmental Control. This approval is either sought by the municipality or provided in the licence conditions. The municipality is required to bury the waste in a predetermined area within the site away from normal domestic waste. The burying of the waste in such a designated area enables the exact location of the waste to be plotted for future reference. The hazardous waste is required to be buried immediately to minimise the risk of the waste causing contamination.

Some municipalities are prohibited by their licence from disposing of hazardous wastes, whereas others are only permitted to accept these types of waste generated from within their municipality. Due to the assortment of items included in domestic waste the dumping of hazardous waste from domestic sources is very difficult to monitor and virtually impossible to control. This fact is acknowledged by the Position Paper (page 11) which includes in its definition of municipal waste, household generated hazardous wastes. Furthermore, press reports from time to time cite examples of hazardous wastes, including medical wastes, being disposed of inappropriately (accidentally or otherwise). **The key objective is to minimise the impact of such wastes upon the environment within a total waste disposal strategy**.

Audit review of hazardous waste focused upon the procedures employed by municipalities in the operation of their waste disposal sites. Municipalities were asked to provide separate responses relating to their principal solid waste disposal site (ie. the municipality's major site) and their other solid waste disposal sites (ie. usually small country sites).

Principal solid waste disposal sites generally appeared to be operated in such a way that the environmental risks posed by hazardous wastes were **minimised** through a series of management practices, which include observations by staff located at entry points and inspections by supervisors prior to coverage of waste.

Other solid waste disposal sites (ie. sites other than the principal site) are operated by fourteen municipalities. Indications are that these smaller sites appear to present a larger potential risk to the environment from hazardous waste than controlled and supervised principal solid waste disposal sites. It would appear that some sites pose potential threats to ground and surface waters from the uncontrolled dumping of hazardous wastes. The following table shows the number of responding councils with other (smaller) solid waste disposal sites that possess the following facilities:-

Signs re hazardous waste	9 (9/14), 64%
Security fences	1 (1/14) 7%
Lockable gates	1 (1/14) 7%
Supervised dumping	0 (0/14) 0%
Manned gates	0 (0/14) 0%
Restricted access hours	0 (0/14) 0%

Audit considers that to minimise the potential risks posed by the uncontrolled dumping of wastes (in particular hazardous wastes) all of the above facilities should be implemented at other waste disposal sites. It is acknowledged that the costs involved in site manning at gates and for supervision of dumping is prohibitive, although it would appear that the costs involved in establishing the other facilities listed above would not be so large.

It would be expected that a small number of larger sites would enable better control of waste dumping and collection of recyclables. Audit considers that, as a compromise, a small site that is open only during business hours but with regular spot checks, would lessen the potential environmental impact of an uncontrolled site with unrestricted opening hours.

Whilst it is acknowledged that cost is a major factor, due to the potential that exists for environmental contamination at uncontrolled sites it is recommended that municipalities should reconsider the necessity for solid waste disposal sites which cannot be properly manned and supervised to remain operating. This should be undertaken in conjunction with a review of the necessity for the number of sites operated by the municipality and the potential for conversion of certain sites to waste transfer stations.

Currently in Tasmania there are no specifically designated sites solely for the storage and disposal of hazardous wastes, nor are there any facilities for high temperature incineration of certain hazardous (including medical wastes). In 1988 a committee was formed to examine and recommend on this issue. A report was produced but no action has yet been taken, although Audit was informed recently that aspects of the proposal are starting to be re-examined.

When examining this issue it was found that a draft discussion paper on Tasmanian Hazardous Waste Strategy was prepared and released in March 1993 by a Sub-committee of the Waste Management Advisory Committee. The document integrates prior reviews and many new national initiatives and sets a number of targets for the storage, handling, treatment and disposal of various categories of hazardous wastes.

Audit considered that a Statewide policy should be developed for hazardous waste storage and disposal addressing such issues as incineration, site dedication and current technology.

RESPONSE provided by The Secretary, Department of Environment and Land Management

> *DELM has commenced a program of defining precisely the types and quantities of priority hazardous wastes with a view of streaming these wastes to appropriate disposal facilities including secure landfills. Waste minimisation, recycling and stabilisation will form an integral part of the hazardous waste management program.*

HAZARDOUS WASTE CONTRACTORS

The Environment Protection Act 1973 requires that where contractors are removing and transporting hazardous waste for fee or reward they are to be licensed by the Department. **Those industries that operate vehicles to transport their own hazardous waste are not required to be registered under the Act.**

At the current time there are approximately 45 contractors licensed by the Department to collect and remove waste. They operate approximately one hundred and twenty vehicles.

The types of waste collected by these contractors, a proportion of which is ultimately deposited in municipal solid waste disposal sites, include:-

- Septic tank wastes;
- Fish processing wastes;
- Putrescible animal wastes;
- Used oil;
- Medical wastes;
- Acids;
- Alkalis;
- Asbestos;
- Organic solvents;
- Reactive chemicals; and
- Pesticides.

(Source: Department of Environment and Land Management 1991-92 Annual Report, page 104)

Licensed hazardous waste contractors are required by the terms of their licence to forward a Return every three months to the Department providing the following details:-

- the producer or storer of the waste;
- the exact nature of the waste;
- the quantity of the waste;
- the disposal site used; and
- the dates of collection and disposal.

The information contained in the Returns forms the basis of a record of hazardous wastes collected by the contractors and the method by which they are disposed. Incomplete and inaccurate data will severely restrict the usefulness of such records.

In the Department's 1991-92 Annual Report (page 59) it was stated that, despite forceful reminders, during 1991-92 only 56% of hazardous waste contractors submitted Returns in accordance with the conditions of their licences. Furthermore, of those contractors that did submit Returns, not all forwarded four quarterly Returns.

As at 30 July 1993 the non-compliance was similar with only 57% of hazardous waste contractors having submitted Returns in accordance with the conditions of their licences. Of the 43% outstanding, 15% were one quarter in arrears, 12% were two quarters in arrears, 10% were three quarters in arrears and 6% had not submitted returns for four quarters.

Audit reviewed the procedures undertaken by the Department to verify the accuracy of the information contained in the Returns. The Department did not carry out spot check inspections of contractor's records to ensure that the details included in the Returns are correct. The reason for this is that current licence conditions do not include the right for the Department to inspect contractor's records. The Department has now addressed this issue.

Audit found that the Department had not taken any action towards the revocation of any licences nor the prosecution of contractors for non-compliance with conditions in relation to completing quarterly Returns.

The information obtained by the Department from the Returns is not a complete record of all hazardous waste disposed within the State due to the non-requirement for industries with their own vehicles to be licensed and so there is no requirement to complete Returns.

Furthermore under current arrangements certain operators who fail to register are difficult to detect.

Audit considers that all Returns should be completed and forwarded to the Department in conformity with the licence conditions and to assist in more accurately identifying the sources, methods and locations of disposal and levels of hazardous wastes and recommends that the Department should:-

- **strongly pursue the collection of outstanding Returns and, if necessary, revoke or suspend the licences issued to contractors with outstanding Returns; and**

- **consider the necessity for all carriers of hazardous waste to be licensed and so enable a more comprehensive record to be maintained of the amount of hazardous waste disposed in Tasmania. This would also assist in detecting unlicensed carriers who under current arrangements are difficult to detect without assistance and liaison with Municipalities.**

RESPONSE provided by The Secretary, Department of Environment and Land Management

The Department endorses the recommendations of Audit in relation to waste transport operators and is currently reviewing the issue of outstanding returns from waste contractors with a view to implementing a prosecution procedure for all those that fail to submit these returns. In addition, the Department is working towards the implementation of a national waste manifest system to replace the existing procedures which will be more comprehensive and will include all transporters of hazardous waste.

CONTAMINATED SITES REGISTER

Tasmania does not at the present time have a register of contaminated sites. On reviewing this aspect of site management it was found that Victoria and Queensland have already established such site registers. Western Australia, the ACT, NSW and Tasmania are currently involved in examining the need for a register and its potential relationship to existing or revised legislation and property law regimes.

Past and existing municipal and other refuse disposal areas are categorised as contaminated sites. Consequently their future use is or should be restricted, depending on the levels of contamination and any remedial work that may have been undertaken.

Other forms of site contamination can result from either a single incident such as an oil spill or more commonly from the accumulation of hazardous substances often over many years and frequently as a result of poor practices of a specific industrial operation.

The Department issued in August 1992 a comprehensive discussion paper entitled "Contaminated Sites - Their Identification, Assessment, Management and Remediation in Tasmania", and page 7 of the Report assesses the likely position in this State to be:

> "In Tasmania the number of potentially contaminated sites is unknown. However, the following figures give some indication of the scope of the problem:
>
> - The number of refuse disposal sites that have been scheduled under the Environment Protection Act, 1973 is at least 220. All of these sites require restrictions to be placed on their future use.
>
> - The number of sites that host at least one tank (above or below ground) which contains either petrol, distillate or aviation fuel in Tasmania is approximately 1600. The majority of these sites are petrol stations. It is relevant to note that in a 1991 survey in Perth (WA) the percentage of petrol stations which had underground petrol/diesel tanks that were found to leak was approximately 20% (Barber et al, 1991). A similar survey in the USA found that 25-30% of underground tanks leaked (Barber, 1991).
>
> Using these figures as a guide, in conjunction with the numerous types of other activities that can, potentially, contaminate a site, the total number of potentially contaminated sites in Tasmania (i.e. suspected but not confirmed to be contaminated) is in the order of **thousands**".

This comprehensive Discussion Paper outlines amongst many issues why control of such sites is necessary. It is apparent to Audit that there would be pressures for certain landowners not to proceed with the registration process as this may have the effect of reducing land values.

The review disclosed that a register has not yet been commenced in Tasmania although recording of such information in relation to Crown owned properties is being contemplated in the current development of a comprehensive Crown land and property management system (CREST). Furthermore information on contaminated sites is being progressively collated on a file for future usage.

Audit recommends that in the public interest (including safety) a Registration System of Contaminated Sites, accessible to relevant interested parties, be developed to national guidelines as soon as possible. This could involve the Lands Titles, Municipal property recording or some other systems or a combination thereof.

RESPONSE provided by The Secretary, Department of Environment and Land Management

The Contaminated Site Task Force mentioned above is currently reviewing the contaminated site issue in Tasmania and this includes a consideration of a publicly available register of contaminated sites.

PART 3 - MINIMISATION OF WASTE DEPOSITED IN SOLID WASTE DISPOSAL SITES

Audit reviewed the mechanisms employed by municipalities to reduce the amount of waste being deposited into municipal solid waste disposal sites. The principal method used is to recycle items that would previously have been treated as waste and deposited into landfills.

