States of Jersey
States Assembly

États de Jersey
Assemblée des États

Environment Scrutiny Panel

WASTE RECYCLING

Presented to the States on 3rd July 2007

S.R.13/2007

Contents

1. Executive summary

1.1 Main Recommendation

The Scrutiny Panel strongly recommends that T&TS take the opportunity to review the estimates of both waste arisings and recycling rates for the period of the strategy. The Panel believes that the residual waste arisings estimated in 2005 for the next 25 years are seriously overstated and that recycling rates are seriously underestimated. This combination leads to an estimate for residual waste that is unjustifiably high.

1.2 Waste Arisings

1.2.1 In order to plan a coherent waste strategy it is essential for a jurisdiction to understand the quantity and composition of waste it produces. Waste composition analyses are available at both a national and local level within the UK. These indicate that the composition of waste varies considerably from region to region, and over time.

1.2.2 The Environment Scrutiny Panel has identified many shortcomings in the analysis undertaken by T&TS in the composition of the various waste streams in Jersey.

1.2.3 Since the publication of the Jersey Waste Strategy in 2005 there has been a considerable change in the predictions for future waste growth. Environmental awareness has increased and governments have reacted by placing a greater emphasis on waste reduction. At both national and local level, UK authorities are planning on growth rates of waste arisings of between 0% and 2%, with the trend continuing to fall. The figures used for future trends in Jersey have not been updated in line with recent data and future predictions.

1.3 Recycling and Collection Methods

1.3.1 Current UK recycling rates are still low in comparison to many European countries. The Jersey target of 32% to be achieved during the 25 year strategy period is now well below that of the UK. Indeed, some UK local authorities have already exceeded the 50% target, set for 2020. In order to maintain Jersey's international reputation, environmental policies, including recycling, need to be in line with best accepted practice.

1.3.2 From a global perspective, it is also important to limit carbon emissions. Recycling materials as an alternative to incineration makes substantial carbon savings.

1.3.3 Existing paper and card recycling in Jersey is working well and could be developed considerably. Glass has been collected separately in Jersey for many years but the value of the resource is not fully realised at present. Metal recycling has many environmental advantages and is economically extremely viable. Plastic recycling in Jersey is very underdeveloped at present and should be encouraged.

1.3.4 Successful recycling depends on choosing the right collection method. Bring banks are a simple method of providing recycling facilities but kerbside collections achieve higher recycling rates as they offer more convenience to the householder. Parishes are responsible for household waste collection.

1.4 Economics

1.4.1 Markets for recycled goods are being developed and demand is increasing. The provision of waste and recycling services by a wide range of commercial and non-commercial organisations is likely to expand. Local businesses are already finding opportunities to create profit from the processing of recyclable materials within the waste streams. This could also offer employment opportunities for local residents, including those with special employment needs.

1.4.2 The local knowledge of Parish Constables places them in a good position to maximise the value of their waste collections through partnerships with businesses. High recycling rates can be achieved with relatively small increases in collection costs.

1.4.3 There is enormous spare capacity for off island freight by sea and shipping companies are prepared to offer this spare capacity to export recyclable materials at a reasonable rate although harbour dues do add to the total cost. The value of recyclate streams is sufficient to cover the additional cost of processing and transport.

1.5 Food Waste

1.5.1 17% of household waste is food waste. Keeping this separate from other waste reduces contamination leaving cleaner, dry recyclable materials available for easier separation and collection. The St Helier zero waste trial confirmed that the public are willing to separate food waste and that it is feasible to collect it separately.

1.5.2 Composting food waste, as opposed to incineration, retains valuable organic material. Modern self-contained composting units are odour and leachate free. Strict controls (PAS 100 and ABPR) exist to ensure that compost containing food waste is produced to a very high standard. Compost made to this specification can be applied to land used for growing crops, including potatoes and grazing

cattle. The Island has a sufficient land base on which to apply compost produced from all of the Island's food waste.

1.6 Public Participation

1.6.1 Recycling is now part of mainstream politics and has a high profile at all levels. There is a keen interest in recycling amongst the Jersey public and an overall desire to undertake more recycling than is currently being done.

1.6.2 The Panel received a positive response from a number of public events that they attended and organised during the course of the review.

1.6.3 Zero waste is a concept which encourages communities to see waste as a resource. The St Helier zero waste trial achieved a participation rate of just under 80% and a recycling rate of 56%.

1.7 Recommendations

1. **Jersey should undertake a full compositional analysis of waste produced in the island**

2. **The calculations in respect of future waste arisings should be reviewed immediately in the light of recent trends and external influences, and kept under regular review**

3. **T&TS should reconsider the sizing of a new waste plant in light of the future likely waste arisings**

4. **T&TS should establish targets for per capita waste reductions**

5. **Jersey should increase its recycling targets at least in line with the UK**

6. **Jersey should encourage improved recycling opportunities for paper and glass**

7. **Jersey should encourage the introduction of recycling opportunities for plastic, domestic metal and other waste streams**

8. **Parishes should be encouraged to provide high quality kerbside collection schemes and other recycling facilities**

9. **Parish authorities should work with local businesses and other organisations to organise household waste collections which maximise the value of the various waste streams**

10. **The States should facilitate the export of recycled material by waiving harbour dues on exports**

11. **The States should facilitate commercial and social enterprises that seek to create value from waste materials and provide employment opportunities for local residents including those with special employment needs**

12. **T&TS should re-evaluate the viability of separate collections for food waste, from the point of view of being able to separate the organic material for suitable treatment and as a way of maximising the value of remaining streams**

13. **The States should encourage waste minimisation and recycling amongst all government departments and state employees**

14. **The States should ensure that all schools have an active waste minimisation and recycling policy and that all pupils are fully involved in these activities**

15 **T&TS should provide additional information on local recycling facilities to the general public.**

1.8 Key findings

Section 6

6.1.9
There are many types of waste and it is important to understand the different definitions when drawing comparisons between Jersey and other jurisdictions

6.2.9
UK legislation sets out the responsibility for the cost of waste disposal. Jersey legislation does not provide an equivalent framework.

6.4.3
Waste composition analyses are available at both a national and local level within the UK. Composition of waste does vary considerably from region to region, and over time

6.4.4
In order to plan a coherent waste strategy it is essential for a jurisdiction to understand the amount and composition of waste produced

6.5.19

There has been no comprehensive survey of Jersey waste composition
The composition of commercial and bulky waste is based on one very short survey.
Although the Department's consultants recommended that additional surveys were needed, the panel is unaware of any such surveys being undertaken

6.6.3
The growth in waste arisings in the UK has slowed considerably and is now averaging 0 .5% over the last five years

6.6.6
There are considerable pressures from consumers to reduce excess waste and businesses are responding to this in a number of positive ways

6.6.10
At both national and local level, UK authorities are planning on growth rates of waste arisings of between 0% and 2%, with the trend continuing to fall.

6.6.16
The figures used for future trends in Jersey have not been updated in line with recent data and future predictions

6.7.7
There appear to be some errors in the calculation of the predicted waste arisings
Waste prevention is a key area in minimizing the amount of residual waste
The UK government is introducing waste reduction/minimization targets. Successful waste reduction policies will provide substantial savings

6.7.9
T&TS have not made any adjustments to the predictions for future waste in Jersey although they are committed to staying in line with best practice globally

Section 7

7.1.7
As the environmental benefits of recycling are better understood, the UK government is encouraging markets in recycled goods and recycling methods

7.1.9
There are major environmental gains to be achieved through recycling of many products

7.1.15
The incineration of residual waste as an alternative to recycling will result in a considerable increase in carbon dioxide emissions in Jersey

7.1.18
To maintain Jersey's international reputation, environmental policies, including recycling, need to be in line with the best accepted practice

7.2.6
The UK government has recently published much higher recycling targets, with the whole country expected to achieve recycling rates of 40% by 2010 and 50% by 2020.
Some local authorities have already exceeded the 50% target
Guernsey has set a target of a 50% recycling rate to be achieved by 2010

7.2.12
Reducing the growth in waste arisings to 1% per annum and increasing the recycling rate to 50% per annum would limit the amount of residual waste for disposal in Jersey to less than 70,000 tons throughout the next 25 years
Recycling rates are likely to rise with the increasing proportion of elderly people in the population

7.2.16
The Jersey target of 32% recycling is now well below the UK target
The Jersey waste strategy does not differentiate between household and commercial recycling targets

7.3.23
There are established markets for recycling all types of paper products.
Existing Paper and card recycling in Jersey is working well and could be expanded considerably

7.4.12
Glass is an ideal material for recycling.
The colour separation of glass increases its recycling potential. Lower value glass can be recycled successfully as an aggregate
Glass has been collected separately in Jersey for many years but the value of the resource is not fully realised at present
Recycled glass could be used to much better effect, in both closed loop and open loop recycling

7.5.17
Metal recycling has many environmental advantages and is economically extremely viable
Opportunities for recycling domestic metal in Jersey are extremely limited at present

7.6.22

There are many different types of plastic and some have more value in recycling than others. There is a well-established market for plastic bottles and other single polymer streams.
Mixed and lower grade plastics can be used to create useful products such as plastic wood.
Plastic recycling in Jersey is very underdeveloped at present and could be expanded dramatically

7.7.3
Home composting is the preferred route for garden waste
Jersey provides free composting facilities for garden waste
Agricultural waste is composted by farmers at their own expense
The working party on compost concluded that a number of distributed reception sites would be appropriate for Jersey

7.11.6
Recycling routes exist for electrical equipment, tyres, textiles and timber
Recycling of these waste streams is underdeveloped in Jersey at present

7.12
Some hazardous waste are found in household rubbish and there should be separate facilities to deal with these products

7.13.7
Bring banks are a simple method of providing recycling facilities
Kerbside collections achieve higher recycling rates as they offer more convenience to the householder

7.13.11
Local authorities with high recycling rates operate kerbside collections on a fortnightly cycle
Recycling rates of 30% and above are already being achieved using kerbside collections
The recycling rate in Jersey is 15.1%

7.13.13
Households require clear and simple information about recycling methods and facilities in order to maximise public participation

7.14.2
Providing advice to businesses on resource efficiency, including recycling, is cost effective

Section 8

8.1.2

The commissioning of a new incinerator will cost approximately £70 million and will be a considerable financial burden to the taxpayer at a time of budgetary restraint

8.1.6
The provision of waste and recycling services can be undertaken by a wide range of commercial and non-commercial organisations

8.1.11
Market for recycled goods are being developed and increasing demand is likely to lead to higher prices

8.2.5
High recycling rates can be achieved by relatively small increases in collection costs

8.3.4
Recycling initiatives can provide valuable employment opportunities for individuals who might find it hard to gain employment otherwise

8.4.1
Parish Constables are in a good position to maximise the value of waste collected through provision of local collection services

8.5.2
Local businesses are already finding opportunities to create profit from the processing of recyclable materials

8.6.4
Harbour dues act as a disincentive to recycling opportunities

8.7.4
The value of recyclate streams is sufficient to cover the additional cost of processing and transport.

8.2.2
Additional storage facilities for ash will need to be identified by T&TS during the lifetime of the proposed incinerator

Section 9

9.1.5
Weekly collections of food waste can increase the amounts of both food waste and dry recyclables collected separately
Weekly collections of food waste can be shown to be cost-effective in comparison with other methods

9.2.2
Disposal of all forms of kitchen waste can be achieved at home through the use of a digester such as a Green Cone

9.3.8
Strict controls (PAS 100 and ABPR) exist to ensure that compost containing food waste is of a very high standard

9.3.9
Compost that meets PAS100 can be applied to land used for growing potatoes

9.4.3
Composting all the island's food waste, mixed with a proportion of green waste, would provide compost for 360 hectares of land each year

9.5.3
Modern self-contained composting units can be located in urban areas as odour and leachate are fully controlled

Section 10

10.1.5
Recycling is now part of mainstream politics and has a high profile at all levels

10.3.5
There is a keen interest in recycling amongst the Jersey public and an overall desire to undertake more recycling

10.4.4
Zero waste is a concept, which encourages communities to see waste as a resource

10.4.13
The St Helier zero waste trial achieved a participation rate of just under 80%
A recycling rate of 56% was recorded during the trial

10.5.5
Information about existing recycling schemes is not well understood amongst the population in general
The main barrier to increased recycling at present is the lack of a kerbside collection and recycling facilities in general
A large percentage of the population would participate in a kerbside collection scheme for both dry recyclables and organic waste

2. Panel Membership

2.1 At the beginning of the review the Panel was constituted as follows –

Deputy R.C. Duhamel, Chairman and Lead Member

Deputy G.C.L. Baudains, Vice Chairman

Connétable K.A. Le Brun of St. Mary

Deputy R.G. Le Hérissier

Deputy S. Power

2.2 The working group for this review consisted of:

Deputy R.C. Duhamel, Chairman and Lead Member

Connétable K.A. Le Brun of St. Mary

Deputy S. Power

Officer support was provided by Mr. M. Robbins.

2.3 In December 2006 Deputy R. G. Le Hérissier left the Environment Scrutiny Panel to join the newly formed Health, Social Security and Housing Scrutiny Panel.

2.4 Deputy P. V. F. Le Claire joined the Panel on 31st February 2007 In following the resignation of Deputy G.C.L. Baudains (Vice Chairman). Connétable A. S. Crowcroft joined the Panel on 27th February 2007.

2.5 The Panel approved Connétable K. A. Le Brun of St Mary as Vice Chairman.

2.6 On 13th March 2007, Deputy S. Power resigned from the Environment Scrutiny Panel.

2.7 These changes in Panel personnel left Deputy R.C. Duhamel, Chairman and Lead Member and Connétable K.A. Le Brun of St. Mary to complete the review.

3. Terms of Reference

3.1 The terms of reference for the review were as follows –

1. To quantify the composition of waste within the residential and commercial collections.
2. To investigate the practicality and cost implications of re-using or recycling in excess of 32% from the waste stream.
3. To investigate European and International markets for recycled goods and recyclable materials.
4. To examine existing technology for the treatment of food waste with the green waste in a composting facility.
5. To examine systems/policies to encourage the public to play a more active role in recycling.

The background to these terms of reference is explained below.

3.2. The Panel asked, 'if it is not accurately known how much waste there is to be dealt with:

- How can it be decided how much can be recycled?
- How can it be decided how to deal with the residual waste after recycling has taken place?
- Even if accepted that the best technology of the day be chosen, how can any plant, be it for recycling, composting or dealing with the residual waste be sized and financially estimated?

3.3. The Panel considered it likely that:

- The quantity of residual waste was the biggest determining factor in costing and sizing the final disposal route.
- The component mix of residual waste was a major factor in determining the type of equipment / technology required.

3.4. This led the Panel to term of reference number one:

To quantify the composition of waste within the residential and commercial collections.

3.5. The second concern arose from the relatively low recycling targets set within the Environment and Public Services Solid Waste Strategy (SWS) One of the aims laid out on page 7 of the SWS is to increase reusing and recycling to 32% of the

total waste stream by 2009. Although the SWS is set in a 25 year timescale, no additional targets are provided for future years

3.6. It is important that the island is seen to act in an environmentally responsible way – this is an important part of our overall international image

3.7. The Panel believed that it was important to investigate the full recycling potential for Jersey, from both economic and environmental perspectives

3.8. This produced term of reference number two

To investigate the practicality and cost implications of re-using or recycling in excess of 32% from the waste stream.

3.9. Recycling markets are constantly developing and are providing new and established opportunities for economic development and innovation.

3.10. Within the SWS, relationships between private and public operators are not considered. Interest in various waste streams is growing with private sector operators keen to exploit any new opportunity.

3.11. With this in mind, the Panel adopted term of reference number three

To investigate European and International markets for recycled goods and recyclable materials.

3.12. Term of reference number four arose from the observation that food waste makes up a large proportion of household waste and disposal by incineration destroys a large quantity of organic material.

3.13. Technologies to provide controlled composting of all types of organic waste are in use in many other jurisdictions.

3.14. The Panel considered this to be worth examination and produced term of reference four.

To examine existing technology for the treatment of food waste with the green waste in a composting facility.

3.15. The Panel felt the public were keen to play a more active role In environmental matters but were yet to be properly engaged.

3.16. Anecdotal information received by Members suggested that many people wanted more opportunities for recycling and there have been ongoing concerns about the construction of a new, large incinerator.

3.17. Therefore the Panel selected term of reference number five

To examine systems/policies to encourage the public to play a more active role in recycling.

3.18. The Panel has attempted to answer the questions raised in the terms of reference by examining documentation, listening to people and inviting companies to tell them what can and cannot be done. Expert advice has been obtained from Professor Coggins and Dr J. Mullett who assisted the Panel in the more technical aspects of the review.

4. Chairman's Forward

4.1 This report takes a wide view of policy and seeks to scrutinise the existing policy of T&TS against a national and international background.

4.2 In 2005 the States approved a solid waste strategy. The strategy was the culmination of several years' work and set the scene for waste management in Jersey for the following 25 years.

4.3 The President of the Environment and Public Services Committee at that time, Senator P. Ozouf, urged Jersey to become a less wasteful community, working hard together to reduce, reuse and recycle and to achieve this, wasteful lifestyle habits had to change so we produce only the minimum amount of rubbish. The Environment Scrutiny Panel fully endorse these sentiments.

4.4 In the last two years there has been an enormous shift in the public and political understanding of environmental issues. Policies previously reserved to "environmental do-gooders" have been enthusiastically adopted by mainstream political parties. The public are urged by the media on a daily basis to "green" their lifestyles and to limit their carbon footprints

4.5 This rapid growth in environmental awareness has led to major changes in waste management policy. Of major significance to Jersey, in May 2007 the UK government issued a revised national waste strategy. The development of the UK report is described as follows

> *"Waste Strategy 2007 (WS2007) was developed against a background of increasing public and political awareness of the need to consider waste management and resource efficiency within the context of sustainable development and impact on climate change. WS2007 and therefore sets out a broad programme which requires action at all levels of society – recognizing that behaviour change will be key to achieving our objectives. The aim in implementing WS2007 will be to prioritise waste prevention and actions towards the top of the waste hierarchy, i.e. towards waste prevention and aspiration of driving increasingly to a resource efficient, zero waste society."*[1]

4.6 Most of our goods are imported from the UK and the UK provides markets for our recyclable materials. Our performance as a government will often be judged against UK standards. With this in mind, this scrutiny report makes extensive references to the policies set out by the UK government.

[1] UK Waste Strategy 2007 annex G, p.1

4.7 When measured against recent developments, the framework set out by the Environment and Public Services Committee in May 2005 identified all the major issues. However, the rapid growth of both expectation and performance in the area of waste management was not anticipated at that time.

4.8 The scrutiny review builds on the Department's framework and sets it in the context of recent developments. It endorses many of the suggestions put forward tentatively two years ago and provides evidence to suggest that these ideas can be put into practice either immediately or within a very short time frame.

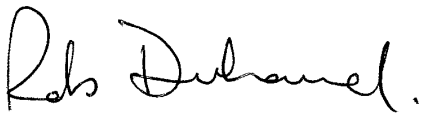
4.9 The actions following this review will be of major significance to the Jersey taxpayer. T&TS are preparing to replace the Bellozanne incinerator with a new, very large plant. The capital cost is estimated to be in the order of £70 million and there may be additional costs as a result of further infrastructure changes. This expenditure comes at a time when tax receipts are due to fall and there will be intense pressure on States budgets.

4.10 The planning for the new waste plant was undertaken in the years leading up to 2005 and this report clearly shows the changes that have occurred since.

Main Recommendation

The Scrutiny Panel strongly recommends that T&TS take the opportunity to review the estimates of both waste arisings and recycling rates for the period of the strategy. The Panel believes that the residual waste arisings estimated in 2005 for the next 25 years are seriously overstated and that recycling rates are seriously underestimated. This combination leads to an estimate for residual waste that is unjustifiably high.

4.11 This report has been published in slightly unusual circumstances. Given the timing of P85/2007, the panel has decided to publish the report in its current form in advance of the debate. The panel would have wished to discuss its findings with both T&TS and the Comité des Connétables before publication. This has not proved possible and the panel would encourage both the Minister and the Connétables to participate in a full public debate on this vital matter.



Deputy R Duhamel

Chairman, Environment Scrutiny Panel

5. Methodology

5.1 Background research included the following –

a) Investigating the composition and amount of the waste in Jersey.
b) Investigating the application of the waste hierarchy in the Island
c) Considering the Transport and Technical Services recycling target of 32%
d) Investigating the market for recycled goods.
e) Examining the composting method in the Island with particular reference to the viability and equipment for composting of food waste
f) Analysing public / private partnerships
g) Examining the systems used for encouraging the public to recycle.

5.2 The panel gathered evidence using a series of methods, including local reports, documentation from other areas, case studies, fact-finding visits and demonstrations from companies. Professor C. Coggins was engaged to assist the review with technical information.

5.3 The Panel held an exhibition for composting at the Royal Jersey Agriculture and Horticulture Society Hall on 15th and 16th September 2006 to examine the equipment and practicalities of composting food waste within the green waste stream. A static exhibition was held in the departure hall of Jersey Airport between Monday 25th September and Sunday 1st October. A book for public comments had been available and provided many positive comments.

5.4 Connétable Le Brun and Deputy Duhamel attended the Recycle and Waste Management exhibition in Birmingham, which showed a clear and increasing interest in recycling on a worldwide scale and many recent improvements in recycling practices were noted. The Panel attended the Cardiff Material Recycling Facility and examined the recycled products from the waste stream of the Cardiff area. They also considered the significant profit the products were raising. The Panel made a fact-finding visit to France to view two paper recycling sites evidencing the viability of resources which are close at hand to accept Jersey paper and cardboard.

5.5 The panel encouraged the Parish of St Helier to undertake a Zero Waste Trial to establish the potential for increased recycling within a district of St Helier and to test the viability of kerbside collections of recyclables and separated food waste.

5.6 The Panel hired a Krystaline glass implosion machine to examine one method of processing glass and to examine the local market for glass cullet. The Parish of St Helier in its Zero Waste Trial also used the machine.

5.7 The Panel examined and responded as necessary to the following Projets, all of which were relevant to the review:-

- P 95/2005, Solid Waste Strategy by the Environment and Public Services Committee;
- P 258/2005, Composting Facilities by Deputy Le Claire;
- P 31/2006, Composting facilities at La Collette II: approval by States Assembly by the Constable of St Helier;
- P 40/2006 Strategic Plan 2006 TO 2011 by the Council of Ministers
- P 45/2006 Solid Waste Strategy: locations for proposed facilities by the Minister for Transport and Technical Services and
- P 76/2006 Composting facilities at La Collette, St. Helier: Cessation by Deputy G.C.L.Baudains

5.8 Numerous additional requests for information were submitted to various parties during the course of the review. These included provision of additional statistics held by the Transport and Technical Services Department.

6. Waste Arisings

6.1 Terms Used for Waste

There are several different definitions for waste. The following is a description of the main types, as defined by UK legislation.

6.1.1 Controlled Waste

Waste that must be managed and disposed of in line with waste management regulations. It includes municipal, commercial and industrial waste and can come from private homes, schools, hospitals, offices or other businesses. It can be solid or liquid and include a range of materials such as scrap metal, old newspapers, used glass or plastic bottles, aluminium cans, kitchen and garden waste.

6.1.2 Municipal Solid Waste (MSW)

Waste under the control of local authorities, whether or not they have contracted out services. It includes all household waste (89% of Municipal Solid Waste), street litter, waste sent to recycling points, municipal parks and garden wastes, council office waste and some commercial waste from shops and small trading estates where local authority waste collection agreements are in place.

6.1.3 Household Waste

Includes waste from regular household doorstep collection rounds bulky waste collection, hazardous household waste collection, garden waste collection, schools, street sweeping and litter collections

6.1.4 Commercial Waste

Waste arising from wholesalers, shops, offices and catering businesses.

6.1.5 Industrial Waste

Waste from any factories and industrial plants.

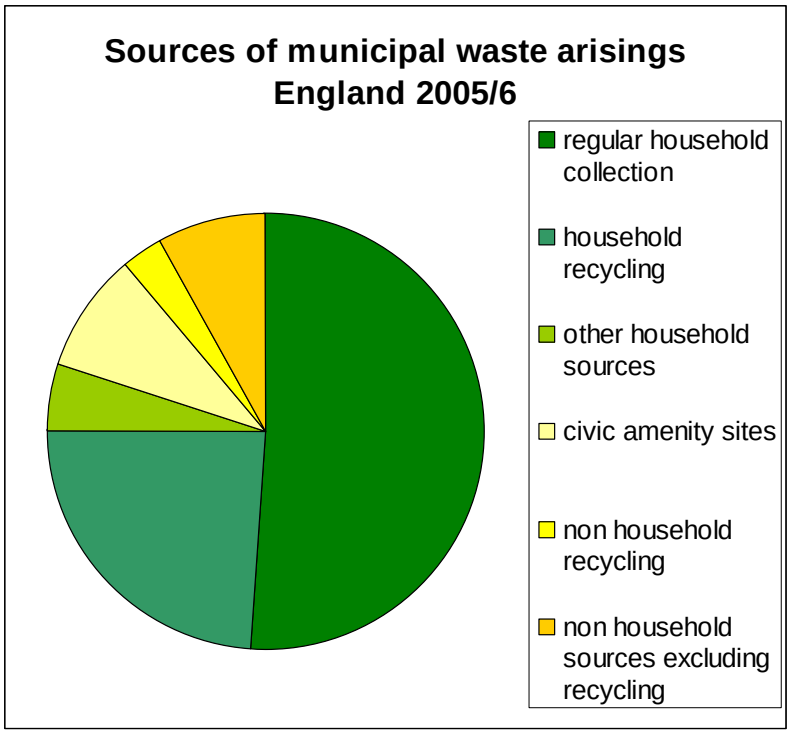
6.1.6 Agricultural Waste

Includes waste from farms and market gardens – including plastics, packaging tyres and machinery and depending on its use, some organic matter such as manure, slurry and crop residues.