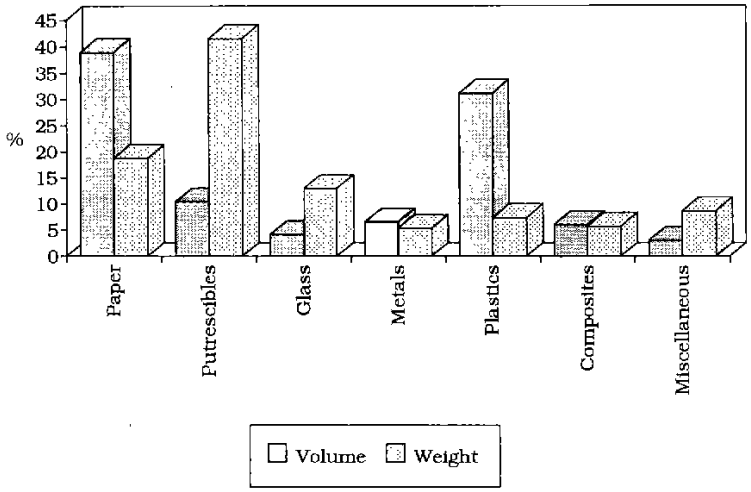
AUSTRALIAN AND NEW ZEALAND ENVIRONMENT AND CONSERVATION COUNCIL TARGETS

The Position Paper (page 20) states that the Government proposes to adopt the national targets set by the Australian and New Zealand Environment and Conservation Council (ANZECC) for the reduction of domestic waste going to landfill. These targets, calculated by weight per capita and based on 1990 amounts are:-

1993	15% reduction
1995	25% reduction
2000	50% reduction

For background purposes the Department of Environment and Land Management provided the following diagrammatical representation (Dawson 1991) of domestic waste composition:-

CATEGORIES OF DOMESTIC WASTE BY VOLUME AND WEIGHT 1990-91



Audit asked municipalities to indicate whether they were aware of these national targets and, if so, to specify the percentage reductions achieved. Audit found that nineteen of the responding municipalities (19/25, 76%) were aware of these targets. The following table summarises the percentage reduction estimated by these municipalities as at April/May 1993:-

<10%	6	32%
11% - 20%	4	21%
Not determined	9	47%

Where municipalities indicated there had been a reduction in the amount of waste going to landfill they were requested to provide documentation for their assessment. Only two municipalities actually provided any form of documentation to support their assertions; the documentation provided related to reductions calculated on the basis of a decrease in volume, not a decrease in the weight per capita as required for the target.

Therefore, on a statewide basis, no municipality provided documentation for a reduction in the amount of waste, calculated by weight per capita, going into landfill.

Audit recommends that municipalities give consideration to formally adopting the targets set by the Australian and New Zealand Environment and Conservation Council and proposed for adoption by the Department. Furthermore, it is recommended that procedures be implemented which will facilitate the reliable measurement of the reduction in waste going to landfill.

DEPARTMENTAL ROLE IN PROMOTING RECYCLING

Audit found that the Department was extremely pro active (jointly or on their own) in promoting and encouraging recycling and other waste minimisation practices and energy extraction. However if the national reduction targets are to be achieved then other avenues, including monetary strategies, seem to warrant consideration.

Current site licensing arrangements produce limited revenues and fail substantially to recoup administrative arrangements. The annual licensing fees vary between $280 (25 to 500 tonnes per year) to a maximum $5 800 (more than 50 000 tonnes per year) and the fees in respect of 1992-93 totalled $68 840. The rates charged bear only minimal resemblance to the volume or mass of waste deposited. This may be appropriate if the licence fee is solely intended to recoup the administrative cost of processing the licence application and monitoring the site.

However it is acknowledged by various bodies that promotional and other incentives need to be met through a mix of State, Local Government and Industry contributions. Consequently a licensing system based on **weight or volume** warrants introduction. Such licensing systems currently operate in other States. In exploring this issue Audit observed that such a system of licensing could produce penalties for non-minimisation practices and funds generated could be used to assist municipalities to introduce appropriate recycling and minimisation systems. This approach is also canvassed substantially in the Position Paper and at the National level.

The Department's recently completed (April 1993) Tasmanian Solid Waste Management Survey concluded on the Life of Landfills comments that "It is apparent that up to 60 landfills (50%) will fill to capacity within the next 5 to 10 years putting additional pressure upon local government to work towards waste minimisation measures in order to preserve current/planned sites."

Audit therefore considers that if the State wishes to achieve the ANZECC targets, that a system of licensing based on throughput, with the intention of using the licence fees to assist and encourage waste minimisation practices, warrants introduction.

RESPONSE provided by The Secretary, Department of Environment and Land Management

> *DELM endorses the comments made by Audit and wishes to stress the importance of economic incentives coupled with penalties for continued lack of waste reduction measures as essential in both achieving the ANZECC targets and providing a system of effective waste management. Waste disposal fees would provide funding for a recycling rebate scheme and waste minimisation and management infrastructure systems.*

RESPONSE provided by The Executive Director, Municipal Association of Tasmania, *is contained in the general response segment on page 7 of this Report.*

ROLE OF MUNICIPALITIES IN PROMOTING RECYCLING

The Position Paper identifies municipalities as bearing the responsibility for implementing waste management reforms:-

> "Local Government has the prime responsibility for waste management in Tasmania and as such is in a key position to implement reforms. The reforms will include ... the introduction of multi-material drop off depots, kerbside recycling programs, composting/shredding services, and information dissemination to the domestic, as well as commercial, sectors about waste minimisation practices."
>
> *(Position Paper, 1992, page 22)*

The main benefit to municipalities from implementing recycling programs and other reforms is the conservation of space within solid waste disposal sites, resulting in an extension of site life. This is important due to more strict environmental controls resulting in acceptable alternative sites being more difficult to locate - with relative increases in site selection and establishment costs. Although the situation in Tasmania is not yet critical, a recently concluded Departmental survey (April 1993) referred to earlier, indicates that 50% or 60 of the existing sites will fill to capacity in 5-10 years time.

The search for alternative solid waste disposal sites can be onerous. For example, **Audit noted that, despite submitting a number of proposals for consideration, the former Huon Municipality (now Huon Valley Municipality) has been searching for almost eight years for a waste disposal site to replace the one at Southbridge which, is acknowledged to be a most unsuitable site.**

The re-use of resources that would otherwise have been buried (e.g. lead from batteries, glass from bottles, and tin and aluminium from cans) helps conserve these land and other resources and at the same time eliminates the environmental threat they may pose when buried in a landfill.

Another benefit is that a more environmentally aware general public will perceive the municipality as being environmentally responsible. For instance, the Industry Commission had the following comments to make in relation to recycling by municipalities:-

> "... the most important reason ... was to meet community demands that some sort of recycling program be implemented by council. From comments in submissions by several Councils, it is clear that community demands are based on environmental concerns rather than reducing waste management costs."
>
> *Source: Industry Commission Information Paper "Waste Management and Recycling: Survey of Local Government Practices" (page 39)*

SUMMARY OF MUNICIPAL RECYCLING PRACTICES

In order to ascertain the extent of recycling and other waste minimisation practices employed, municipalities were asked to indicate what types of activities they were involved in. **Whilst it is acknowledged that some municipalities have introduced waste minimisation practices in the period after the completion of the questionnaire,** the following is a summary of the facilities and incentives existing at the time the questionnaire was completed:-

Waste Minimisation Facilities/Incentives Provided by Municipalities

	Recycling facilities at								
Municipality	Disposal Site	Transfer Station	Separate Depot	Kerbside	Waiving of fees (a)	Licensed On-site Salvaging	Public education	Other Activities	Types of Activities
Break O' Day	**Yes**	**Yes**	No	No	N/A	**Yes**	No	No	
Brighton	No	**Yes**	No	No	N.A	No	No	No	
Central Coast	**Yes**	N/A	No	**Yes**	**Yes**	No	**Yes**	No	
Central Highlands	?	?	?	?	?	?	?	?	
Circular Head	**Yes**	**Yes**	No	**Yes**	No	No	**Yes**	No	
City of Burnie	**Yes**	N/A	No	**Yes**	N/A	**Yes**	No	**Yes**	Wood chipper
City of Clarence	**Yes**	N/A	**Yes**	No	No	No	**Yes**	No	
City of Devonport	**Yes**	N/A	No	No	N/A	No	No	No	
City of Glenorchy	**Yes**	N/A	**Yes**	No	No	**No**	**Yes**	**Yes**	Car bodies/ compost bins
City of Hobart	**Yes**	N/A	No	No	**Yes**	**No**	**Yes**	**Yes**	Wood Chipper
City of Launceston	**Yes**	**Yes**	No	No	No	**Yes**	**Yes**	No	
Dorset	**Yes**	N/A	**Yes**	No	N/A	No	**Yes**	No	
Flinders	No	N/A	No	No	N/A	No	No	No	
George Town	No	N/A	No	No	N/A	**Yes**	No	No	
Glamorgan	?	?	?	?	?	?	?	?	
Huon Valley	**Yes**	No	No	No	N/A	Yes	No	No	
Kentish	No	N/A	**Yes**	**Yes**	N/A	No	**Yes**	No	
King Island	**Yes**	N/A	No	No	N/A	No	No	No	
Kingborough	**Yes**	N/A	No	No	N/A	No	No	No	
Latrobe	No	No	**No**	No	N/A	No	No	No	
Meander	**Yes**	N/A	No	**Yes**	**Yes**	**Yes**	**Yes**	No	
New Norfolk	**Yes**	**Yes**	No	No	N/A	No	No	No	
Northern Midlands	No	**Yes**	No	**Yes**	N/A	**Yes**	No	No	
Sorell	**Yes**	**Yes**	**Yes**	No	N/A	No	No	No	
Southern Midlands	**Yes**	No	No	No	N/A	**Yes**	No	No	
Tasman	**Yes**	**Yes**	No	No	N/A	No	No	No	
Waratah-Wynyard	?	?	?	?	?	?	?	?	
West Coast	**Yes**	N/A	No	No	N/A	No	No	No	
West Tamar	**Yes**	**Yes**	No	**Yes**	No	**Yes**	**Yes**	**Yes**	Wood chipper
Total "Yes" responses	20	9	5	7	3	8	10	4	
Responding Municipalities	26	26	26	26	26	26	26	26	
Percentage of "Yes" Responses	77%	35%	20	27%	12%	31%	39	15%	

("?" signifies that the municipality did not return the questionnaire)
(a) Fees waived in whole or part for concurrent recycling activity.

Over three quarters (20/26) of responding municipalities provide recycling facilities at the waste disposal site. Of the six responding municipalities that do not provide such facilities three provide recycling facilities at separate recycling depots or waste transfer stations. Two municipalities (George Town and Flinders) do not provide any form of recycling facilities (either at waste disposal sites, waste transfer stations or recycling depots) nor do they provide a kerbside recycling service whilst Latrobe assisted in establishing a site run by a Club.

Audit considers that all municipalities should endeavour to maximise the amount of waste that is being recycled to gain benefit from extended site life and the conservation of resources. Although it is acknowledged that due to isolation freight costs are a deterrent for Flinders Municipality, it is recommended that Flinders and George Town Municipalities give consideration to implementing recycling activities. Even the ability to recycle timber would be a positive commencement at Flinders Municipality.

RESPONSE from George Town Municipality

George Town has recently approved a Kerbside recycling program, contracts have been let and expect program to commence by beginning of October 1993.

PUBLIC EDUCATION

Public education is an important part of a waste minimisation program. By changing people's attitudes and making them more aware of the benefits of recycling the amount of waste going into landfills can be reduced at its source - the consumers. Consumers provide demand for the products manufactured by industry and, if that demand is varied industry will, voluntarily or by necessity, shift to meet the change. By educating consumers, "buyers" can be influenced towards items packaged in containers that are recyclable and more environmentally friendly.

The Department has provided Audit with copies of various articles it has prepared and distributed to all municipalities and other interest groups that deal with recycling issues. These articles appeared to adequately address the range of issues related to recycling.

Responses from municipalities showed that public education through leaflets and similar material was undertaken by only 9 municipalities (9/26, 35%).

Audit is aware that municipalities forward rate demands to all ratepayers on an annual basis. This would appear to present municipalities with the opportunity to enclose a circular informing ratepayers of the types of services they offer, in particular the location and diversity of recycling facilities and product recyclability.