6.1.7 Construction and demolition waste.

Includes any waste arisings from the construction, repair, maintenance and demolition of buildings and structures. It consists of brick, concrete, hardcore, subsoil and topsoil as well as timber, metals, plastics and special waste materials[2].

6.1.8 This chart demonstrates the relationship between household waste and municipal waste.



[3]

6.1.9 Jersey will need to decide which definition of household or municipal waste it wishes to use in order to set and monitor targets, and seek markets for recyclates[4].

Key finding
There are many types of waste and it is important to understand the different definitions when drawing comparisons between Jersey and other jurisdictions

[2] Waste Not Want Not. Cabinet Office Strategy Unit November 2002.Page 19/20.
[3] UK Waste Strategy annex C1, p2
[4] Jersey; Waste Composition. Professor C. Coggins.

6.2 Legal responsibility for collection of waste in Jersey and UK

6.2.1 The Guardian newspaper has produced this simple summary of the legal obligation of a local authority (LA) in the UK.

6.2.2 Rubbish collection and illegal dumping

The LA has a duty to collect everyday household rubbish. It can charge you for this service if live in a particularly isolated or inaccessible place. The LA should tell you how often they will collect and what to do if a collection is missed.

6.2.3 The LA must also collect other rubbish from your home such as old sofas, fridges and waste from gardens (a charge may be made for this) and the LA must collect rubbish from offices and shops if they are asked to do so, but they must charge for these services unless there is a good reason to do it free.

6.2.4 You can also complain to your LA about "fly tipping" or if you think a business is not fulfilling its legal obligation to keep its rubbish safely and securely, dispose of it to someone legally authorised to take it, and make a record of what the waste was and who collected it." [5]

6.2.5 Where commercial waste is included in MSW, the local authority will make a charge for its collection.

6.2.6 As well as MSW, there are waste arisings from commercial and industrial undertakings. The disposal of this waste is not the responsibility of the local authority and so it does not feature in the recycling targets. However, separate regulations apply to these businesses and the way in which they dispose of waste.

6.2.7 There is no statutory obligation in Jersey regarding the collection or disposal of waste. The new waste management law sets out a regulatory framework by which T&TS can issue licences to authorised waste management operators. This regulatory framework is required in order to meet international obligations on waste management

6.2.8 The parishes have historically been responsible for the collection of domestic refuse. They also undertake collections from some commercial premises. Ratepayers pay for this service as part of the parish rate agreed each year at the Parish Assembly to set the rates.

6.2.9 The States has provided disposal facilities to parishes, individuals and commercial organisations. Waste delivered to Bellozanne is processed free of

[5] http://politics.guardian.co.uk/mpsurgery/story/0,,445415,00.html accessed 19/5/07

charge. A covenant in favour of the parish of St Helier requires that parishioners are not charged to dispose of waste at Bellozanne.

Key finding
UK legislation sets out the responsibility for the cost of waste disposal. Jersey legislation does not provide an equivalent framework.

6.3 Composition

6.3.1 Measuring the composition of the waste arisings is crucial in establishing a waste management strategy. Guidance provided to UK local authorities suggests that the analysis of local arisings is required for the following reasons –

a) Monitoring and improving existing recycling schemes.

An analysis allows calculation of the amount of each targeted material captured and to identify which materials are remaining in the residual waste. It provides information on how residents are behaving to allow reviews of capturing practices and education needs in relation to poorly captured or contaminated materials.

b) Developing and reviewing new recycling or composting schemes.

Waste composition data may be crucial for predicting how a new scheme will perform and how much material can practically be recovered.

c) Developing a waste strategy

Waste strategies address how a resource will be managed. Therefore understanding the composition of this resource may assist the decision making process and facilitate projections regarding progress towards meeting recycling targets.

d) Benchmarking against other areas

Waste analysis data allows benchmarking against other authorities with similar demographic or economic profiles.

e) Examining waste arising data

Sustained waste analysis will allow identification of main drivers behind change, highlighting if all materials are changing at the same rate, or if change is the result of one or more specific material being disposed of.

f) Research and waste databases

Waste analysis can form part of a sustained research programme to monitor disposal and recycling behaviour so that trends can be analysed.

g) Public education

Data from waste analysis can be used to support local issues such as education programs and campaigns or to promote an initiative or strategy.[6]

6.3.2 Within the Jersey context, the calorific value of the various waste streams is also of major importance as the disposal route favoured by T&TS for residual waste is incineration (whereas in the UK, waste is still disposed to landfill where calorific content is of secondary significance)

6.3.3 To obtain accurate figures for waste composition, it is necessary to undertake a survey of local waste arisings

6.3.4 The considerations for the specification of a survey include-

a) Clear establishment of data requirements establishing the targeting and scoping of the analysis.
b) The intended use of the data.

The recording of the data must meet the specific requirements of the analysis. This will guide the analysis technique adopted.

c) Procurement of services to undertake the analysis.
d) Operational realities of an analysis such as

- Health and Safety
- Physical amounts that can be sorted without disruption to normal working
- Working around collections and operations
- Sorting space
- Sampling schedule and participation
- Privacy
- Public relations

6.3.5 As a minimum, the survey should provide tables of raw or low level data in a manner that will allow the relevant issues to be examined.[7]

6.3.6 Major studies will extend to considering the social and economic makeup of households used in the ACORN classification (ACORN is a geo-demographic classification tool that classifies each household in the UK, based upon significant social factors, consumer behaviours, etc into 5 categories, 17 groups and 56

[6] Waste Composition Analysis. Guidance for Local Authorities - DEFRA
[7] Waste Composition Analysis. Guidance for Local Authorities - DEFRA

types. In broad terms, the 5 ACORN categories are: 1 - Wealthy achievers 2 - Urban prosperity 3 - Comfortably off 4 - On moderate means 5 - Hard pressed)[8]. They will also take samples from differing times of year to even out seasonal variations.

6.3.7 Jersey has not undertaken a compositional analysis – the table produced in the PSD waste strategy is based on a number of typical UK analyses.

6.4 Composition of waste in the UK.

6.4.1 In 2002, the English government commissioned a major survey on the issue of waste. The Cabinet office produced the "Waste not, want not" report which has become a standard reference in this field. The report quotes an average household waste composition as follows

Composition of household waste throughout England 2000/01[9]	
Paper and Board	18%
Garden Waste	20%
Kitchen Waste	17%
Glass	7%
Textiles	3%
Scrap Metal / White Goods/Metal Packaging	8%
Dense Plastic	4%
Plastic Film	4%
General Household Sweeping	9%
Nappies	2%
Soil	3%
Wood	5%

6.4.2 The categories used for compositional analysis are not standard. As an example, two recent sets of results are quoted below. It can be seen that there is considerable variation in the percentages assigned to different types of waste and that different authorities have chosen to categorise waste under different headings.

Composition of Household Waste London 2004[10]			Composition of Domestic Waste - Merseyside 2005 - 2006[11]	
Paper and Board	27.80%		Paper and Card	23.7%
Organics	34.30%		Garden Waste/ Kitchen Waste	30.6%

[8] **DEFRA Waste Implementation Programme Local Authority Support Unit** Waste Composition Audits 2004/2005 Programme http://lasupport.DEFRA.gov.uk/ViewDocument_Image.aspx?Doc_ID=196

[9] Waste Not Want Not. Cabinet Office Strategy Unit November 2002. Page 21
[10] From Table Page 7 Greater London Authority Waste Composition Scoping Study Oct 2004
[11] Household Waste Composition Analysis Final Report for Merseyside. Page 10

Glass	7.50%		Glass	7.6%
Textiles	2.40%		Textiles	4.7%
Ferrous and non ferrous Metal	3.80%		Metal	4.2%
Plastic	11.50%		Plastic	13.3%
WEEE	0.30%		Electrical / WEEE	2.2%
Fines (<10mm)	1.30%		Fines	2.2%
Other Combustibles	10.30%			
Household Hazardous Waste	0.20%			
Other Non Combustibles	1.60%			
			Wood	0.5%
			Nappies	4%
			Miscellaneous Items	7.5%

6.4.3 These tables all relate to household waste. The total waste arisings within any locality will comprise MSW (which consists mainly of household waste), commercial and industrial waste. In many places, MSW is a small proportion of the total waste produced.

Key finding
Waste composition analyses are available at both a national and local level within the UK. Composition of waste does vary considerably from region to region, and over time

6.4.4 Isle of Man

The recent review of the Isle of Man waste strategy identified the importance of clear statistics on waste arisings and waste composition.[12] The Manx report acknowledged deficiencies within their own administration and set out a number of targets to ensure that accurate information would be collected in the future. It noted that:

"Baseline data is a key prerequisite for developing a strategy. Without data on waste arisings - amounts, types and source - it is not possible to monitor change (growth or reduction) or seek to set targets. At present there is no comprehensive reliable data base on the amount of waste arising on the Island and how each tonne or litre of that waste is managed. "

and

"As indicated baseline data on waste arisings and types is an essential component of any waste strategy. To be able to plan for, and fund, facilities and

[12] Isle of man waste review 2007 (see pdf)

schemes, the island needs to know how much and what types of waste we will be producing over the next 10-15 years. "

Key finding
In order to plan a coherent waste strategy it is essential for a jurisdiction to understand the amount and composition of waste produced

6.5 Composition of Waste in Jersey

6.5.1 As explained above, it is difficult to make a comparison between English MSW and waste arisings in Jersey. The composition used by PSD in the 2005 strategy document is taken from a variety of UK sources[13].

6.5.2 A comparison of the "Waste not, want not" table and the table used by PSD is shown below

	Composition of household waste throughout England 2000/01[14]	1999 UK figures used in PSD report
Paper and Board	18%	29%
Garden Waste	20%	10%
Kitchen Waste	17%	28%
Glass	7%	6%
Textiles	3%	2%
Scrap Metal / White Goods/Metal Packaging	8%	5%
Dense Plastic	4%	9%
Plastic Film	4%	
General Household Sweeping	9%	
Nappies	2%	
Soil	3%	
Wood	5%	
Miscellaneous combustibles		6%
Miscellaneous non-combustibles		4%
Fine particles		1%
Other		

(figures rounded to the nearest 1%)

[13] States of Jersey Solid Waste Strategy May 2005 page 99 - EA waste analysis 1999, Hounslow, Cheshire, Scotland

[14] Waste Not Want Not. Cabinet Office Strategy Unit November 2002. Page 21

6.5.3 Considerable variation can be seen between these two sets of figures and also with the recent surveys undertaken in London and Merseyside.

6.5.4 Without the benefit of a survey of local waste, it is difficult to justify the use of the percentages quoted by PSD in their 2005 report.

6.5.5 Rather than working in terms of MSW, PSD have used the concept of "non-inert waste". The phrase "non-inert" needs to be understood in context.

- It includes glass, which is inert
- It excludes agricultural green waste, which is no longer dealt with by T&TS – farmers now dispose of their own green waste, through composting and ploughing waste material back onto the land.
- It excludes clinical waste, animal by-products, and hazardous waste, all of which require special disposal.

6.5.6 The breakdown of "non- inert" waste arisings for 2004 is given as:

Material	**Treatment**	**Household**	**Commercial**	**Total**
Parish deliveries	Incineration	yes	yes	44,406
Miscellaneous (mainly commercial)	Incineration	some	yes	10,141
Bulky waste	Incineration	yes	yes	20,879
Waste from sewage treatment	Incineration	-	-	833
Separated glass	Landfill at La Collette	yes	yes	5,487
Aluminium	Recycling	yes	yes	15
Paper and card	Recycling	Yes (but only after 2004)	yes	2,087
Agricultural film	Recycling	no	Yes	463
Timber	Recycling	some	yes	1,400
Textiles	Recycling	yes	no	287
Commercial green waste	Composting	no	yes	7,375
Household green waste	Composting	yes	no	5,125

6.5.7 It is reasonable to assume that the parish deliveries will have a composition similar to UK MSW. However, as can be seen from the table above a substantial amount of waste is received in the form of "miscellaneous (mainly commercial)" and "bulky waste". At the time of the 2005 report, PSD had no information on the composition of this waste, which makes up 31% of the total non-inert waste.

6.5.8 The previous scrutiny report recommended that PSD should undertake an appropriate survey to determine the composition of this significant waste stream.

6.5.9 Following a letter from the scrutiny panel to the Transport and Technical Services Department dated 8th March 2006 asking for information on the breakdown of these waste streams, a survey was finally conducted in March and April of 2006 by consultant engineers. The survey examined the "Directly Delivered Waste" taken to Bellozanne by both businesses and members of the public. The survey excluded all Parish waste collected by Refuse Collection Vehicles delivered directly into the plant bunker. The table below outlines an analysis of the conclusions of the report[15].

Total received	720	tonnes per week				
	Bulky	other	tonnes bulky	tonnes other	total tonnes	overall %
Wood	49%		264.6	0	264.6	37%
Plastic	12%	7%	64.8	12.6	77.4	11%
Metal	3.60%		19.44	0	19.44	3%
Metal to scrap yard	5.40%		29.16	0	29.16	4%
Carpet	7%		37.8	0	37.8	5%
Cardboard	2%	8%	8.64	14.4	23.04	3%
Cardboard for recycling	2.40%		12.96	0	12.96	2%
Paper		12%	0	21.6	21.6	3%
Street sweepings		10%	0	18	18	3%
Household		55%	0	99	99	14%
Miscellaneous	19%	8%	102.6	14.4	117	16%
Quantity	75%	25%	540	180	720	

6.5.10 The final column of the table clearly indicates that the composition of the commercial and bulky waste is very different from the composition of MSW.

6.5.11 The Panel identified a number of problems with the survey.

i) The sample taken was so small that the figures required amendment as a result of a delivery from a single vehicle.

ii) The waste was categorised on visual observations with an estimation of each fraction.

iii) The recording of measurements was over 11 days for the bulky waste and only 1½ days for the bunker deliveries.

[15] Jersey T&TSD Directly Delivered Waste Categorisation Summary Report 28th September 2006

iv) There are many inconsistencies within the report regarding dates, quantities and percentages of waste

6.5.12 As at January 2007, the Transport and Technical Services are using the local partial survey figures above alongside UK figures and the Isle of Man figures in the below tables as a base for the local strategy

material percentages	north	east	south	west	all	UK
paper	15.4	15.2	15.6	15.2	15.3	17.4
card	7.4	7.3	7.7	7.1	7.4	5.3
dense plastic bottles	2.5	2.6	2.4	2.4	2.5	2.1
other dense plastics	4.3	4.2	4.4	4.1	4.2	2.7
plastic film	4.8	4.9	4.7	4.6	4.8	4.0
textiles	2.8	3.0	2.6	2.7	2.9	3.2
glass	7.6	7.7	7.7	7.0	7.6	8.4
misc combustibles	8.6	9.1	8.9	9.7	9.0	6.0
misc non comb	3.8	4.1	3.6	4.6	4.0	2.1
ferrous	3.3	3.2	3.3	3.4	3.3	2.9
non ferrous	1.0	0.9	0.9	0.9	0.9	3.4
WEEE	0.6	0.6	0.5	0.5	0.6	0.1
hazardous	0.7	0.7	0.5	0.6	0.7	0.1
organic non catering	12.4	11.4	13.2	12.9	12.0	16.4
organic catering	24.0	24.2	23.3	23.7	24.0	22.2
liquids	0.1	0.1	0.1	0.1	0.1	0.0
fines <10mm	0.7	0.8	0.7	0.7	0.7	3.7

6.5.13 When supplying the figures, Transport and Technical Services stated,

"We built our strategy model based on typical UK household waste analysis and assumed similar composition across all municipal waste in Jersey. I also have the results of a recent Isle of Man composition analysis on household waste - helps us a bit as their survey shows reasonable comparison to UK mainland composition. This is unfortunately household only though." [16]

6.5.14 The panel does not believe that T&TS have a robust set of data on which to make policies in respect of either recycling or the size of the suitable incinerator. For example, the figures given in the waste strategy for total arisings in the different

[16] Quote by Transport and Technical Services 24th January 2007 and Isle of Man charts.

material streams give a total of approximately 66,000 tonnes, whereas the total arisings is shown as just under 100,000 tonnes.

6.5.15 Recycling targets will be examined in more detail in the next chapter. The composition of waste is significant in the design of an incinerator as this will be influenced by the energy content (calorific value) of the waste.

6.5.16 The Babtie Fichtner report undertook an analysis of the calorific value of the various waste streams. The report makes it clear that the calorific value is affected by the amount of water that is present in the waste. When waste is stored in the open air it will absorb rain water and this can make a substantial difference to the calorific value. Babtie Fichtner recommends that further surveys are undertaken "to build up a historical record of the energy content of the waste, thereby allowing the plant is designed to be specified accurately".[17]

6.5.17 The scrutiny panel have not received any details from T&TS to indicate that further surveys have been undertaken or are to be taken.

6.5.18 The Shadow Scrutiny Report "Draft Waste Management Strategy" dated April 2005 made the point that insufficient data had been kept on the quantity and composition of household and commercial waste delivered to Bellozanne and that this data was essential for the preparation of a comprehensive waste management strategy.[18]

6.5.19 There are still no up to date, robust local figures on which to base all decisions relating to the Waste Strategy of the Island.

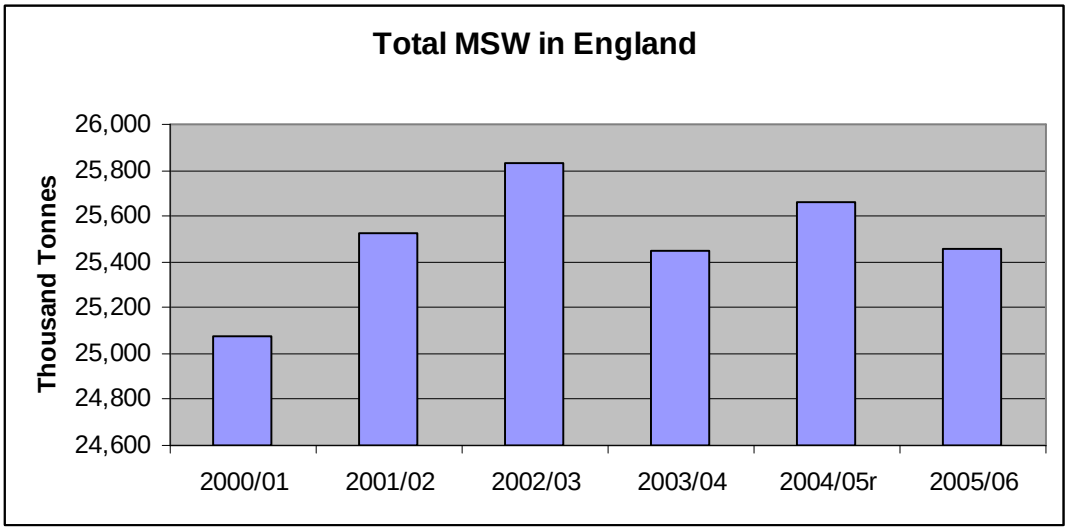
Key findings
There has been no comprehensive survey of Jersey waste composition
The composition of commercial and bulky waste is based on one very short survey
Although the Department's consultants recommended that additional surveys were needed, the panel is unaware of any such surveys being undertaken

[17] Jersey T&TSD directly delivered waste categorisation summary report Fichtner sept 2006
[18] Draft Scrutiny Report Waste Management Strategy dated April 2005. Page 22

6.6 Future trends in waste arisings

6.6.1 Figures published by DEFRA in November 2006 show fluctuations in the total amount of MSW produced in England in the last five years.

Household waste from:	2000/01	2001/02	2002/03	2003/04	2004/05[r]	2005/06
Total household	**25,079**	**25,524**	**25,832**	**25,448**	**25,658**	**25,454**
		1.77%	**1.21%**	**-1.49%**	**0.83%**	**-0.80%**
Total municipal waste (MSW)	**28,057**	**28,905**	**29,394**	**29,114**	**29,619**	**28,745**
[19]		**+3.02%**	**+1.69%**	**-0.95%**	**+1.73%**	**-2.95%**



6.6.2 The UK Waste Strategy 2007 noted that "WasteDataFlow figures for 2005/06 show that the rate of growth has slowed since the turn of the millennium. The current trend is still for some waste growth with total MSW increasing by 0.5% per annum on average over the past five years"[20]

6.6.3 The factors that will affect the amount of waste in the future include population growth, household size, level of prosperity, and increase in public awareness of environmental issues.

Key finding

The growth in waste arisings in the UK has slowed considerably and is now averaging 0 .5% over the last five years

6.6.4 Packaging

[19] http://www.DEFRA.gov.uk/environment/statistics/wastats/archive/mwb200611.xls
[20] UK Waste Strategy 2007 annex A p. 26

Consumers are increasingly aware of the amount of waste that is involved in everyday living with items double and sometimes triple wrapped. Supermarkets and manufacturers are taking steps to reduce unnecessary packaging. Campaigns have been organised recently by the Women's Institute[21] who organised a 'Packaging Day of Action'[22] and The Independent newspaper[23] which organised a major publicity campaign and an early day motion in the UK Parliament

6.6.5 Local authorities have also taken steps to increase the fines for excess packaging as the current law is seen to be ineffective. Their spokesman, Councillor Geoffrey Theobald OBE, Chairman of LACORS, said:

"Tougher laws and serious fines are necessary and needed for local authority trading standard services to successfully regulate manufacturers that use excess packaging. Manufacturers have a vital role to play in cutting unnecessary packaging and making sure all essential packaging is made from recycled and recyclable material." [24]

6.6.6 Re use

Re use is also becoming more popular - reusable carrier bags have replaced many disposable bags in our supermarkets and many manufactured goods are now assembled in such a way that the item can be disassembled and many separate parts reused in the manufacture of a new item[25].

Key finding There are considerable pressures from consumers to reduce excess waste and businesses are responding to this in a number of positive ways

6.6.7 Trends

An examination of waste management strategies for UK authorities indicates a range of assumptions for growth in waste arisings. Advice provided by the department for communities and local government explains that:

[21] www.theWI.org.uk/packaging and http://environment.independent.co.uk/lifestyle/article2683715.ece accessed 070623

[22] Women's Institute Action on Packaging leaflet.

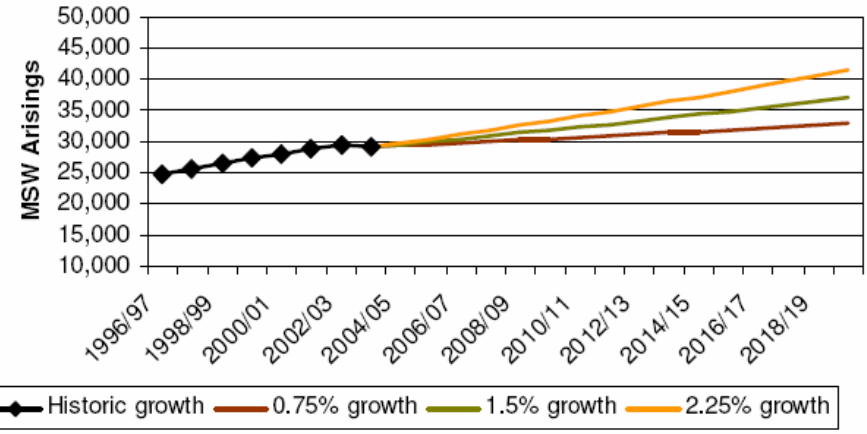
[23] http://www.independent.co.uk/environment/lifestyle/article2488864.ece accessed 23/6/07

[24] http://www.lga.gov.uk/PressRelease.asp?id=SX142C-A7842240 accessed 23/6/07

[25] "Better by design",New scientist 6/1/2007

"Consequently, the growth profile that is employed will need to be a 'dynamic' one that responds to changing circumstances and is likely to show a progressively reducing rate of growth. A 'static' growth profile that assumes a constant rate derived from historical evidence, as has sometimes was the outcome when the '3%' historic growth rate quoted in Waste Strategy 2000 has been applied, is unlikely to be realistic."[26]

6.6.8 In the "Review of England's Waste Strategy -A Consultation Document" published by DEFRA in February 2006, it is suggested that the growth in waste arisings will decrease and a number of options suggest that as shown in the following graph



MSW arisings are predicted to increase from 29.1mt in 2003/4 to between 32.8mt and 41.6mt by 2019/20 on current trends.

Source: Defra's Local Authority Waste Recycling Recovery and Disposal Model output

Figure 1 – Municipal solid waste arisings [27]

6.6.9 A typical local authority analysis is shown in the following box.

Technical Paper on current and predicted trends in Waste Arisings and Disposals in Cornwall

Forecasts for the MSW stream

A9.8 All forecasts have been taken up to the end of 2012 which is 10 years following the anticipated date of adoption of the Plan (in accordance with advice contained within PPG12). In forecasting future levels of arisings, recovery and disposals the following assumptions have been made:

Arisings of MSW will increase at 3% per annum until 2004, at 2% to 2009, at 1% to 2011 and then at a static rate thereafter.