Audit recommends that all municipalities give consideration to including a leaflet with the annual rates demand (or a more regular circularisation if possible, e.g. when forwarding quarterly or half-yearly demands) which provides all ratepayers with information on services provided by the municipality (e.g. recycling facilities and product recyclability). Copies of leaflets issued by the Cities of Hobart and Launceston are included in Appendix D as examples of the type of information which could be provided.

RESPONSE provided by The Secretary, Department of Environment and Land Management

DELM wishes to mention that it, in association with Recycle Tasmania, is active in developing education and community awareness program for use by councils, schools, and community groups.

KERBSIDE RECYCLING

Audit review of responses showed that only seven municipalities (7/26, 27%) currently provide a kerbside recycling service. Evidence obtained by the Industry Commission led them to make the following assertion:-

> "Kerbside collection has been shown to divert far more material from the general refuse stream than the establishment of drop-off or buy-back centres. This is because participation rates are much higher for kerbside collection schemes."
>
> *(Industry Commission, Waste Management and Recycling: Survey of Local Government Practices, 1991, page 75)*

Furthermore, the general public is becoming more environmentally aware and, when the Launceston City Council decided not to proceed with a city-wide kerbside recycling project the following comments appeared in the local press:-

> "The Launceston City Council has taken a short-term view in its decision not to implement kerbside recycling. The council, on the basis of cost, voted against the proposal which would have allowed the separate collection of glass, paper and plastics. However, it's a decision that doesn't reflect the trend in community attitudes nor the increasing view that communities have to think beyond their own boundaries on environmental issues."
>
> *(The Examiner, Editorial Opinion, 24 February 1993)*

Whilst acknowledging that cost is a factor when considering the implementation of kerbside recycling schemes community opinion appears to indicate a desire for this type of service. The Position Paper makes the following comments in relation to kerbside recycling:-

> "From surveys undertaken in Tasmania and elsewhere in Australia the community desire to recycle is strong. During the Tasmanian Recycling and Litter Awareness Council's Domestic Waste Survey householders were requested to indicate their willingness to pay up to $10 per year to assist in maintaining a program. From the questionnaire, 68% of householders who responded thought this would be appropriate *(Dowson 1991)*.
>
> *"(Position Paper, 1992, page 23)"*

A report in "The Examiner", 23 February 1993, entitled "Recycling Plan Axed" discussed the decision by the Launceston City Council not to proceed with a city-wide kerbside recycling program and stated that a survey in another unnamed municipality revealed that the majority of householders would be prepared to pay an extra twenty dollars per year for such a scheme.

From these excerpts and other cases around the state it would appear that some current decisions have been made from a short-term perspective, focusing mainly upon current costs while appearing not to take into account the long term economic benefits through the extension of site life nor the environmental benefits through the re-use of products that would otherwise have been buried. Decisions seem to be made based upon the current recycling patterns of consumers whilst not considering the long term ecological

aspects nor the impact of education programs aimed at increasing over time the amount of waste recycled and the level of community desire for such programs.

It should be noted that the Launceston City Council is not the only municipality which has decided against proceeding with kerbside recycling. For instance the Glenorchy City Council decided in June 1992 (after a trial program) not to proceed, on the basis of cost and introduced a scheme of subsidising sales of compost bins. The Hobart City Council and other councils also now subsidise the sales of such bins to its ratepayers.

Audit recommends that all municipalities should investigate the introduction of kerbside recycling programs where this has not been considered.

RESPONSE provided by the Launceston City Council - Technical Services Manager/City Engineer and Engineer Operations - Roads.

The City Council has advised that it does in fact carry out long term planning and strategy work. Strategy assessment has indicated to Council that currently it has serious problems with its basic service infrastructure. Some of these, such as water supply, sewerage, drainage and roads, are important life-support and life-style services for the community and are important to its long term economic future. It would be remiss of Council to place the funding of kerbside recycling ahead of refurbishment of these services.

The Council was in fact thinking long term when it made its decision not to pursue kerbside recycling which has yet to prove its viability within Tasmania. Council's view is that it should remain committed to recycling and waste reduction and that it should continue to facilitate them where appropriate. At present, it believes that there are no indications that kerbside recycling in Launceston can be justified on economic, environmental or community demand grounds.

Recycling generally is making headlines within Australia, and overseas, where local authorities have proven that they can very quickly become effective collectors of recyclables, however industry is not able to cope with the supply of manufacture products from the recyclables collected. In some cases recycling has been found to be less effective and efficient environmentally than products made from raw products.

1. True Cost of Kerbside Recycling

(a) Proposal submitted to Council in February, 1993 would have collected 1500 tonnes of recyclables at a cost of $480 000 annually for a weekly collection. This equates to $320/tonne, costing each householder $24 per year.

b) Note that one Tasmanian municipality spends around $50 per year per household on kerbside recycling.

c) In comparison it is estimated that the mulching/composting of vegetation waste would save 4 000 tonnes from landfill at a cost of $110 000 annually, which equates to $27/tonne. This is better "value-for-money" waste minimisation.

2. Uncertainty of Markets

a) Some markets offer stable returns for recyclables, e.g. glass. Others are on a downward trend, responding to world markets, e.g. aluminium, newsprint. Until there is a demand for products manufactured from recyclables, markets will remain unstable, and the possibility of recyclables returning to landfill exists.

b) Markets for recyclables need to be created in Tasmania, to avoid the high cost of freight. With low virgin material costs, is it just not economical to ship recyclables across Bass Strait to sit in stockpiles.

There needs to be a National total waste management/minimisation strategy to increase demand for recyclables, reduce demand for virgin raw materials, promote recycling, consolidate the large range of packaging materials, and further promote waste minimisation in industry. This top-down approach can encompass industry, consumers, local government and state government and addresses the big picture to enable a co-ordinated approach to the issue.

The current situation of pressure on local government is ad hoc and subject to failures, e.g. Glenorchy municipality stopped kerbside recycling in July 1992 and West Tamar in July 1993.

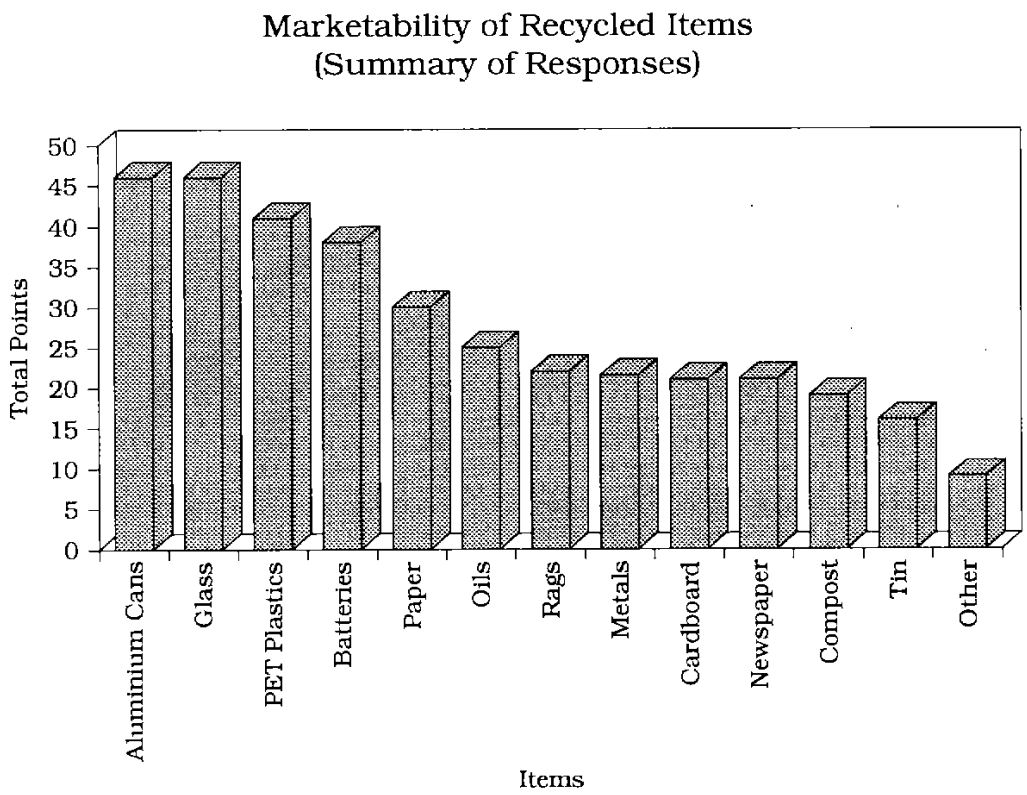
Until the "big picture" is addressed, Council's position will remain "steady as she goes", focusing more on value for money schemes such as numerous drop off recycling bins around the city, and more effective recycling at the disposal areas.

RESPONSE provided by The Secretary, Department of Environment and Land Management

The Department supports Audit's recommendations in regard to investigation of the introduction of kerbside recycling programs as it is well recognised that this is the most cost effective method of obtaining reasonable quantities of recyclable materials from the waste stream. Further, kerbside recycling as pointed out by Audit was supported by about 70% of householders in a 1991 survey. DELM considers that the demand for kerbside recycling is higher now due to greater community awareness and funding of such a scheme can be met by ratepayers or a user pays approach. Also such a scheme creates jobs.

MARKETABILITY OF RECYCLABLE WASTE

As part of the review Audit requested municipalities to provide a rating of the marketability of certain recyclable items. Responses were ranked by allocating 3 points for high marketability, 2 points for medium marketability, 1 point for low marketability and nil points for a blank response. The following bar chart is presented for the information of those municipalities considering expanding their recycling services:-



The bar chart indicates that the market for aluminium cans, glass, PET plastics, batteries and paper is reasonably strong. Although the market for the other recyclable items is somewhat weaker, Audit considers that from a long term global resources perspective municipalities should continue to recycle these types of items. This may necessitate municipalities (and other levels of government) undertaking research into, and the development of, markets for these items.

According to "The Examiner", 22 July 1993, recent problems due to a reduction in the price paid for low grade paper may force a Launceston firm out of business and result in thousands of tonnes of the paper being dumped on northern Tasmanian waste disposal sites. The article quotes the directors as saying that the firm will close "... at the end of this month unless it receives direct State Government and Launceston City Council subsidies ...".

The Position Paper recognises that there is a "financial gap" between the costs involved in the recycling process and the revenues generated. The Position Paper goes on to set the following target:-

"The financial gap which is apparent from the operation of kerbside recycling programs will be equally met by Industry, Local Government and the State Government enabling the introduction of kerbside collection services in all municipalities with garbage collection services by 1995."

(Position Paper, 1992, page 23)

Some items, such as scrap timber, may have a limited market and generate little revenue. By simply allocating a section of the recycling facilities for deposit and free pick-up by other members of the public a municipality can achieve the benefits of product recycling without any additional cost.

It is recommended that steps be taken to remove from the waste stream all items which have utility or marketability and that municipalities and other levels of government should take measures to develop and expand the markets for recyclable materials.

RESPONSE provided by The Secretary, Department of Environment and Land Management

The Department recognises the importance of establishing markets for recycled materials and is putting considerable effort into the development of markets within Tasmania for these materials. This has included the investigation of purchasing programs within the State Government.

GOVERNMENT ACTION TOWARDS RECYCLING

Audit was interested to establish the extent to which government bodies had formulated and implemented practices to facilitate recycling.

Prior to the latter part of the 1980's little appears to have been done to promote or require comprehensive recycling practices. However, the Position Paper issued in 1992 makes numerous references to the need to create initiatives for recycling and on Page 16 it states:

"State Government and Local Government will set an example to the Community at large by practicing waste minimisation and recycling measures in their own work places, and establishing procurement policies for recycled materials.

STATEWIDE TENDERING INITIATIVES

In September 1992, the State Purchasing and Sales Division advertised for registration of interests for waste removal and recycling services to ....."cover all areas of Tasmania for and on behalf of Agencies of the Tasmanian State Service and optional users such as Public Hospitals, State Authorities, Private Hospitals and Schools, Local Government and approved community based organisations." Audit was advised that 18 expressions of interest had been received.

Enquiries have found that the calling of tenders and awarding of contracts had not yet proceeded. Apparently further research is required prior to enabling the completion of background assessments for waste volumes, types, locations etc and the formal adoption of a Statewide policy which would link with the tendering of specifications.

Audit understands that substantial progress has been made and that the evaluation and policy determination will be completed before the end of this calendar year. Furthermore this will also be linked into the development of guidelines for the acquisition of

"environmentally friendly products" which includes items that are capable of being recycled. Some of these products are already being stocked by the SPS Division.

The development of comprehensively linked acquisition and disposal policies by the SPS Division and the Department of Environment and Land Management is an initiative commended by Audit.

SURVEY RESULTS OF RECYCLING PRACTICES BY GOVERNMENT AGENCIES

A brief survey was conducted in August 1993 to establish current recycling practices by the 17 Government Agencies.

Responses were received from all the Agencies circulated and indicated that:-

- all Agencies but one were involved with some form of paper/cardboard/newspaper recycling. Most encompassed all the three types of paper products and also practiced paper conservation measures to varying degrees;

- approximately 25% of Agencies recycled metals, batteries, glass, plastics and a combination of other items such as rags, wood and print toners and cartridges; and

- one small entity indicated it had no recycling practices nor did it currently contemplate introducing any.

The survey did not cover many of the Statutory Authorities nor the State's primary and secondary schools and colleges, many of which have introduced recycling practices as part of their education process.

FUTURE DIRECTION

Increasingly many corporations and larger government agencies are becoming more involved with environmental issues which include the encouragement of the three R's: Reduce, Re-use and Recycle. Some are developing Action Plans which aim to foster environmental concerns, awareness of fundamental issues such as National Minimisation and recycling strategies, changing attitudes and behaviour, managing change, energy audits and minimisation strategies etc. Increasingly, such bodies, including Commonwealth Departments, are conducting training seminars and have assigned the development and management of the necessary tasks to designated officers within their organisations.

It is apparent to Audit that Agency involvement in such areas will need to increase and the early development of plans and management processes within each Agency should be encouraged.

PART 4 - STRATEGIC PLANNING

Audit examined the existence of strategic plans for municipal solid waste management. Municipalities were asked whether they had such a plan and, if so, to forward a copy for perusal. Those municipalities without one were asked to indicate the progress they had made towards implementing a plan.

The Department is currently initiating a broader strategic planning process which will also cover Sewerage Treatment Plant performance and upgrading.

STRATEGIC PLANS

An Environmental Management plan documents the intended development and operation of a waste disposal site within a municipality and provides details of its expected environmental impact. The plan should cover the entire life cycle of the solid waste disposal site from initial establishment through the various stages of development to final rehabilitation.

Having prepared such a plan a municipality should be in the position that it has considered all of the possible threats to which it, the public and the environment is exposed as a result of its solid waste management practices. Having identified the threats, the municipality is able to implement practices and procedures which will **minimise** or preferably eliminate them.

Audit found that just over half (52%, 13/25 responses) of the responding municipalities have mainly a formal plan for their individual solid waste site management practices.

The plans submitted to Audit took the form of an Environmental Management Plan. The Position Paper (page 56) states that an Environmental Management Plan "... should describe how the facilities will be developed and operated so as to meet satisfactory environmental performance standards ..." and "... each significant environmental issue should be identified, the environmental performance standard clearly defined, and the method of achieving the required standard clearly demonstrated".

The responses have been a mixture of Environmental Management Plans related to a specific site and a few in relation to broader waste management plans describing waste management practices in the municipalities as a whole.

Twelve of the municipalities that returned the completed questionnaire (12/25, 48%) did not have such plans which related to sites acquired from former municipalities. An analysis of their progress towards formulating and adopting the plans revealed that:-

- three municipalities (Burnie City Council, Sorell and Southern Midlands) had completed a plan which had not yet been adopted by Council;
- six municipalities (Brighton, Dorset, Kingborough, Northern Midlands, New Norfolk and Tasman) were in the process of completing a plan; and
- three municipalities (Flinders, King Island and Meander Valley - formerly Westbury and Deloraine) had taken no action at all although King Island has recently started a plan.

A formal Municipal Waste Management plan (which is much broader in scope) would require municipalities to think ahead, to determine adequate practices and procedures and place themselves in a position where they are better prepared to coordinate resources including those required for sewage treatment. Such plans should link with or be a component of overall municipal corporate plans.

Audit recommends that all municipalities take steps towards the formulation and adoption of a strategic plan for all waste management.

RESPONSE provided by The Secretary, Department of Environment and Land Management

Municipal waste management plans will provide the avenue for the implementation of strategic planning for solid and liquid waste management within municipalities and within regional areas. Following discussion with a number of municipalities throughout the State the Department is currently finalising guidelines for the preparation of these plans and will be forwarding these to councils in the near future.

It should also be noted that the new Local Government Act will provide very broad powers to Council to carry out specific functions. Although these powers are commonly referred to as general competence powers, in fact councils will be permitted (except to the extent specifically constrained) to make such decisions as they feel necessary for the responsible management and development of their areas.

These wide powers would be exercised in a very public way to ensure maximum accountability by councils for their actions. Councils would also be required under the new Act to undertake direct public consultation on significant matters in addition to other opportunities for public participation in decision making processes. These broader opportunities include strategic and operational planning on significant issues such as waste management.

GLOSSARY

Cleaner Production Technology - Technology which has environmentally beneficial outcomes when compared with other existing technology and where feasible reduces the generation of hazardous and other wastes, conserves resources and reduces pollution.

Commercial Waste - Non-hazardous waste collected from industry and commerce.

Composting - A waste management technique which utilises natural processes to convert most organic materials to humus by micro-organism activity.

Cullet - Waste or broken glass usually smashed into small uniform pieces about the size of a pea.

Department - Department of Environment and Land Management (DELM)

Development Proposal/Environmental Management Plan - A document which describes a proposed development and assesses its environmental impact and environmental management for a specific application made to the Division of Environmental Management.

Energy Recovery - A form of resource recovery in which the organic fraction of waste is converted to some form of usable energy usually in a municipal incinerator which burns garbage to produce electricity or through methane gas collection.

Environmentally Dangerous Waste - Wastes defined by Schedule 1 of the Environment Protection (Waste Disposal) Regulations 1974, including polychlorinatedbiphenyols, polybichlorinatedbiphenyols and pesticides.

Environmental Impact - The effect of a certain activity or land use upon the environment, including contamination of surrounding land, groundwater, surface water and atmosphere and the resultant effect upon surrounding land users, flora, fauna and the general public.

Garbage - Waste material which is likely to decompose or putrefy, usually containing food waste from a kitchen, restaurant, slaughterhouse or food processing plant.

Hazardous Waste - Any wastes whose quantity and notably toxic, reactive, corrosive, flammable, explosive, ineffective or like nature pose a substantive and unacceptable hazard to the public, the environment or both, unless the material is dealt with by appropriately rigorous means.

HDPE - A type of plastic made from high density polyethylene.

Leachate - Contaminated water which has percolated through or drained from municipal or hazardous wastes.

Litter - Any substance or object, which has been cast, placed or left on any land or water without the owner's permission where appropriate.

Local Rate - A rate levied to a particular area where there is a special benefit provided to that area.

Municipal Rate - A rate levied across the whole municipality.

Municipal Waste - The combined residential, commercial and industrial waste material generated in a given municipal area. It includes household garbage, putrescible waste, solid inert wastes from manufacturing, processing or service industries. The term would not normally include hazardous wastes however as some of these materials go to municipal waste sites, the term will include hazardous wastes which are generated in the household.

PET Bottles - Lightweight thermo-plastics made from polyethylene terephthalate that are resistant to chemicals and moisture, have good insulating properties and are commonly used to package carbonated soft drinks.

Position Paper - Tasmanian Solid Waste Management Policy - Position Paper, June 1992. A document published by the Division of Environmental Management, Department of Environment and Land Management.

Putrescible Waste - Any waste able to be readily decomposed by microbial action which during the process of such decomposition creates offensive odours.

PVC - A common synthetic plastic material known as polyvinyl chloride.

Recyclables - Waste materials capable of being recycled.

Recycling - Any process by which materials that would otherwise become solid waste are collected, separated processed and returned to the economic mainstream in the form of raw materials or products.

Recycling Depot - A place where people bring items to be collected. From there items are sent to a processing or a manufacturing plant.

Refuse Disposal Site - A site, usually controlled by municipalities, where municipal waste such as garbage and solid waste are disposed or stored for recycling.

Rehabilitation - The process by which a landfill is progressively or otherwise re-instated as a stable land suitable for other appropriate uses.

Resource Recovery - A term describing the extraction and utilisation of materials and values from the waste stream either as materials which can be used as raw resources in the manufacture of new products, or as values which can be converted into some form of fuel or energy source.

Sanitary Landfill - Controlled landfilling, defined as appropriate waste disposal at an approved site, in accordance with a preconceived plan, by dumping, compacting and covering with soil in a way that protects the environment.

Secure Landfill - A landfill designed to receive and confine hazardous wastes to prevent detrimental effect on the environment. Its design includes at least one natural and synthetic impermeable liner, leachate collection and treatment facilities where appropriate, and an impervious clay cover material.

Solid Waste Management - The procedures and mechanisms which exist for the collection, transport and disposal of solid waste.

Solid Waste - Includes the following wastes:

Council Waste
All waste collected by or on behalf of local councils including domestic garbage, clean-up waste, beach, street, parks and garden and local government engineering waste, trade waste and items of hazardous domestic waste.

Small Vehicle Waste
Waste transported by individuals in cars, station sedans, utilities and the like.

Commercial and Industrial Waste
Non-hazardous waste collected from industry and commerce.

Demolition Waste
Hardfill type waste resulting from reconstruction projects.

Waste Management Plan - An approved plan or series of plans for the management and disposal of solid or hazardous waste, adopted by a municipal council, regional municipal group, waste management business, industry or industrial premises.

Waste Minimisation - The prevention of waste at its source, either by preventing the generation of waste altogether or reducing waste output. It also entails the re-designing of products and changing social patterns of production and consumption.

Waste Stream - A general term used to denote the waste material output of an area, location or facility.

Waste Transfer Station - A depot for the receipt of solid waste and recyclable items usually consisting of one or more bins for waste and bays for the collection of recycled materials. The bins are regularly transferred to a solid waste disposal site.

(Note - Most definitions have been extracted from the Position Paper)

APPENDIX A
QUESTIONNAIRE, EXPLANATORY NOTES AND COVERING LETTER

COVERING LETTER SENT TO ALL MUNICIPALITIES ON 6 APRIL 1993

Dear Sir

Value-For-Money (VFM) Audit - Municipal Solid Waste Management
A value-for-money (VFM) audit is being undertaken by my Office as part of the audit mandate set out in the Financial Management and Audit Act 1990. After examining a number of proposals put forward as potential areas for examination, a VFM audit was selected which will examine municipal solid waste management practices and policies.