[26] http://www.communities.gov.uk/pub/751/PlanningforSustainableWasteManagementACompanionGuidetoPlanningPolicyStatement10_id1500751.pdf

[27] http://www.DEFRA.gov.uk/environment/waste/strategy/review/wastestratreview/review-consult.pdf

This assumption has been based upon the following factors:

- Household numbers will increase at around 1% per annum (the Cornwall Structure Plan, 1997 has projected an increase of 45,000 extra households during the Plan period);
- Increases in waste production per household will reduce from 4% per annum to 1% per annum between 2000 and 2005 and then remain at 1% (partially influenced by the Packaging Directive which, whilst not directed at the consumer, should result in a reduction factor in waste arisings).
- The effectiveness of home composting (although there is currently no factual evidence of a sustained reduction in the MSW stream from this activity, it may well be that home composting has been a recognised form of recycling for some years). [28]

6.6.10 The Scottish national waste strategy 2003 sets out the following trends

"Future Arisings of Municipal Waste

In Chapter 3 an estimate is provided that by 2020, Scotland could produce 4.6 million tonnes of municipal waste: 1.4 million tonnes per annum (mtpa) more than today, if waste arisings continue to grow at the current estimated rate of about 2% per year. The first vital component of the National Waste Plan is to limit this growth. Every Area Waste Plan has committed to actions to achieve this, by working individually, collectively at a Scottish level, and with UK-wide initiatives, to encourage the reduction of waste at source.

Scotland's ultimate objective, set out in NWSS 99, is to stop and then reverse the growth in waste, but it is recognised that demographic and economic circumstances make this a considerable challenge. The Waste Strategy Area Groups have, therefore, adopted a relatively conservative approach to forecasting their ability to slow waste growth, recognising that the key drivers – household numbers, product design, consumer behaviour and economic growth – are all working against the target of stopping or reversing the trend. In particular, household numbers in Scotland are projected to continue to grow at the same rate as for the past 10 years suggesting that, in the absence of measures to slow waste growth, municipal waste could continue to grow at the rate experienced in recent years.

Every group has, however, concluded that it should be able to slow this growth. Overall, the groups estimate that a slowing from 2% to at least 1.5% per year should be achievable across Scotland. The assumed projection for waste arisings for the purpose of planning is, therefore, an average growth of 1.9% per year until 2010 reducing to 1.5% per year from 2010 to2020. … Zero growth by 2010 has been adopted as an aspirational target for sustainable development[29]

[28] http://www.cornwall.gov.uk/index.cfm?articleid=2313
[29] Scottish national waste strategy 2003

Key finding

At both national and local level, UK authorities are planning on growth rates of waste arisings of between 0% and 2%, with the trend continuing to fall.

6.6.11 **Jersey**

It can be seen that at both local and national level, UK authorities are seeking to limit the growth in waste arisings. Although Jersey is much too small to influence the national trend, it will be affected by the national trend and it is fair to assume that trends in the UK will limit the growth in waste arisings in Jersey

6.6.12 Total, non-inert waste arisings have been reported by PSD/T&TS as follows:

Year	Total	Change from previous year	% change
2003	103,134		
2004	96,692	- 6,442	-6.2%
2005	96,753	+61	+0.1%
2006 [30]	101,950	+5,197	+5.4%

The table shows that although waste arisings rose in 2006, they are still below the level recorded for 2003.

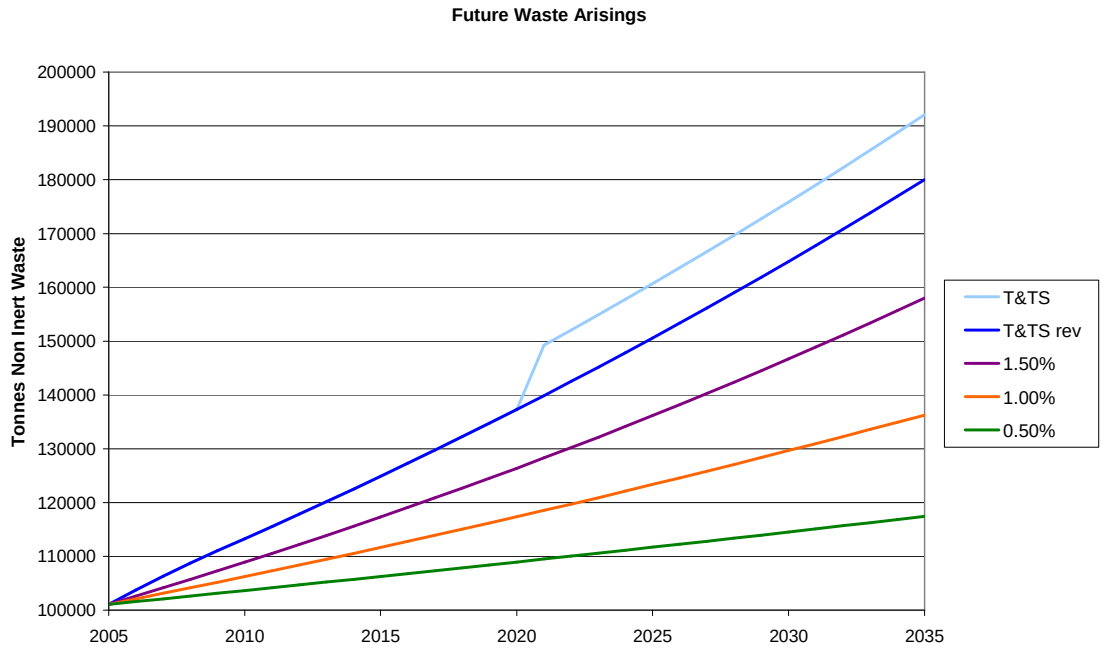
6.6.13 The Jersey Waste Strategy Report states that "Non-inert waste arisings in Jersey have risen, on average by 2.5% per year from 1998 to 2004". The report then suggests that household waste arisings will continue to rise at the rate of 2-3% per annum for the foreseeable future[31]. In a separate part of the report it is suggested that total waste risings will increase at 2.6% per annum reducing to 1.8% by 2024.

6.6.14 The model used by T&TS is based on both the predicted growth in the number of households and a continuing steady increase in the amount of waste produced per household. These two factors have been added together to produce the overall annual increase. The growth in the number of households has been applied to the whole of the waste arisings whereas, in fact, the household waste arisings in Jersey account for only between 40% and 60% of the total non-inert arisings. The waste arisings are therefore likely to have been overstated. The figures supplied by T&TS appear to contain a miscalculation for the year 2021 –

[30] Jersey in figures 2006
[31] Page 25/26. Solid Waste Strategy Environment and Public Services Committee May 2005

this affects all of the subsequent figures and would appear to give rise to a final figure of 192,000 tonnes as opposed to 180,000 tonnes.

6.6.15 The figures supplied by the Department are shown with a light blue line, and the revised figure is shown with a dark blue line.



6.6.16 The graph also shows the total waste arisings given an annual increase of 0.5%, 1% or 1.5%. As can be seen, if the growth rate is similar to that predicted for other UK authorities, this will have a significant impact on the total amount of waste. It is unlikely that waste arisings will continue to grow in Jersey on the scale suggested by T&TS, when waste production is being carefully controlled and curtailed in neighbouring countries.

Key findings

The figures used for future trends in Jersey have not been updated in line with recent data and future predictions

There appear to be some errors in the calculation of the predicted waste arisings

6.7 Waste prevention

The UK Waste Strategy sets as one of its main objectives

"***Decouple waste growth (in all sectors) from economic growth and put more emphasis on waste prevention and re-use"***[32]

6.7.1 There are many methods of waste prevention. Product design is one important area in which Jersey will benefit from advances made in the UK and elsewhere. The UK government has announced that it is establishing a new products and materials unit within DEFRA, to encourage advances in this area[33]

6.7.2 The Courtauld commitment[34], supported by the UK government, is to

- Design out packaging waste growth by 2008
- Deliver absolute reductions in packaging waste growth by 2010
- Identify ways to reduce food waste

6.7.3 One specific initiative to reduce waste is a UK commitment to achieve a 25% reduction in the environmental impact of free carrier bags (both plastic and paper) by the end of 2008.[35] Local supermarkets have already responded to publicity surrounding free carrier bags and the Co-Op and Checkers both have similar monthly schemes with a " no carrier bag day".

6.7.4 Another area of waste prevention which can be tackled is a reduction in the number of disposable nappies. A recent study by the Environment Agency estimated that babies generally wear nappies for the first 2.5 years. During this time, a baby will use approximately 3650 nappies (4 per day), weighing, on average, 130g each. This equates to an approximate potential diversion of 190kg per child per year if parents can be encouraged to use reusable nappies.

6.7.5 Using reusable nappies instead of disposable ones greatly reduces the number of soiled nappies entering the waste stream. A local initiative already exists to provide vouchers for parents to purchase reusable nappies. Similar schemes exist in other local authorities such as Richmond[36]

6.7.6 To emphasize the importance of waste prevention, the UK government is developing proposals for new waste performance indicators. In particular, it is suggested that a target could be set for the amount of household waste per person that is not reused, recycled or composted. This target would encourage waste reduction as well as reuse, recycling and composting.[37] Aspirational

[32] UK Waste Strategy for England 2007, page 28
[33] UK Waste Strategy for England 2007, p.58
[34] UK Waste Strategy for England 2007, p.67
[35] UK Waste Strategy for England 2007, p/98

[36] http://www.richmond.gov.uk/waste_and_recycling_strategy_annex_c-2.doc

[37] UK Waste Strategy for England 2007, p.86

targets have been set out for the average amount of household waste not reused, recycled or composted per person as follows

Year	Amount per person
2005/06	**370 kg**
2010	**310 kg**
2015	**270 kg**
2020	**225 kg**

6.7.7 Waste reduction delivers significant financial savings – UK figures[38] suggest a net cost of:

- £36 billion for MSW costs between 2009 and 2019 if waste grows at 2.25% per annum; compared with a cost of
- £32 billion if there is zero growth in waste over the same time period – a potential saving of up to £4 billion, if waste reduction policies are successful.

Key Finding

Waste prevention is a key area in minimizing the amount of residual waste

The UK government is introducing waste reduction/minimization targets

Successful waste reduction policies will provide substantial savings

6.7.8 Jersey

From a political standpoint, the Strategic Plan 2006-2011 sets an ambitious target in this area with the commitment

> **"1.1 Show the world that economic and environmental success can work together** - Indicated by: a reduction in per-capita consumption of resources and targets and timescales for reductions in per-capita waste arisings that reflect best practice globally"[39]

6.7.9 Since the publication of the Strategic Plan[40], T&TS have not provided any indication of .the policies that will be adopted to achieve this commitment. T&TS have not adjusted their waste arising projections to take account of the reduction in future years

[38] UK Waste Strategy annex A, p 15

[39] UK Waste Strategy annex A, p 30

[40] Strategic plan 2006-2011 http://www.gov.je/NR/rdonlyres/7D462750-EFD8-446E-A0E6-E024EEA59DE5/0/StatesStrategicPlan2006to2011.pdf

Key finding

T&TS have not made any adjustments to the predictions for future waste in Jersey although they are committed to staying in line with best practice globally

Summary

Waste composition

- There are many types of waste and it is important to understand the different definitions when drawing comparisons between Jersey and other jurisdictions
- UK legislation sets out the responsibility for the cost of waste disposal. Jersey legislation does not provide an equivalent framework.
- Waste composition analyses are available at both a national and local level within the UK. Composition of waste varies considerably from region to region, and over time
- In order to plan a coherent waste strategy it is essential for a jurisdiction to understand the amount and composition of waste produced
- There has been no comprehensive survey of Jersey waste composition
- The composition of commercial and bulky waste is based on one very short survey
- Although the department consultants recommended that additional surveys would be needed, the panel is unaware of any such surveys being undertaken

Waste Arisings

- The growth in waste arisings in the UK has slowed considerably and is now averaging 0.5% over the last five years
- There are considerable pressures from consumers to reduce excess waste and businesses are responding to this in a number of positive ways
- At both national and local level, UK authorities are planning on growth rates of waste arisings of between 0% and 2%, with the trend continuing to fall.
- The figures used for future trends in Jersey have not been updated in line with recent data and future predictions
- There appear to be some errors in the calculation of the predicted waste arisings
- Waste prevention is a key area in minimizing the amount of residual waste
- The UK government is introducing waste reduction/minimization targets

- T&TS have not made any adjustments to the predictions for future waste in Jersey although they are committed to staying in line with best practice globally

Recommendations

1. **Jersey should undertake a full compositional analysis of waste produced in the island**

2. **The calculations in respect of future waste arisings should be reviewed immediately in the light of recent trends and external influences, and kept under regular review**

3. **T&TS should reconsider the sizing of a new waste plant in light of the future likely waste arisings**

4. **T&TS should establish targets for per capita waste reductions**

7. Recycling

7.1 Introduction

7.1.1 Waste reduction and reuse will help to limit the amount of waste produced. Many other products within the waste stream can be recycled, either to produce the same item again (closed loop recycling) or to produce a new product (open loop recycling)

7.1.2 There are sound environmental and political reasons for seeking to maximise the percentage of waste recycled in Jersey.

7.1.3 From an environmental perspective, taking value from the waste stream by recycling individual elements or mixed components has many benefits.

- It reduces the use of raw materials
- it saves energy
- it reduces polluting industrial processes
- it treats waste as a resource rather than a problem

7.1.4 The advantages of recycling need to be considered within the life cycle of a product. Raw materials are used to produce products, which are transported to consumers and then purchased. The consumer may discard the product, which will then be collected and either recycled or disposed of. Environmental and financial costs accrue at each stage of this process and a full impact of recycling and disposal needs to be measured against the full life cycle.[41]

7.1.5 The UK government set out a waste management strategy in 2000. Since that time the waste management landscape has become increasingly complex and there have been "advances in technology together with an improved understanding of environmental, economic and social impacts of dealing with waste"[42]

7.1.6 This led to a major review of the waste strategy and the publication of a new waste strategy in 2007. The new document acknowledges that recycling levels in the UK need to be improved. Two key policies set out in the strategy address the issue of the value of recyclate material. The UK government will be working actively to increase the value obtained from recycled material by providing appropriate advice on the best methods for collection and treatment. At the same time it will be supporting the domestic market in identifying high quality uses of

[41] UK Waste Strategy annex C. p.11
[42] Waste strategy 2007, annex A, p 7

recyclate material and providing advice on export markets.[43] Jersey will benefit from strengthened markets and more opportunities for high value recycling.

7.1.7 On Thursday 14th September 2006 Deputy Duhamel and Connétable Le Brun visited the Recycling and Waste Management Exhibition in Birmingham.
The specific objectives agreed for the trip were

- To ascertain current best practice of dealing with various waste streams.
- To examine current and new methods of recycling which could be used in the Island.
- To establish contacts with markets for recycled goods.
- To collect information which will bring the Group up to date on composting techniques.
- To establish contact with the composting companies coming to Jersey.
- To obtain information on methods of involving the public to the standards necessary to implement various differing recycling initiatives.

The Connétable described the international exhibition as the biggest and best annual show in the country for matters connected with waste. It showed a clear and increasing interest in recycling on a worldwide scale and many recent improvements in recycling practices were noted. The 700 exhibitors dealt between them with the entire waste management sector, from software, through vehicles to markets for recycled goods. Many stallholders were spoken to and the visit was considered to have confirmed the objectives set out within the terms of reference of the review.

Key finding As the environmental benefits of recycling are better understood, the UK government is encouraging markets in recycled goods and recycling methods

7.1.8 Benefits of recycling

Taking some common examples of recycled materials: -

A tonne of recycled paper saves

- at least 30,000 litres of water
- 3,000 – 4,000 KWh electricity (enough for an average 3 bedroom house for one year)

The energy saving from recycling one glass bottle will:

[43] Waste strategy 2007 p.71 and p.82

- Power a 100 watt light bulb for almost an hour

Recycling 1 tonne of steel saves -

- 75% of the energy needed for steel made from virgin material. [44]
- 1.5 tonnes of iron ore, 0.5 tonnes of coal & 40% water usage
- 80% of the CO2 emissions produced when making steel from iron ore.[45]

Recycling one kilogram of aluminium

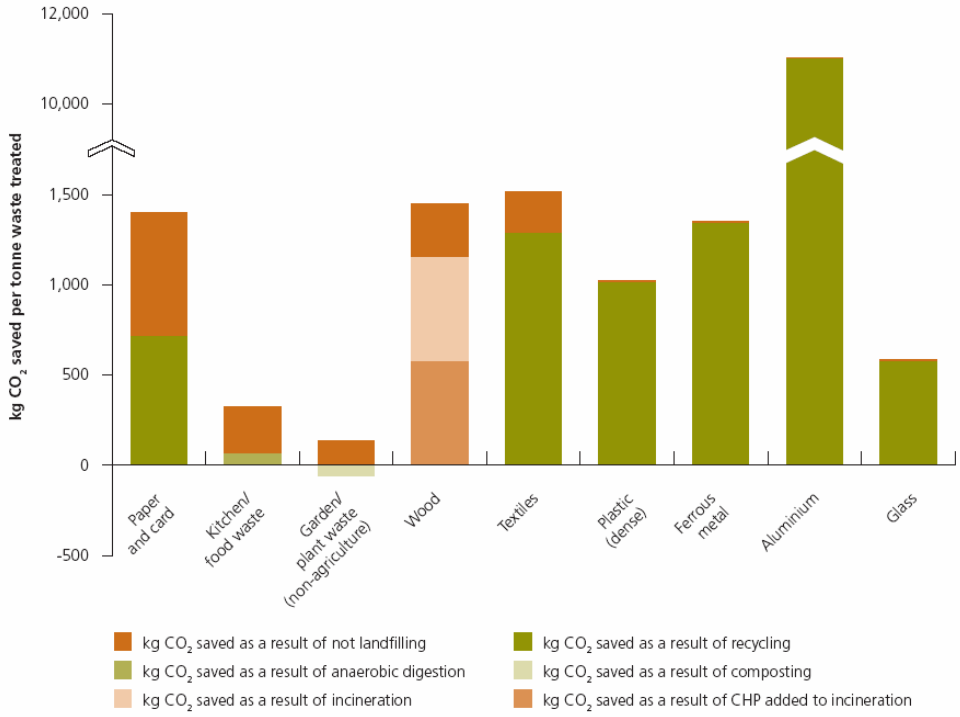
- requires only 5% of the energy it takes to make new aluminium
- produces only 5% of the CO2 emissions.
- saves up to 8 kilograms of bauxite, four kilograms of chemical products and 14 kilowatt hours of electricity.[46]

The energy saved by recycling 1 plastic bottle will

- power a computer for 25 minutes.

[44] Walsall Counsel recycling facts
[45] Waste on Line. Metals Aluminium and Steel
[46] International Aluminium Institute

Chart 4.1: Estimated carbon benefits of diverting different waste materials from landfill



Carbon benefits of diverting waste material away from landfill assuming: paper and card, textiles, plastics, metals and glass are recycled; wood is incinerated with energy recovery; food waste is anaerobically digested, and garden/plant waste is composted.

Source: Defra

7.1.9 This table[47], taken from the UK Waste Strategy 2007, clearly identifies the substantial carbon dioxide savings to be made by recycling.

Key finding
There are major environmental gains to be achieved through recycling of many products

7.1.10 Incineration as an alternative to recycling

As well as the energy saved by recycling, it is important to understand the implications of alternative disposal methods such as incineration.

7.1.11 The existence of climate change as a consequence of human activity is now widely accepted within the scientific community and the public at large. Recent reports have provided a great deal of detail in this area. The Stern report, an independent review commissioned by the UK Chancellor of the Exchequer,

[47] UK Waste Strategy 2007, chart 4.1 , page 54

provides an understanding of the economics of climate change[48]. A report from the Intergovernmental Panel on Climate Change[49] outlines the effects of climate change in the future and makes recommendations for minimising the effects by changing behaviour.

7.1.12 One of the main drivers of climate change is the increase in carbon dioxide in the atmosphere. Carbon dioxide is formed when any material containing carbon is burnt. Burning a tonne of rubbish in a modern incinerator produces just under a tonne of carbon dioxide[50]. (Carbon from the rubbish combines with oxygen from the air to produce carbon dioxide). Figures from the consultation on environmental taxes report quote 33,000 tonnes of carbon produced by all the traffic on Jersey roads in 2005.

Table 1. 2 2005 energy-related carbon emissions (tonnes of carbon)

	Coal and other solid fuel	Petroleum products	Gas	Electricity	Total
Industry and States	–	21,183	2,939	6,118	**30,241**
Air and marine	–	14,925	–	–	**14,925**
Road	–	32,821	–	–	**32,821**
Domestic	2,375	22,960	4,111	5,655	**35,101**
Total	**2,375**	**91,890**	**7,050**	**11,773**	**113,088**

Note: LPG, liquefied petroleum gas.
Source: Oxera calculations based on energy consumption data from Jersey Energy Trends 2005. [51]

7.1.13 An incinerator burning 126,000 tonnes of rubbish (as predicted by PSD at the end of its design life) would produce approximately 124,000 tons of carbon dioxide, or 33,800 tonnes of carbon, i.e. more than all the vehicles in Jersey in 2005. Reducing the quantity of waste requiring incineration through increased recycling will help to reduce the amount of carbon dioxide produced by the island, helping Jersey to meet its strategic climate change commitments.

7.1.14 The UK Waste Strategy notes that "greenhouse gas emissions should be an important criterion for stakeholders developing energy from waste plant"[52] and it suggests that the government is "considering developing a greenhouse gas emissions performance indicator for local authority performance on waste."[53]

[48] Stern Review Executive Summery.
[49] Intergovernmental Panel on Climate Change. Climate change 2007: The Physical Science Basis.
[50] Compact power presentation to Jersey scrutiny panel 7th February 2005 (mass burn incinerator produces 985 kg carbon dioxide per tonne of rubbish input)
[51] Funding our future February 2007 http://www.gov.je/NR/rdonlyres/7CAFF9B2-5357-4A23-81A9-5976FEC336F1/0/FUNDINGOURFUTUREconsultationpaperFinal1.pdf
[52] UK Waste Strategy p.79
[53] UK Waste Strategy p.86

7.1.15 The proposed incinerator would be used to generate electricity which would replace a proportion of the electricity currently received from France, which is predominantly produced by nuclear power with low carbon emissions. There are no plans at present to use heat generated in the incineration process for a district heating scheme. This will reduce the efficiency of the plant making it a less attractive proposition.

Key finding The incineration of residual waste as an alternative to recycling will result in a considerable increase in carbon dioxide emissions in Jersey

7.1.16 Strategic commitment

From a political standpoint, the strategic plan 2006-2011 emphasises the importance of high environmental standards -

"Our physical environment is essential to both our well-being and to the Island's economy. Uncontaminated land, air and water should exist as a basic right for all people. To achieve this, both community efforts and comprehensive, long-term environmental policies will be required – and we have made good progress recently to establish these."

and

"In an increasingly globalised world, it is more important than ever that we present the very best Jersey has to offer to an international audience. It is essential for the Island to create a strong international profile to ensure that the images and facts presented abroad reflect the very best the Island has to offer. This will improve the marketing of Jersey and our influence in the world."

Jersey is a prosperous island and it is vital that to maintain our reputation that the government is seen to be conforming to the highest standards of environmental protection" [54]

7.1.17 As recycling rates increase in the UK and on mainland Europe we will be seen as increasingly out of step with neighbouring countries if we do not significantly improve our current recycling facilities. There is a mass of anecdotal evidence from recent arrivals to the island who consistently expressed surprise at the lack of facilities for collecting separated items for recycling. For example, a local resident with experience of recycling systems in Australia and New Zealand wrote

[54] Strategic plan 2006-2011 http://www.gov.je/NR/rdonlyres/7D462750-EFD8-446E-A0E6-E024EEA59DE5/0/StatesStrategicPlan2006to2011.pdf

"… I have been frustrated at the lack of facilities to easily recycle my household waste."[55]

7.1.18 A second correspondent who spends time in France wrote "I would regard the system of rubbish collection as extremely poor. However, there is always hope that Jersey could take some advice from our neighbours and collect rubbish on a far more practical basis where it is the responsibility of the householder to sort their rubbish into four different bins…."[56]

Key finding
To maintain Jersey's international reputation, environmental policies, including recycling, need to be in line with the best accepted practice

7.2 Recycling targets

7.2.1 The UK government set national targets for MSW recycling in the waste strategy 2000[57]. At that time targets for the recycling or composting of MSW were

Year	Target
2005	**25%**
2010	**30%**
2015	**33%**

7.2.2 In 2006, the UK government undertook a comprehensive review of its waste strategy. New targets have now been set reflecting both the availability of recycling processes and the desire of the general public to take a more responsible attitude on environment issues. The new targets were issued in May 2007.

Year	Target
2010	**40%**
2015	**45%**
2020	**50%**

[55] Personal correspondence (30/3/06)
[56] Personal correspondence (10/3/06)
[57] Waste strategy in England and Wales
www.DEFRA.gov.**uk**/Environment//**waste**/**strategy**/cm4693/pdf/wastvol1.pdf

7.2.3 As well as national targets, individual local authorities also have recycling targets.

7.2.4 Audited figures on household recycling and composting rates released in December 2006 by DEFRA show that two thirds of English local authorities met or exceeded their individual targets for 2005/6. More than half of them exceeded the Government's target of 25%. Two thirds of authorities reported a decrease in collected household waste per head between 2004/5 and 2005/6.

7.2.5 The Environment Minister, Ben Bradshaw said:

"This is a fantastic achievement by householders and local authorities. Recycling is a vital part of our battle against dangerous climate change. The emission saved by current levels of recycling is the equivalent of taking 3.5 million cars off our roads. But performance is still far too patchy with some local authorities recycling more than 50% and some still down in the low teens."[58]

7.2.6 The Guernsey States have approved a recycling target for commercial and household waste in Guernsey of 50% by the year 2010[59]

Key finding

The UK government has recently published much higher recycling targets, with the whole country expected to achieve recycling rates of 40% by 2010 and 50% by 2020.

Some local authorities have already exceeded the 50% target

Guernsey has set a target of a 50% recycling rate to be achieved by 2010

7.2.7 Targets in Jersey

The waste strategy approved by the States in 2005 set a recycling target of 32% to be achieved by the end of 2009. The strategy covers a 25 year period but it did not set any additional higher targets for later years.