Earlier this year, my officers commenced a preliminary survey for the audit which involved discussions and site inspections at a number of councils throughout the State. The preliminary survey has recently been completed and the audit is to proceed to the next stage which requires the collection - through a survey - of information relating to municipal solid waste management. Information supplied in the survey will provide a basis upon which the economy, efficiency and effectiveness of municipal solid waste management can be evaluated.

Completed surveys will be analysed and the results compiled in a draft report. As part of this process, a number of councils will be visited by my officers who will review the information provided in the survey and be available to discuss any issues that may arise. Those councils to which the key findings of the draft report relate will be invited to provide their comments. The final report to be submitted to Parliament will include responses where necessary.

Please note that discussions have been held with senior staff of the Department of Environment and Land Management who have agreed to assist in analysing the information received. The set deadlines for the completion of the VFM Audit are as follows:-

April 30 - final date for return of surveys
May 31 - completion of compilation, analysis and testing of surveys
June 18 - final date for completion of draft report for council comments
June 28 - final date for submission of comments by councils
July 16 - publication of final report

Please have your officers complete the enclosed "Municipal Solid Waste Management Survey" and return it to the following address by 30 April 1993 (or earlier if possible): Auditor-General, Tasmanian Audit Office, Attention E D Tiernan, P O Box 1068, Launceston TAS 7250. If your officers experience any problems in completing the survey would they please contact Eamonn Tiernan, Senior Auditor on (003) 36 2217.

In the case where your council has recently been formed from the combining of a number of councils the survey should be completed for the entire province of the new council.

Yours sincerely
A J McHugh
AUDITOR-GENERAL

NOTE: The Questionnaire and the Explanatory Notes have not been included in this Report to Parliament but are available (together with other assessment documents) upon request from the Tasmanian Audit Office, Hobart.

APPENDIX B
COST ANALYSES OF MUNICIPAL SOLID WASTE MANAGEMENT

SITE DEPRECIATION CHARGES 1992-93 CALCULATED BY AUDIT (a)

Municipality	Tip Fees	Rates (c)	Other (d)	TOTAL REVENUE	Cost of Operations (e)	Audit Calculation of Site Depreciation	TOTAL EXPENDITURE	SURPLUS/ (DEFICIT)	Percentage of Expenditure Unfunded
	$	$	$	$	$	$	$	$	
Break O' Day (Fingal)	0	45,585	0	45,585	45,585	663	46,248	(663)	-1.4%
Brighton	0	347,495	1,600	349,095	345,169	2,500	347,669	1,426	0.4%
Burnie City	0	769,236	42,480	811,716	799,406	31,041	830,447	(18,731)	-2.3%
Central Coast	22,900	794,709	750	818,359	803,359	39,376	842,735	(24,376)	-2.9%
Central Highlands (b)	...	...	...	...	...	...	...	...	...
Circular Head	25,000	422,129	0	447,129	436,513	9,080	445,593	1,536	0.3%
Clarence City	160,000	904,400	0	1,064,400	1,064,400	14,631	1,079,031	(14,631)	-1.4%
Devonport City	0	807,424	88,610	896,034	894,095	29,871	923,966	(27,932)	-3.0%
Dorset (Scottsdale)	0	91,756	2,000	93,756	93,756	330	94,086	(330)	-0.4%
Flinders	0	17,850	0	17,850	17,850	755	18,605	(755)	-4.1%
George Town	0	186,819	0	186,819	167,595	3,025	170,620	16,199	9.5%
Glamorgan-Spring Bay (b)	...	...	...	...	...	...	...	...	...
Glenorchy	425,236	544,596	0	969,832	969,833	120,678	1,090,511	(120,679)	-11.1%
Hobart City	290,000	1,568,533	55,000	1,913,533	1,913,533	29,487	1,943,020	(29,487)	-1.5%
Huon Valley (b)	...	...	...	...	...	...	...	...	...
Kentish	0	50,400	0	50,400	50,400	2,100	52,500	(2,100)	-4.0%
King Island	0	59,795	0	59,795	39,795	586	40,381	19,414	48.1%
Kingborough	0	541,979	1,300	543,279	492,825	6,149	498,974	44,305	8.9%
Latrobe	0	147,317	33,331	180,648	185,094	3,000	188,094	(7,446)	-4.0%
Launceston City	572,000	1,130,440	0	1,702,440	1,722,618	54,000	1,776,618	(74,178)	-4.2%
Meander Valley	10,000	289,406	724	300,130	300,130	5,968	306,098	(5,968)	-1.9%
New Norfolk	0	398,547	0	398,547	392,547	17,150	409,697	(11,150)	-2.7%
Northern Midlands (Evandale)	0	70,932	2,310	73,242	73,242	200	73,442	(200)	-0.3%
Sorell	0	219,000	9,000	228,000	187,061	2,327	189,388	38,612	20.4%
Southern Midlands	0	97,060	0	97,060	97,060	5,363	102,423	(5,363)	-5.2%
Tasman	0	41,500	0	41,500	31,500	3,190	34,690	6,810	19.6%
Waratah-Wynyard (b)	...	...	...	...	...	...	...	...	...
West Coast	0	460,376	6,254	466,630	443,630	6,200	449,830	16,800	3.7%
West Tamar	22,000	394,088	2,100	418,188	418,188	2,908	421,096	(2,908)	-0.7%
Total (Respondents)	**$1,527,136**	**$10,401,372**	**$245,459**	**$12,173,967**	**$11,985,184**	**$390,578**	**$12,375,762**	**($201,795)**	**-1.6%**
Population adjustment factor for non-repondents (b)	**1.1132**	**1.1132**	**1.1132**		**1.1132**	**1.1132**			
Total (State)	**$1,700,077**	**$11,579,278**	**$273,256**	**$13,552,611**	**$13,342,449**	**$434,809**	**$13,777,258**	**($224,647)**	**-1.6%**
Percent Revenue & Expense	**12.54%**	**85.45%**	**2.02%**		**96.84%**	**3.16%**			
Per Capita (State)	**$3.75**	**$25.57**	**$0.60**	**$29.92**	**$29.46**	**$0.96**	**$30.42**	**($0.50)**	

(a) Care should be taken when interpreting the information shown in the table due to limitations in the data used in its compilation which was extracted from Municipal Rating Estimates and estimates provided in direct response to the questionnaire.

(b) To determine a statewide cost an adjustment was made for the municipalities that had not responded with the information requested. The figure was projected from the average per capita for responding municipalities.

(c) Rates include imputed administration charges where appropriate.

(d) Other revenue comprises sundry charges and allocated grants.

(e) Cost of operations includes depreciation of plant allocated through plant hire charges.

SELECTED REVENUE/COST STATISTICS 1992-93 (a)

	Tip Fees Analysis		Per Tonne Analysis						Per Capita Analysis					
Municipality	Percentage of Tip Fees to Total Revenue	Percentage of Tip Fees to Total Expenditure	Waste Disposed (Tonnes) (c)	Revenue Per Tonne	Total Cost Per Tonne	Surplus/ (Deficit) Per Tonne	Site Waste Disposal and Waste Transfer Station Costs	Site Waste Disposal and Waste Transfer Station Costs Per Tonne	Population	Revenue Per Capita	Cost Per Capita	Surplus/ (Deficit) Per Capita	Garbage Collection Costs	Garbage Collection Costs Per Capita
				$	$	$	$	$	$	$	$	$	$	$
Break O' Day (Fingal)	0.00%	0.00%	2,990	15.25	15.47	(0.22)	40,248	13.46	3,156	14.44	14.65	(0.21)	0	0.00
Brighton	0.00%	0.00%	4,428	78.84	78.52	0.32	258,419	58.36	11,700	29.84	29.72	0.12	48,300	4.13
Burnie City	0.00%	0.00%	20,000	40.59	41.52	(0.94)	312,197	15.61	20,482	39.63	40.55	(0.91)	311,040	15.19
Central Coast	2.80%	2.72%	23,500	34.82	35.86	(1.04)	402,256	17.12	20,108	40.70	41.91	(1.21)	246,575	12.26
Central Highlands (b)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Circular Head	5.59%	5.61%	11,000	40.65	40.51	0.14	269,009	24.46	8,161	54.79	54.60	0.19	92,400	11.32
Clarence City	15.03%	14.83%	18,500	57.54	58.33	(0.79)	385,731	20.85	47,706	22.31	22.62	(0.31)	474,300	9.94
Devonport City	0.00%	0.00%	20,000	44.80	46.20	(1.40)	463,022	23.15	24,144	37.11	38.27	(1.16)	267,179	11.07
Dorset (Scottsdale)	0.00%	0.00%	2,000	46.88	47.04	(0.16)	31,830	15.92	4,694	19.97	20.04	(0.07)	36,006	7.67
Flinders	0.00%	0.00%	605	29.50	30.75	(1.25)	13,355	22.07	905	19.72	20.56	(0.83)	0	0.00
George Town	0.00%	0.00%	7,750	24.11	22.02	2.09	54,575	7.04	6,921	26.99	24.65	2.34	50,000	7.22
Glamorgan-Spring Bay (b)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glenorchy	43.85%	38.99%	50,000	19.40	21.81	(2.41)	520,268	10.41	42,172	23.00	25.86	(2.86)	399,775	9.48
Hobart City	15.16%	14.93%	72,000	26.58	26.99	(0.41)	785,852	10.91	47,436	40.34	40.96	(0.62)	904,501	19.07
Huon Valley (b)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kentish	0.00%	0.00%	3,300	15.27	15.91	(0.64)	52,500	15.91	5,106	9.87	10.28	(0.41)	0	0.00
King Island	0.00%	0.00%	1,078	55.47	37.46	18.01	30,511	28.30	1,762	33.94	22.92	11.02	0	0.00
Kingborough	0.00%	0.00%	15,350	35.39	32.51	2.89	245,652	16.00	24,328	22.33	20.51	1.82	149,422	6.14
Latrobe	0.00%	0.00%	13,000	13.90	14.47	(0.57)	102,740	7.90	6,763	26.71	27.81	(1.10)	70,960	10.49
Launceston City	33.60%	32.20%	100,800	16.89	17.63	(0.74)	747,120	7.41	64,360	26.45	27.60	(1.15)	468,321	7.28
Meander Valley	3.33%	3.27%	2,525	118.86	121.23	(2.36)	100,468	39.79	14,133	21.24	21.66	(0.42)	95,380	6.75
New Norfolk	0.00%	0.00%	15,000	26.57	27.31	(0.74)	248,675	16.58	10,081	39.53	40.64	(1.11)	56,757	5.63
Northern Midlands (Evandale)	0.00%	0.00%	3,000	24.41	24.48	(0.07)	33,212	11.07	2,534	28.90	28.98	(0.08)	22,990	9.07
Sorell	0.00%	0.00%	5,600	40.71	33.82	6.90	157,388	28.11	8,168	27.91	23.19	4.73	32,000	3.92
Southern Midlands	0.00%	0.00%	4,500	21.57	22.76	(1.19)	75,423	16.76	4,992	19.44	20.52	(1.07)	27,000	5.41
Tasman	0.00%	0.00%	1,000	41.50	34.69	6.81	34,490	34.49	1,893	21.92	18.33	3.60	0	0.00
Waratah-Wynyard (b)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
West Coast	0.00%	0.00%	8,460	55.16	53.17	1.99	137,630	16.27	7,597	61.42	59.21	2.21	140,000	18.43
West Tamar	5.26%	5.22%	5,800	72.10	72.60	(0.50)	192,433	33.18	17,470	23.94	24.10	(0.17)	162,250	9.29
Total (Respondents)	**12.54%**	**12.34%**	**412,186**	**$29.54**	**$30.02**	**($0.49)**	**$5,695,004**	**$13.82**	**406,772**	**$29.92**	**$30.42**	**($0.50)**	**4,055,156**	**$9.97**
Population adjustment factor for non-repondents (b)			**1.1132**				**1.1132**		**1.1132**				**1.1132**	
Amended Total (State)	**12.54%**	**12.34%**	**458,864**	**$29.54**	**$30.02**	**($0.49)**	**$6,339,936**	**$13.82**	**452,837**	**$29.92**	**$30.42**	**($0.50)**	**4,514,383**	**$9.97**

(a) Care should be taken when interpreting the information shown in the table due to limitations in the data used in its compilation which was extracted from Municipal Rating Estimates and estimates provided in direct response to the questionnaire.