7.2.8 Figures recently provided by the Department indicate that a recycling rate of up to 36% has been modelled in the later years of the strategy. The Department model is shown as the blue line on the graph. This would give 115,000 tonnes of residual waste by 2035 By way of comparison, recycling rates of 50%, 60% and 70% are also shown (these are based on a increase of waste arisings of 1% pa).

7.2.9 By achieving 50% recycling (the target now set by both the UK and Guernsey) and restricting the growth in waste arisings to 1% per annum, the total residual waste to be dealt with by 2035 would be approximately 68,000 tonnes,

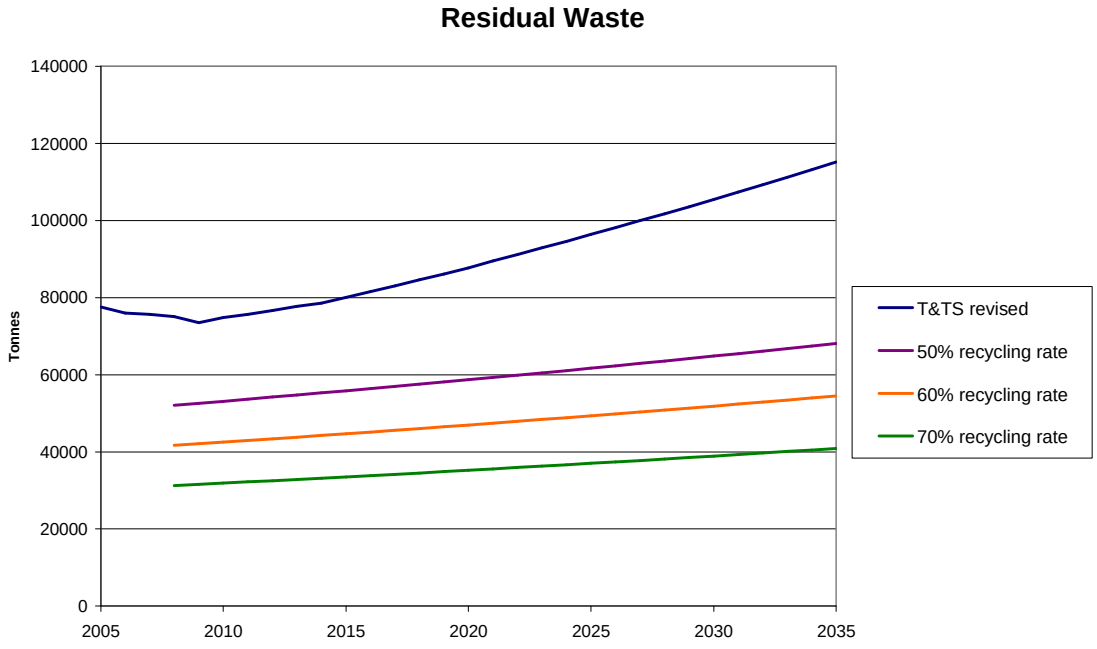
[58] DEFRA News Release Dated 15/12/06.
[59] States of Guernsey, 31/1/2007

compared to the 126,000 tonnes referred to in the recent planning application for a new waste facility at La Collette.

7.2.10 If a higher recycling rate can be achieved, the amount of waste requiring disposal reduces even further (achieving 60% recycling would lead to 55,000 tonnes of waste and 70% recycling would only leave 41,000 tonnes of waste)

7.2.11 If particular attention is paid to the recycling of specific material streams, further reductions in residual waste could be obtained.

7.2.12 The waste strategy covers a period of time in which the demographic profile of the island will change considerably, with a substantially greater proportion of elderly people in the population by 2035. As indicated by the recent Jersey Annual Social Survey, elderly people have a tendency to recycle more than younger people, and this is likely to add to the increasing recycling rates that can be achieved.



Key Findings

Reducing the growth in waste arisings to 1% per annum and increasing the recycling rate to 50% per annum would limit the amount of residual waste for disposal in Jersey to less than 70,000 tons throughout the next 25 years. Recycling rates are likely to rise with the increasing proportion of elderly people in the population

7.2.13 The Jersey waste strategy gives detailed figures and percentage targets for separate waste streams. The panel has not identified evidence of targets being

set in this way in other local authorities or jurisdictions. However, the Environment, Food and rural affairs Committee report of May 2003 [60] recommended that the UK government should set specific targets in respect of particular waste streams. T&TS have not been able to fully explain the rationale behind the chosen targets.

7.2.14 Government recycling targets are normally expressed as percentages of MSW. As set out in chapter 6, MSW is mainly composed of domestic waste collections and items delivered by householders to civic amenity sites.

7.2.15 The Jersey waste strategy does not express waste in terms of MSW. It uses the term "non-inert" waste which includes most commercial waste in Jersey. Recycling rates for commercial organisations tend to be higher than household waste. This is because the waste is more homogenous and recycling regimes are much easier to initiate in a commercial environment.

7.2.16 By way of contrast, a recent report from the Isle of Man clearly sets out the different domestic and commercial/industrial waste streams for their local situation.[61] The UK Waste Strategy also emphasises the importance of providing strategies for all waste streams " the purpose of the strategy is to map out, at a higher level, the direction of travel over both the medium and longer term for all waste (not just municipal waste)"[62]

Key finding
The Jersey target of 32% recycling is now well below the UK target
The Jersey waste strategy does not differentiate between household and commercial recycling targets

7.3 Paper and card

7.3.1 Introduction and benefits

The paper industry has been recovering and reusing waste paper for decades and it is now the most important raw material for the UK paper and board industry. The use of waste paper has risen steadily during the past decade.

7.3.2 In 2005, 55% of waste paper in Europe was recycled and European paper manufacturers have set a target of 66% recycling by 2010.[63]

[60] http://www.publications.parliament.uk/pa/cm200203/cmselect/cmenvfru/385/38502.htm
[61] Isle of Man appendix B.(see pdf)
[62] UK strategy from waste 2007 p. 29
[63] News release cepi 28/9/06 (Confederation of European paper industries)

7.3.3 A report published in 2006 by the European Environmental Agency analysed a number of life cycle assessment studies and concluded that recycling paper and card is environmentally more advantageous than incineration[64]

7.3.4 The UK Waste Strategy 2007 identifies paper as one of the key waste materials that should be targeted for improving environmental and economic outcomes. The UK strategy includes initiatives to reduce paper waste and increase paper recycling.[65] For example, the UK government will seek to reduce the volume of unaddressed mail.[66] This will have benefits for Jersey as local householders are included within UK mail marketing campaigns.

7.3.5 The current practice of producing paper versions of daily newspapers is likely to change in for next few years as e-paper becomes commercially available. Already, many people access newspaper and magazine articles via the Internet and e-paper will allow pages of print to be displayed on a thin, flexible electronic screen. E-paper is likely to be available on a commercial basis in 2008[67] with American newspapers planning trials over the next two years[68]. Reducing the amount of newsprint required would lead to a reduction in the quantity of waste produced. The UK Waste Strategy notes that "newsprint production has been steadily increasing over the past 15 years but it is not clear that this trend will continue as technology and the Internet play an increasing part in the distribution of information"[69]

7.3.6 The Parliamentary Office of Science and Technology (POST) explained that

"Almost any household waste paper can be recycled. Recycling paper requires 28-70% less energy, produces 95% fewer emissions, requires less water, and far fewer raw materials However, paper cannot be recycled indefinitely. Every time paper is recycled the fibre length decreases. After being recycled about six times the fibres become too short for papermaking, so some virgin fibres will always be required to maintain paper strength and quality.

[64] European Environment Agency Paper and cardboard — recovery or disposal? Review of life cycle assessment and cost-benefit analysis on the recovery and disposal of paper and cardboard http://reports.eea.europa.eu/technical_report_2006_5/en/technical_report_5_2006.pdf

[65] UK Waste Strategy 2007 p. 51
[66] UK Waste Strategy 2007 p. 63

[67] www.vnunet.com/articles/print/2172127
[68] www.iwr.co.uk/articles/print/2190341
[69] UK Waste Strategy 2007, annex C16, p 1

7.3.7 Not all paper produced can be recovered and recycled. For example ~1 million tonnes per year (in the UK) is used for toilet paper, while other paper is stored as books, files and wallpaper." [70]

7.3.8 Waste paper has to be sorted, graded and baled before going to the paper mills. The quality of the sorted waste determines the end quality of the recycled paper. Any type of paper and board can be recycled:

Type of waste paper	**RESULTING PAPER**
Top quality waste from unprinted trimmings & off cuts from printers.	Printing and writing papers
Office waste, long fibred higher quality grades, short-fibres newspapers & magazines	Graphic paper and tissues, newsprint
Brown unbleached packaging	New packaging
Mixed papers	Middle layers of packaging papers and boards

7.3.9 The basic recycling process is similar to the paper making process. Sorted wastepaper is cleaned by de-inking and then broken down in large quantities to form a "porridge". The fibres are then refined and additives included to give particular qualities to the end paper. Virgin pulp is added at the end of the pulp making process.[71]

7.3.10 Cartons used for storing liquids are not normally recycled with other cardboard. Milk and juice cartons are typically made up of three main materials,

- Paperboard (typically 70-90%)
- Low-density polyethylene (typically 10-25%)
- Aluminium foil (about 5%, only in long life or aseptic packages)

Despite this mixture of different materials, cartons are successfully recycled in large volumes throughout Europe, where high quality carton fibre has consistently been valued. Many European countries achieve very high carton recycling rates. For example, in Germany and Belgium it is between 65 and 70% - only slightly ahead of Austria, Sweden and others. The European Union as a whole achieves a 28% carton recycling rate. Opportunities for carton recycling in the UK are growing with over 100 local authority areas offering recycling facilities at present. Tetrapak, the main carton supplier, hopes to see a national carton collection network in place by the end of 2008[72]

7.3.11 The carton recycling process is essentially quite simple. Baled cartons are dropped into a pulper, similar to a giant domestic food mixer, filled with water, and

[70] POST 2005 summary of recycling in the UK
[71] Woodland Trust
[72] www.tetrapak.com.uk

pulped for around 20 minutes. This delaminates the packaging, breaking down the package to produce a grey-brown slurry. The fibre is separated from the aluminium foil and polyethylene, and each material is then available to make new products.[73]

7.3.12 Open and closed loop recycling

Using waste paper to produce recycled paper is an example of closed loop recycling - the product is processed to make more of the original product. In the case of paper, it can be recycled up to six times as paper products.

7.3.13 Open loop recycling takes a waste resource and uses it to produce an alternative product. Waste paper can also be used in the production of bricks, insulation boards (both heat and sound), insulation (made from fireproofed shredded paper)[74] and animal bedding. For example, papercrete is a building material made from waste paper, sand and cement. It creates lightweight building blocks with good tensile strength and excellent insulation properties. It is mainly used in the USA.[75]

7.3.14 Soiled paper not suitable for recycling, such as chip wrappings etc, may be included in the composting of green waste. Whilst this is not happening in Jersey now, paper is fully biodegradable and in reasonable quantities, beneficial to the composting process, which leaves scope for its inclusion in the future if so desired.[76]

7.3.15 Paper recycling in Jersey

Newspaper recycling in Jersey.

7.3.16 According to T&TS Jersey produces approximately 15,000 tonnes of paper, newspaper, magazines and cardboard each year. The following amounts were recycled.

Year	Tonnes
2005	**4,221**
2006	**6,571**

[77]

[73] Tetra Pak Recycling.
[74] www.excelfibre.com (warmcell)
[75] www.livinginpaper.com
[76] Evoncare. What's good to compost.
[77] T&TS 4th May 2007.

7,3,17 'Jersey Distribution' import all national newspapers and magazines into the Island. Their levels of importation are reducing each year as readership of newspapers declines. However during 2006 they imported 2,530 tonnes of national newspapers and approximately 1,700 tonnes of newsprint to publish the Jersey Evening Post. Magazines arrive by sea and the estimated quantity for 2006 was 2,570 tonnes. The same company deals with all unsold newspapers and magazines and of these, in 2006 100% were recovered for recycling. The total weight of paper shipped by Jersey Distribution to UK Paper in Nottingham during 2006 was 1,322 tonnes.[78]

7.3.18 Bring banks were introduced during 2005 and 2006 at the following locations-

- St Helier Esplanade Car Park
- St Helier Bellozanne Waste Facility
- St Helier La Collette Green Waste Site
- St Brelade Le Quennevais Shopping Precinct
- St John Opposite School Car Park
- St Lawrence Community Centre
- St Ouen Parish Depot
- St Saviour Rue Des Pres Trading Estate
- Trinity Zoo Car Park
- St Martin Public Hall Car Park
- St Mary Community Centre[79]

7.3.19 They collect a mixed load of all household paper, which in May 2007 was selling at approximately £50 tonne.[80]

7.3.20 Transport and Technical Services figures suggest that, during 2006, Reclamait collected and recycled 370 tonnes and Securicor recycled 300 tonnes of high quality paper. Both companies also deal with cardboard, newspapers and magazines, which are exported to England.