(b) To determine a statewide cost an adjustment was made for the municipalities that had not responded with the information requested. The figure was projected from the average per capita for responding municipalities.

(c) Refer to Table entitled "Tonnages Used by Audit" for an explanation of the tonnes used.

POPULATIONS AND TONNAGES 1992-93 USED BY AUDIT

Municipality	POPULATIONS (a)		TONNAGES				
	Population of Respondents	Population of the State	Licensed Annual Waste Intake per Respondents (b)	Current Quantity of Waste Disposed per Respondents	Department of Environment and Land Management Tonnages (c) for the State	Department of Environment and Land Management Tonnages (c) for Respondents	Tonnages Used By Audit For Cost/Tonne Calculation for Respondents
Break O' Day (Fingal)	3,156	5,705	?	2,990	6,500	2,000	2,990
Brighton	11,700	11,700	n/a	4,428	n/a	n/a	4,428
Burnie City	20,482	20,482	20,000	20,000	60,000	60,000	20,000
Central Coast	20,108	20,108	11,000	23,500	4,600	4,600	23,500
Central Highlands	...	2,912	...	...	450	...	...
Circular Head	8,161	8,161	27,500	11,000	25,000	25,000	11,000
Clarence City	47,706	47,706	24,000	18,500	24,000	24,000	18,500
Devonport City	24,144	24,144	10,000	20,000	10,000	10,000	20,000
Dorset (Scottsdale)	4,694	7,317	4,000	2,000	4,700	4,000	2,000
Flinders	905	905	605	?	1,150	1,150	605
George Town	6,921	6,921	7,750	7,750	2,950	2,950	7,750
Glamorgan-Spring Bay	...	3,947	...	...	5,700	...	...
Glenorchy	42,172	42,172	60,000	50,000	50,000	50,000	50,000
Hobart City	47,436	47,436	85,000	72,000	85,000	85,000	72,000
Huon Valley	...	12,150	...	...	2,220	...	...
Kentish	5,106	5,106	3,300	3,300	1,450	1,450	3,300
King Island	1,762	1,762	?	1,078	?	?	1,078
Kingborough	24,328	24,328	20,700	15,350	20,600	20,600	15,350
Latrobe	6,763	6,763	?	13,000	4,000	4,000	13,000
Launceston City	64,360	64,360	131,000	100,800	66,200	66,200	100,800
Meander Valley	14,133	14,133	2,525	?	2,825	2,825	2,525
New Norfolk	10,081	10,081	17,500	15,000	9,000	9,000	15,000
Northern Midlands (Evandale)	2,534	10,557	n/a	3,000	3,000	n/a	3,000
Sorell	8,168	8,168	5,100	5,600	5,100	5,100	5,600
Southern Midlands	4,992	4,992	4,500	4,500	1,275	1,275	4,500
Tasman	1,893	1,893	1,000	1,000	55	55	1,000
Waratah-Wynyard	...	13,861	...	...	8,500	...	...
West Coast	7,597	7,597	7,100	8,460	7,100	7,100	8,460
West Tamar	17,470	17,470	10,000	5,800	10,000	10,000	5,800
	406,772	**452,837**	**452,580**	**409,056**	**421,375**	**396,305**	**412,186**
Population of Respondents/State	...	...	**406,772**	**406,772**	**452,837**	**406,772**	**406,772**
Tonnes per Capita	...	...	**1.11**	**1.01**	**0.93**	**0.97**	**1.01**

(?) Signifies figures not provided.

(a) Population figures shown are as per the Australian Bureau of Statistics for the 1991 Census.

(b) Tonnages used by Audit for cost per tonne calculation are based upon reponses given by municipalities as to the quantity (tonnes) of waste disposed per Attachment A of the Questionnaire. Where no response was provided Audit has used the respondent's tonnage details per licence. The figures quoted are aggregate tonnages for all sites within the municipalities.

(c) The Department of Environment & Land Management conducted a similar survey in early 1993 which produced the tonnages shown in these columns.

DETAILED REVENUE AND EXPENDITURE 1992-93 (a)

Municipality	REVENUE: Tip Fees	Local Rates	Municipal Rates (c)	Other (d)	TOTAL REVENUE	EXPENDITURE: Solid Waste Disposal Site: Operating	Depreciation	Rehabilitation: Operating	Depreciation	Garbage Collection: Operating	Depreciation	Waste Transfer Stations: Operating	Depreciation	Street Cleaning: Operating	Depreciation	Recycling Scheme: Operating	Depreciation	TOTAL EXPENDITURE	SURPLUS/ (DEFICIT)	Expenditure Percentage Unfunded
	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	
Break O' Day (Fingal)	0	0	45,585	0	45,585	38,010	338	0	225	0	0	1,575	100	6,000	0	0	0	46,248	(663)	-1.4%
Brighton	0	221,400	126,095	1,600	349,095	46,200	0	0	0	48,300	0	209,719	2,500	40,950	0	0	0	347,669	1,426	0.4%
Burnie City	0	533,395	235,841	42,480	811,716	281,156	30,208	0	833	311,040	0	0	0	153,210	0	54,000	0	830,447	(18,731)	-2.3%
Central Coast	22,900	251,575	543,134	750	818,359	362,880	38,438	0	938	246,575	0	0	0	125,654	0	68,250	0	842,735	(24,376)	-2.9%
Central Highlands (b)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Circular Head	25,000	0	422,129	0	447,129	185,029	6,860	0	1,000	92,400	0	74,900	1,220	84,184	0	0	0	445,593	1,536	0.3%
Clarence City	160,000	0	904,400	0	1,064,400	371,100	14,286	0	345	474,300	0	0	0	209,000	0	10,000	0	1,079,031	(14,631)	-1.4%
Devonport City	0	0	807,424	88,610	896,034	433,151	12,903	0	16,968	267,179	0	0	0	122,716	0	71,049	0	923,966	(27,932)	-3.0%
Dorset (Scottsdale)	0	34,006	57,750	2,000	93,756	31,500	269	0	61	36,006	0	0	0	26,250	0	0	0	94,086	(330)	-0.4%
Flinders	0	0	17,850	0	17,850	12,600	174	0	581	0	0	0	0	5,250	0	0	0	18,605	(755)	-4.1%
George Town	0	106,914	79,905	0	186,819	51,550	1,050	0	1,975	50,000	0	0	0	66,045	0	0	0	170,620	16,199	9.5%
Glamorgan-Spring Bay (b)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glenorchy	425,236	0	544,596	0	969,832	399,590	33,714	0	86,964	399,775	0	0	0	115,728	0	54,740	0	1,090,511	(120,679)	-11.1%
Hobart City	290,000	0	1,568,533	55,000	1,913,833	756,365	25,641	0	3,846	904,501	0	0	0	0	0	252,667	0	1,943,020	(29,487)	-1.5%
Huon Valley (b)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kentish	0	0	50,400	0	50,400	50,400	1,050	0	1,050	0	0	0	0	0	0	0	0	52,500	(2,100)	-4.0%
King Island	0	0	59,795	0	59,795	29,925	330	0	256	0	0	0	0	9,870	0	0	0	40,381	19,414	48.1%
Kingborough	0	0	541,979	1,300	543,279	239,503	3,309	0	2,840	149,422	0	0	0	103,900	0	0	0	498,974	44,305	8.9%
Latrobe	0	66,514	80,803	33,331	180,648	99,740	2,000	0	1,000	70,960	0	0	0	14,394	0	0	0	188,094	(7,446)	-4.0%
Launceston City	572,000	490,571	639,869	0	1,702,440	638,120	46,400	0	6,200	468,321	0	55,000	1,400	561,177	0	0	0	1,776,618	(74,178)	-4.2%
Meander Valley	10,000	93,976	195,430	724	300,130	94,500	4,479	0	1,489	95,380	0	0	0	110,250	0	0	0	306,098	(5,968)	-1.9%
New Norfolk	0	151,054	247,493	0	398,547	231,525	4,650	0	12,500	56,757	0	0	0	104,265	0	0	0	409,697	(11,150)	-2.7%
Northern Midlands (Evandale)	0	22,190	48,742	2,310	73,242	4,914	0	0	0	22,990	0	28,098	200	14,700	0	2,540	0	73,442	(200)	-0.3%
Sorell	0	219,000	0	9,000	228,000	155,061	1,396	0	931	32,000	0	0	0	0	0	0	0	189,388	38,612	20.4%
Southern Midlands	0	28,600	68,460	0	97,060	70,060	1,999	0	3,364	27,000	0	0	0	0	0	0	0	102,423	(5,363)	-5.2%
Tasman	0	0	41,500	0	41,500	31,500	2,680	0	310	0	0	0	0	0	0	0	200	34,690	6,810	19.6%
Waratah-Wynyard (b)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
West Coast	0	258,676	201,700	6,254	466,630	131,430	1,050	0	5,150	140,000	0	0	0	172,200	0	0	0	449,830	16,800	3.7%
West Tamar	22,000	210,750	183,338	2,100	418,188	129,675	212	0	1,515	162,250	0	59,850	1,181	61,163	0	5,250	0	421,096	(2,908)	-0.7%
Total (Respondents)	$1,527,136	$2,688,621	$7,712,751	$245,659	$12,173,967	$4,875,484	$233,436	$0	$150,341	$4,055,156	$0	$429,142	$6,601	$2,106,906	$0	$518,496	$200	$12,375,762	($201,795)	-1.6%
Population adjustment factor for non-repondents (b)	1.1132	1.1132	1.1132	1.1132		1.1132	1.1132	1.1132	1.1132	1.1132	1.1132	1.1132	1.1132	1.1132	1.1132	1.1132	1.1132			
Total (State)	$1,700,077	$2,993,095	$8,586,183	$273,256	$13,552,611	$5,427,609	$259,872	$0	$167,366	$4,514,383	$0	$477,740	$7,349	$2,345,503	$0	$577,213	$223	$13,777,258	($224,647)	-1.6%
Percent Revenue/Expense to Total Revenues/Expenses	12.54%	22.09%	63.35%	2.02%		39.40%	1.89%	0.00%	1.21%	32.77%	0.00%	3.47%	0.05%	17.02%	0.00%	4.19%	0.00%			
Per Capita (State)	$3.75	$6.61	$18.96	$0.60	$29.92	$11.99	$0.57	$0.00	$0.37	$9.97	$0.00	$1.05	$0.02	$5.18	$0.00	$1.27	$0.00	$30.42	($0.50)	

(a) Care should be taken when interpreting the information shown in the table due to limitations in the data used in its compilation which was extracted from Municipal Rating Estimates and estimates provided in direct response to the questionnaire.

(b) To determine a statewide cost an adjustment was made for the municipalities that had not responded with the information requested. The figure was projected from the average per capita for responding municipalities.

(c) Municipal rates include imputed administration charges where appropriate.

(d) Other revenue comprises sundry charges and allocated grants.

APPENDIX C
EXISTING DISPOSAL SITES SUITABLE FOR ALTERNATIVE MANAGEMENT IDENTIFIED BY THE DEPARTMENT OF ENVIRONMENT AND LAND MANAGEMENT - POSITION PAPER JUNE 1992

The sites in most urgent need of attention have been identified through information from the Departments of Resources and Energy and Environment and Planning survey of 1990. **Audit observed that some improvements had, in fact, taken place during 1992-93.** Further comments are contained in the body of the Report.

SITE	1	2	3	4	5	6	7	8
Alonnah				*	*	*	*	
Avoca		*	*	*		*		
Beaconsfield	*	*		*			*	
Beachford	*			*		*		
Branxholm		*	*	*	*	*	*	
Deloraine	*			*		*	*	
Dysart		*			*		*	
Ellendale	*				*	*	*	
Fingal				*			*	*
Geeveston	*						*	
George Town		*				*	*	
Gladstone				*		*		
Glenorchy		*						
Great Lake Miena		*		*			*	
Huonville		*		*	*	*		
Lauderdale	*	*		*	*	*	*	*
Lunawanna				*			*	
Margate				*	*	*		
Mole Creek	*			*	*	*	*	*
Montagu		*				*		
Narracoopa		*				*	*	
Nubeena		*				*	*	
Orford		*		*				
Pioneer						*	*	
Port Arthur		*						

SITE	1	2	3	4	5	6	7	8
Railton		*					*	
Ringarooma	*	*			*	*	*	
Roseberry					*	*	*	
Rossarden					*	*	*	
Smithton	*	*		*				
Southport	*	*			*		*	
Spreyton	*	*			*			*
Strahan		*			*	*	*	
Sheffield	*			*			*	
Tomahawk					*		*	*
Tunbridge							*	*
Ulverstone	*	*		*	*			
Westbury		*				*	*	
Weymouth	*	*		*			*	
Wilmot		*		*		*		
Wyena				*				
Wynyard		*		*	*			
Yolla						*	*	
Zeehan	*	*					*	

No. (N=45)	16	27	2	23	17	24	30	6
%	35	60	4	51	38	53	67	13

Legend:-

1 Probable groundwater contamination
2. Likely surface water contamination
3. Insecure land tenure
4. Area limitation
5. Aesthetically undesirable
6. Management problems
7. History of fires
8. Special ecological values

APPENDIX D

INFORMATION LEAFLETS DISTRIBUTED BY CITIES OF LAUNCESTON AND HOBART

LAUNCESTON

GARBAGE RULES OK!

AMONG LOCAL GOVERNMENT'S MANY RESPONSIBILITIES, household garbage collection and disposal is an important task.

To help meet our commitment to the national target to halve landfill waste by the year 2000, your Council recently introduced a recycling program in conjunction with local recycling companies. Using a network of collection bins located around the city, residents can now recycle a growing list of household items — benefiting our environment and our local economy.

While our emphasis on recycling continues to grow, we will always need a system of regular household garbage collection. Our city is fortunate to have a service which provides a weekly collection from most areas, [illegible] the average household only [illegible] of its weekly rates.

The [illegible] for Launceston's [illegible] has [illegible] to a local [illegible] that performs [illegible] according to strict Council [illegible] for simply guidelines listed in this brochure. [illegible] our contractor [illegible] to deliver [illegible] service to your house and [illegible] future that costs of collection are kept as low as possible, for everyone's benefit.

If you need more information about garbage and refuse disposal, please contact your Council on 37 1240.

Alderman Tony Peck
-Mayor of Launceston

EXTRA REFUSE TAG

PHONE 37 1240

1. COLLECTION DAYS

GARBAGE IS COLLECTED in your area on the same day of the week, every week of the year. The day doesn't vary, even when it falls on public holidays.

To check the day of your collection, phone Council on 37 1240.

2. HOW MANY ?

EACH HOUSEHOLD can put out up to three bags or [illegible]. And for the times when you may need [illegible] than the maximum, pre-paid tags can be [illegible] from Launceston City Council for 30c each — [illegible] a tag to each extra bag or bin to be collected.

[illegible] of flats or units can leave out up to 12 bags or bins for street collection, or make special arrangements for more than that number to be collected from a special [illegible]

Extra bins or bags must be tagged

3. HOW MUCH ?

EACH FULL BAG or bin must weigh no more than 10kg.

Bins can be metal or plastic and can range from 45 to 76 litres in size, and need a well-fitting lid. The flat size of bags used for garbage can vary between 900mm and 1020 mm long and 635mm and 700mm wide, and should be securely tied at the neck.

Shopping bags or cartons can't be used as garbage containers to be left out for collection.

4. GOOD GARBAGE HABITS

LITTERING FROM GARBAGE spilled from bins or bags is unsightly and a health hazard. It is the householder's responsibility to clean up the mess — so it pays to keep lids tight on bins and bags firmly tied.

A sturdy bin with a bag liner is the best way of keeping garbage off the street and safe from animals. It also helps the contractor remove all the refuse left for collection, keeping your bin hygenically clean.

Bins or bags should be left as close as possible to the kerb, but where they won't obstruct traffic or pedestrians.

Missing the collection can be annoying and inconvenient. Because the time of day of collection in your street can vary, the best idea is to put out well-secured containers the night before the scheduled collection day.

And remember, removing empty containers promptly helps to keep our streets clean.

5. WHAT'S NOT WELCOME ?

SYRINGES, SYRINGE NEEDLES, hot ashes or explosive materials can't ever be included in garbage left out for collection.

Items with sharp edges cause injury to our contractors, so please wrap broken glass, wire or sharp metal objects. We would also like fish, offal, poultry or meat scraps to be wrapped before putting them in the garbage container.

6. SPRING CLEAN-UP

TO HELP WITH YOUR HOUSEHOLD clean-ups there is a once-a-year free collection of any household refuse items during the Spring season. Collection day in your area will be advertised well in advance in the newspaper, but will be arranged on the same day as your usual garbage pick-up.

The only limit on spring clean-up items is that they must not individually weigh more than 60kg, and must be able to be lifted onto a truck by two men. The combined size of all items must not exceed 1.5 cubic metres.

Items of trade refuse, broken glass or rotting material aren't welcome in the spring clean-up.

7. THERE'S THE TIP

COUNCIL'S REFUSE DISPOSAL AREA in Remount Rd is open seven days a week from 8.00 am to 5.00 pm [illegible] just about every kind of household refuse. [illegible] fees apply, based on the size of load and type of [illegible] material being left. At the refuse area there are [illegible] collection points for aluminium cans, glass, [illegible] clothing and car batteries.

8. RECYCLING IN LAUNCESTON

YOU CAN REDUCE THE AMOUNT OF GARBAGE to be left out for weekly collection, and at the same time do your bit for the environment and the economy, by recycling many of your household refuse items. Council has produced a brochure giving tips on ways to recycle part of your household garbage, including some easy steps to garden composting. The brochure lists the location of recycling collection points [illegible] conveniently located around the [illegible] recycling contractors.

If you would like a copy of [illegible] just give us a call on 37 1240.

We'll be happy to answer any inquiries about garbage collection, refuse disposal or recycling. Just phone 37 1240 during office hours.

GARBAGE RULES OK!

REFUSE DISPOSAL

The Hobart tip is located at McRobies Gully in South Hobart.

Hours of Operation

Open 7 days a week, except Good Friday and Christmas Day.

	Daylight Saving Period	Other Period
Mon-Fri	7.30am-4.15pm	7.30am-4.15pm
Sat-Sun & Public Holidays	10.00am-6.00pm	10.00am-5.00pm

(Except Hobart Cup Day 7.30am-4.15pm)

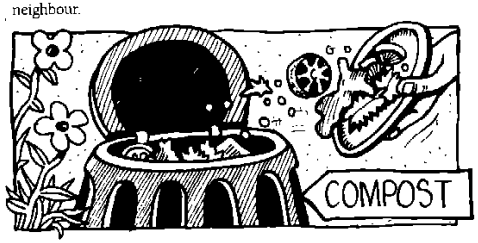
Tip Entry Charges

Cars and station wagons — $1 (free if you have a recycle pass)
Utes, vans, trailers (domestic) — $2 or ($1 plus a recycle pass)
Utes, vans, trailers (commercial) — $2
Single axle trucks/compactors 12T G.V.M. — $10
Dual axle trucks/compactors 23T G.V.M. — $25
Liquid Waste — $35
Large compactor trucks/trucks with dual axle trailers — $50
Clean fill — FREE.

Disposal of car bodies — $25 each. The disposal fee is paid at the cashiers' counter in the City Treasurer's Department at the Town Hall. The cashier will issue a voucher to be presented at the fee collection booth at the tip.

Garbage Collection

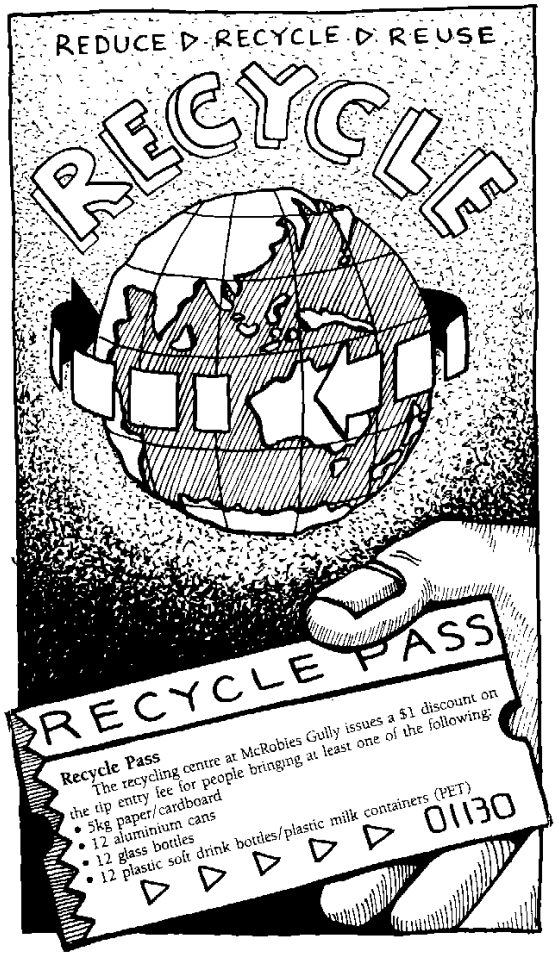
If you are unsure of when to place out your garbage for collection, ask the Public Requests Officer on 382818. Alternatively, ask your neighbour.



COMPOST BINS

Recycle your kitchen and garden waste through composting. Compost bins made of recycled plastic are now available to residents of Hobart for only $16.00. To purchase a bin, call in at Council's Cleary's Gates Depot, Brooker Highway between 9.00 a.m. and 3.00 p.m. You will need to show proof that you are a Hobart resident (your drivers licence will do).

Please note, there is a limit of 2 bins per household. The Cleary's Gates Depot will only accept cheques. Cash payments can be made at the City Treasurer's Department prior to collection. The Stores Supervisor can be contacted on 282740.



THE RECYCLING CENTRE

Why You Should Recycle

Your Council is enthusiastic about making recycling work, however we need your co-operation. By recycling you can help:

- save non-renewable resources
- lower the tip's operating costs by reducing the need to develop new sites for rubbish disposal
- reduce pollution to the environment
- create employment in the recycling industry.

What Can You Recycle?

The materials currently being recycled are:

- paper and cardboard — not waxed cartons or vegetable boxes. Please DO NOT include garbage
- batteries (lead acid)
- PET plastics e.g. plastic soft drink bottles and plastic milk containers Articles made of PET are marked with the number 1
- HDPE plastics e.g. supermarket bags. Articles made of HDPE are easily identified by the number 2
- aluminium cans
- glass bottles — not earthenware jars, ceramic-type bottles or window glass. Please DO NOT include bottle caps or seals
- motor oil
- scrap metal — all non ferrous metals (brass, copper, etc.) are recyclable.

FOR RECYCLING TO BE SUCCESSFUL IT IS ESSENTIAL THAT SORTING IS CARRIED OUT PRIOR TO ARRIVAL AT THE RECYCLING CENTRE.

Confidential Paper Shredding

Using Council's paper shredding service, businesses can recycle office documents without fear of disclosing confidential information. A small fee is charged per kilogram of material and a collection service is available for large volumes or continuous supplies. It is important that paper for shredding is of good quality and free of contaminants e.g. food.

Garden Mulch

Garden mulch can be bought from McRobies Gully Tip for $1 a bag and $5 a trailer load (or equivalent). Payments are made at the fee collection booth. For loading large quantities, a front end loader will operate on Saturday 12.30 p.m. – 3.00 p.m. and Sunday 10.00 a.m. – 2.00 p.m. This is a free service. The mulch is made from garden waste as part of Council's recycling program. Council will not be liable for any unwanted weed species.

FOR MORE INFORMATION ABOUT THESE SERVICES, CONTACT THE CLEANSING AND REFUSE SUPERINTENDENT ON 280234.

APPENDIX E

TASMANIAN SOLID WASTE MANAGEMENT POLICY - POSITION PAPER JUNE 1992

MINISTER FOR ENVIRONMENT AND PLANNING
MINISTERIAL FOREWORD

A discussion paper entitled: "Towards Modernisation of Solid Waste Management: Principles and Strategy" was prepared by the Department of Environment and Planning during 1990-91 and was released for public comment in April 1991. Subsequently the Environment Protection Advisory Council (EPAC) appointed a subcommittee, the Waste Management Advisory Committee (WMAC) to further develop this strategy incorporating comments from specific interest groups and the community at large.

The WMAC had cross community representation with personnel from local government, Chamber of Mines, waste transporters and recyclers, Tasmanian Trades and Labour Council, Tasmanian Conservation Trust, and State Government Departments: Department of Mines, Department of Health and the Tasmanian Development Authority. During 1991 this broad ranging committee reviewed in detail these comments and developed the final strategy.

In addition during 1991 the Commonwealth Government finalised a paper entitled "The National Waste Minimisation and Recycling Strategy" which had as its underlying objective a fifty percent reduction in waste going to landfill by the year 2000. A number of the key principles from this strategy have been integrated into the Tasmanian strategy document.

In December 1991 the Tasmanian document was completed and unanimously endorsed by WMAC.

The strategy document includes a number of new initiatives which will require detailed consideration by Cabinet and will need to be considered as a part of the budgetary process. The document has been released with no pre-commitment from Government as to the initiatives presented but for the information of the community in general and the key stakeholders in particular.

(John Cleary)
MINISTER

TASMANIAN SOLID WASTE MANAGEMENT POLICY - POSITION PAPER - JUNE 1992 - SUMMARY

GOALS

To promote waste minimisation and resource recovery. To protect the environment from effects arising from landfills receiving municipal wastes.

WASTE MINIMISATION

Industry will be encouraged to adopt clean production technology.

Industry, State and Local Governments will support the Environmental Choice Program.

The State Government will implement and monitor the National Packaging Guidelines.

State Government and municipal Councils will set an example to the community at large by Practising waste minimisation and recycling measures in their own work places.

Tasmania will introduce a Municipal Waste Minimisation Grants Program.

Municipal Councils will encourage organic waste reduction measures such as home composting.

Municipal Councils will charge for waste collection by volume at the kerbside.

There will be strong enforcement of the Litter Act.

Fees will apply to manufacturers whose items persistently appear in the litter stream.

RECYCLING AND REUSE

State Industry Plans will continue to be developed to guarantee markets for recyclable materials. Multi material sorting facilities will be developed as part of these plans.

The Government proposes to adopt the national targets set by ANZECC in 1991 for reduction in waste going to landfill (measured as weight per capita) as follows:-

1993	15% reduction
1995	25% reduction
2000	50% reduction

Interim material targets for recycling in Tasmania have been set for 1995.

A manufacturing levy will apply to those materials which do not meet the interim targets.

A Council Recycling Rebate Scheme will be introduced.

Local Government will construct and maintain recycling drop off depots.

Where garbage collection services operate, kerbside collection of recyclables will be introduced by 1995.

Municipalities, State Government and Industry will be responsible for the provision of public education information.

ENERGY RECOVERY

All level 2 and 3 sites which have the potential to extract landfill gas at the end of their useful life will be investigated.

Appropriate incineration technology and neutralysis will be investigated.

SAFE AND SECURE DISPOSAL

Improved environmental management of disposal sites shall be achieved by (1) complying with landfill development and operating standards specified and by (2) rationalising the number of sites.

Landfill site selection criteria will be implemented.

The waste disposal site classification system will be implemented.

Site specific alternative management will be implemented.

Regional Waste Management Plans will be developed and implemented.

Fees shall be implemented on a user pays basis for all level 2 and 3 disposal sites and at staffed level 1 sites.

A waste disposal levy replacing environmental licence fees for refuse disposal sites will be introduced. This levy will be used for waste minimisation and recycling initiatives administered by the Waste Management Advisory Committee.

Recognised training courses will be introduced for disposal site operators.

REHABILITATION AND FUTURE USE

Site rehabilitation shall be carried out in accordance with the landfill development and operating standards.

The reuse of completed disposal sites shall be dealt with in a document on Contaminated Sites.

APPENDIX F

PROCEDURE FOR ESTABLISHING A REFUSE DISPOSAL SITE

1. Preliminary Investigations

Firstly, the proponent gathers the facts. For example:

* the population to be serviced, and the volume and nature of wastes requiring disposal is estimated;

* the waste management policy for the region is considered;

* areas having potential as a disposal site are identified;

* potential sties are evaluated in terms of:

  - distance from points at which waste is generated
  - buffer distance to human habitation
  - accessibility
  - land ownership
  - geology
  - topography
  - hydrology
  - existing land use
  - development costs;

* unsuitable sites are eliminated;

* preliminary advice may be sought by the proponent from government agencies regarding suitability in terms of geology, hydrology, fauna, flora, historical and cultural significance and so on (this may involve consultation with Mines Department, Environmental Management Division, Parks and Wildlife Service).

2. Government Approvals

Environment: Any premises to be used for the disposal of more than 25 tonnes of refuse per year is classified as a scheduled refuse disposal site. It is thus required by the Environment Protection Act 1973 (EPA) that the proponent applies to the Division of Environmental Management, Department of Environment and Land Management, for a Licence to Operate a Scheduled Premises.

Health:: The proponent must also apply to the Minister for Health for approval in accordance with Section 535 of the Local Government Act 1962.

Planning: Planning approval from local and possibly state government planning authorities may also be required, depending on the present zoning of the land in the municipal planning scheme or interim order.

Land Ownership: Where private land is involved, the proponent needs to begin negotiations with the property owner for the lease or purchase of potentially suitable land.

Where crown land is involved, the proponent needs to apply to the Property Services Division of the Department of Environment and Land Management for the purchase, lease or rent of crown land. Property Services will consult with other agencies, in particular the agency responsible for the management of the proposed piece of crown land for example the Forestry Commission in the case of State Forests, or the Parks and Wildlife Service if the proposed site is reserved, or the Mines Department if there is an exploration or mining lease covering the area.

3. Application Assessment

Gathering Information: In accordance with Section 24 of the Environment Protection Act, the Director of Environmental Control may request whatever information is considered necessary in order to assess the application and to make a decision on the proposal.

The type of information that is required depends on the size and potential impact of the development. A refuse disposal site can be a waste transfer station, a small rural refuse disposal site, a regional waste management centre or a major disposal facility.

For larger refuse disposal sites (such as a regional waste management centre) where more complex issues are involved, the Department requires the preparation of a detailed Development Proposal and Environmental Management Plan (DP&EMP). Guidelines for the preparation of this document are provided by the Department to the proponent. The information must be prepared to the satisfaction of the Director of Environmental Control. A DP&EMP includes an explanation of the proposal, a description of the proposed site, an outline of the expected environmental impacts, and details of the planned environmental management of the operation including the methods employed to minimise any significant environmental impacts.

Public Comment: Once the DP&EMP has been lodged with the Director, the application for a Licence to Operate Scheduled Premises will be advertised in the local newspaper. The application will be advertised on 2 consecutive Saturdays and there will be a time of 30 days in which formal objections to the application can be lodged with the Director of Environmental Control. Submissions, or statements of support can also be made. The draft DP&EMP will be made publicly available during this time. The places where it would be displayed include the Division of Environmental Management's offices and the offices of the relevant Municipal Council. Public comment on the draft DP&EMP can be referred back to the proponent for response and may result in supplements and/or amendments to the DP&EMP to recognise public concerns or any new information.

The proponents may choose to supplement this government assessment process by undertaking public consultation prior to the release of the DP&EMP. This may take the format of answering enquiries, providing information, public meetings and so on.

The Director's Decision: The Division of Environmental Management prepares an Assessment Report for the Director of Environmental Control. This report takes into account:

- the information supplied by the proponent in the DP&EMP;
- public comment;
- the advice of other Government agencies;
- the Division's own professional assessment of the environmental issues.

For the larger refuse disposal site proposals the Director may, in accordance with Section 25 of the EPA, grant the applicant a licence unconditionally, or grant a licence subject to such conditions, limitations and restrictions as is considered necessary, or refuse to grant a licence. The conditions that are usually attached to a licence include conditions that do specified things to prevent, minimise or control pollution. For the smaller proposals (for example a waste transfer station), the Director may grant a registration. Public comment about the proposal is taken into account as an important part of the assessment procedure and public views are accommodated where possible.

All objectors are advised of the Director's decision, and the reasons for that decision. If a licence is granted, objectors receive a copy of the conditions attached to the licence.

Appeals: Should the Director decide to grant a licence, any person who lodged an objection in respect of the application for the licence may, under Section 38 of the EPA, appeal to the Environment Protection Appeal Board against the grant of the licence. Appeals must be lodged with the Clerk of the Environment Protection Appeal Board within 14 days of the notification of the Director's decision on the licence application.

The applicant also has the opportunity to appeal if aggrieved by the Director's refusal of a licence or by the conditions attached to a licence.

The Board operates independently of both the Minister and the Director of Environmental Control. The Board's decision is final.

ANNEXURE

Special Reports Published

Reports published in 1992

- Special Report No 1 Regional Health Support Services
- Special Report No 2 Student Transport

Reports published in 1993

- Special Report No 3 Education Institutions Cleaning Services
- Special Report No 4 Standard of Annual Reporting by Government Departments
- Special Report No 5 Municipal Solid Waste Management