7.3.21 Transport and Technical Services provides subsidies for some types of paper recycling

Product	Subsidy
High Grade Paper	Nil
Newspaper and Magazine	£50
Cardboard	£24

81

[78] Letter from Jersey Distribution dated 26th April 2007.
[79] Transport and Technical Services 'Find your nearest Recycling Facility'
[80] T&TS 4th May 2007.

7.3.22 Dairy packaging.

Jersey Dairy currently uses around 10 million cardboard cartons per year mainly in litre packs.

7.3.23 The company is soon to relocate to a new dairy at Trinity and this will give it the opportunity to consider a change to plastic containers. This will probably require the bottles to be produced in Jersey to avoid the high cost of shipping in and storing pre-blown bottles. It is believed by the Dairy management that there a likely customer preference for the plastic bottles so it is a problem they are trying hard to solve. [82]

7.3.24 Milk can also be sold in plastic pouches, with the consumer transferring the pouch to a durable plastic jug which is purchased separately. This system is common in Canada and has been introduced very recently to the UK by Waitrose[83].

Key findings

There are established markets for recycling all types of paper products.

Existing Paper and card recycling in Jersey is working well and could be expanded considerably

7.4 Glass

7.4.1 The production of glass from raw materials is energy intensive. Waste glass can be melted and reused to make new glass products with no loss of quality and at a considerable saving of energy. (for example, up to 315 kg of carbon dioxide is saved per tonne of glass recycled) This is a good example of closed loop recycling. The colour separation of waste glass adds to its value and processes are now being developed to automatically sort glass by colour[84]. There is a strong demand for clear glass in the UK. The UK imports large quantities of wine, packaged mainly in green glass, and exports spirits, packaged mainly in clear glass. Green glass represents about 50% of the recycled glass arisings. This leads to an imbalance in the different colours of glass available for recycling.

7.4.2 In the UK, 80% of the recycled glass produced in 2003 was used to create new glass products. This is by far the most environmentally friendly way of treating recycled glass

[81] T&TS 4th May 2007.
[82] Jersey Dairy 20.06.07
[83] http://observer.guardian.co.uk/uk_news/story/0,,2110112,00.html
[84] http://www.wrap.org.uk/wrap_corporate/news/wrap_helps_3.html

7.4.3 As well as returning glass to England or France to large-scale recycling plants, it is possible to produce glass bricks and pavers on a relatively small scale[85] – this could be done in Jersey, producing a high value product for use on the island

7.4.4 Alternative uses for recycled glass include:

- water filtration
- fluxing agents in bricks and clay pipes
- shot blasting
- aggregates

7.4.5 The use of green glass that has been treated by sonic implosion as an aggregate in concrete adds significantly to the strength and hardness of the material.[86] This use has the potential to increase the premium paid for colour separated glass.

7.4.6 UK production of fibre glass insulation is anticipated to grow significantly over the next few years as the demand for housing insulation increases. Manufacturers already use significant proportions of recycled glass in the process and there are opportunities to increase the amount of product and the percentage of recycled content[87]

7.4.7 Artwork with glass may have a negligible influence on the total waste stream, however, it is very representative of good closed loop recycling where significant value is added to the waste product. Numerous small businesses melt down cullet or waste glass items and produce new glass items[88]. Some simply make subtle changes to glass products such as bottles processed to make clever drinking glasses[89] or crockery whilst still being recognisable as the original bottles. Others alter the use completely to make stained glass windows etc. All turn a waste product, albeit in generally small quantities, into a product with values in the thousands of pounds per tonne.

7.4.8 Existing Glass recycling in Jersey

For many years there has been a separate collection of glass in Jersey. There are no arrangements for colour separation. The glass is crushed using a large digger and used for lining at the La Collette reclamation site.

[85] Pavers from recycled glass – clean Washington Centre – Department of trade and economic development 1993
[86] Relatives strength of green glass cullet concrete, Portsmouth University
[87] UK Waste Strategy 2007 annex D p 28
[88] Recycled Products Co
[89] Green Glass

7.4.9 The St Helier zero waste trial included the use of a glass imploder which treats glass with sonic implosions causing the glass to form small rounded particles that can be handled safely. [90]

7.4.10 Increased opportunities for recycling

Although a high proportion of glass in Jersey is collected separately, it is not colour segregated. Glass that is colour sorted has a much higher recycling value than mixed glass. The introduction of separate colour coded bring banks or kerbside collections would improve the value of the existing material.

7.4.11 Clear glass has a high market value and could be exported for reuse as glass. Green and brown glass are less valuable in the UK market although there is potential in the European market. Coloured glass treated by the glass imploder could be used locally as aggregate, for water filtration and as mulch. The product has been used by St Helier as decorative mulch for parish floral displays and a local contractor has investigated its use as a building material on their behalf. Because the imploded glass is safe to handle, it appears to have potential in a variety of uses. T&TS have also contracted a recycling company to investigate the improved use of waste glass within the construction industry. As the existing cullet is crushed, creating sharp edges, it is more difficult to handle and alternative uses are still being explored

7.4.12 Local artists and craft workers already make good use of waste glass and glass products and this could be encouraged to produce distinctive Jersey designs.

Key findings

Glass is an ideal material for recycling.

The colour separation of glass increases its recycling potential. Lower value glass can be recycled successfully as an aggregate

Glass has been collected separately in Jersey for many years but the value of the resource is not fully realised at present

Recycled glass could be used to much better effect, in both closed loop and open loop recycling

7.5 Metals

7.5.1 The recycling of metal is mainly concerned with steel and aluminium. Recycling aluminium requires only 5% of the energy and produces only 5% of the CO_2 emissions of primary production. Aluminium can be recycled indefinitely, as

[90] www.krysteline.net

reprocessing does not damage its structure. It is highly cost-effective to recycle Aluminium. As the primary production of aluminium is so energy intensive, recycling one aluminium can saves enough energy to run a television for three hours and recycling one tonne of aluminium saves 11 tonnes of carbon dioxide emissions[91]

7.5.2 Recycling steel saves 80% of the CO2 emissions produced when making steel from iron ore. Recycling one steel can saves enough energy to power a 60-watt light bulb for more than 3 ½ hours.

7.5.3 Aluminium

7.5.4 75% of all canned drinks sold in the UK are packaged in aluminium. In 2001 the UK consumed 5 billion aluminium drinks cans, of which 42% were recycled. Aluminium cans are recycled into new aluminium cans. Used beverage cans are normally back on supermarket shelves as new beverage cans in 6-8 weeks. With a growing percentage of cans made from aluminium, because of its lightweight qualities, this ensures a healthy market for aluminium can recycling.

7.5.5 Aluminium foil and aluminium cans are made of different alloys and must therefore be collected separately. Most recycled aluminium foil is used to make cast components for the automotive industry, such as cylinder heads and engine blocks.

7.5.6 When washed, foil milk bottle tops, tops of cartons, baking and freezing trays, kitchen foil, cigarette and tobacco foil (without the backing paper) are all suitable for collection. Metal coated plastic film, which is often used for crisp and snack packets, looks like aluminium but can not be recycled at the present time

7.5.7 Steel

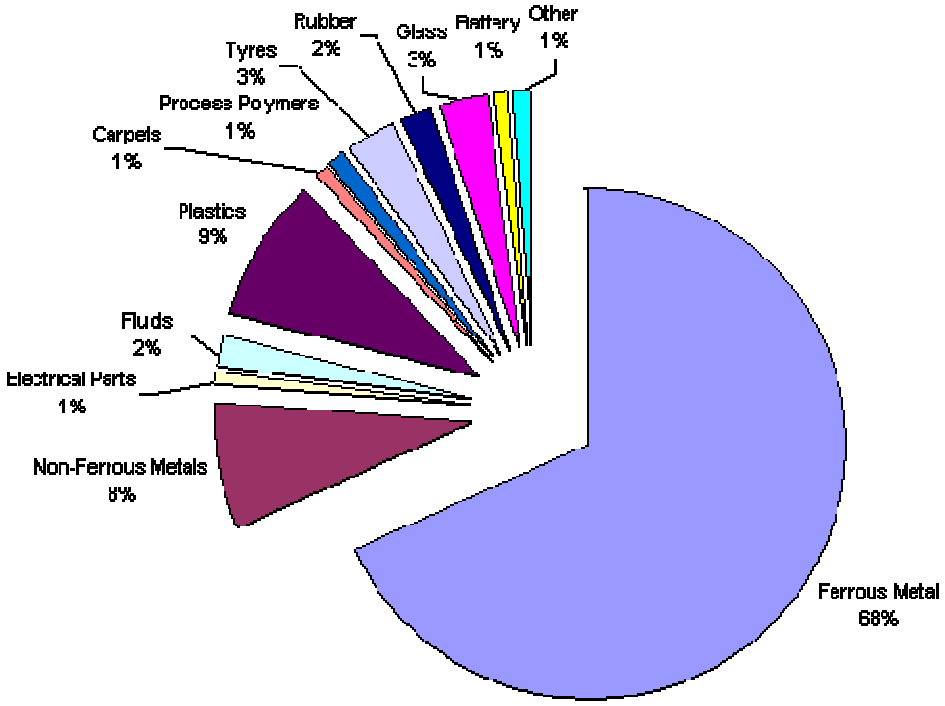
As local authorities recognise benefits to be gained from including steel cans in their multi-material kerbside collection schemes, so recycling rates have risen. In the UK in 2003 44% of all steel packaging, including 2.5 billion steel cans, were recycled.[92]

7.5.8 End of life vehicles

The composition of a typical car has changed substantially in recent years. For example, ferrous metal content has decreased significantly as lighter, more fuel-efficient materials such as plastics are incorporated into vehicle design. An

[91] UK Waste Strategy 2007, annex D p 23
[92] Waste on-line Metals Aluminium and Steel recycling

analysis of vehicle manufacturer data for around seventy popular 1998 car models shows the following breakdown of materials (by weight). [93]



7.5.9 End of life vehicles (ELV) were identified by the European Commission in the mid-1990s as a "priority waste stream". The European directive has been incorporated into UK legislation which requires that ELVs must be treated by authorised facilities and that vehicle manufacturers and importers must provide convenient, free facilities where ELVs can be disposed of. At these facilities, oils, other fluids and hazardous components must be removed. Some vehicle parts may be removed for re-use and then the shell will be baled for shredding.[94]

7.5.10 Batteries

If household batteries are collected separately, they can be recycled to make use of steel (or a steel-manganese alloy), zinc and manganese and other chemicals. This processing is undertaken in Europe, as a UK facility does not yet exist.[95]

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[93] Source: ACORD, *Annual Report*, 2001

[94] UK Waste Strategy annex C11, p 2
[95] UK Waste Strategy 2007, annex C13, p 2

7.5.11 Within the next few years, disposal of car batteries by incineration will be prohibited[96]

7.5.12 Existing recycling in Jersey

The recycling of metal within the domestic waste stream (MSW) is confined to the private collection of aluminium cans in bring banks and a monthly collection of mixed metal from the St John scheme. This is delivered to Hunt Brothers who sort it and dispose of it with their other collections of metals.

7.5.13 The vast majority of households have no opportunity to separate metal from their domestic rubbish and this material is placed in the household collection. Transport and Technical Services have no bag splitter for opening plastic bags or magnets for removing metals and therefore all metal goes directly into the incinerator. Energy is then used as the metal is heated to a high temperature. The metal is not completely reduced by the incineration process and adds to the waste material (bottom ash) that is produced by the incinerator. Although a separation unit to remove metal from the bottom ash has been installed, it is not in operational use and metal is disposed of with bottom ash to La Collette. The incineration of some metals causes toxic fly ash deposits which must be disposed of carefully, and at some considerable expense.

7.5.14 For many years in Jersey, large items of scrap metal have been dealt with in partnership with the scrap yard and other companies[97]. The scrap yard deals with various metal waste items, particularly the Island's used vehicles, and it processes approximately 10,000 tonnes of metal per year. It is a commercial enterprise supported by the export and sale of the processed metal scrap.

7.5.15 2,602 vehicles were scrapped in Jersey during 2004. The scrap yard shredded the metal, which was shipped off the Island for recycling. In addition, they stripped parts that they offer for second hand spares at a charge.

7.5.16 A number of battery recycling points have recently been established to accept all types of domestic battery. These are at

St Helier Safeway Stores
St Helier Bellozanne Waste Facility
St Helier La Collette Green Waste Site
St Helier B&Q
St Helier Central Market
St Helier Co-op Grand Marche
St Brelade Checkers

[96] Batteries directive: Directive of the European Parliament and of the Council on batteries and but accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC
[97] Page 49. Solid Waste Strategy Environment and Public Services Committee May 2005

St Saviour Checkers
St Peter Co-op

7.5.17 Potential for additional recycling

Households produce significant quantities of metal suitable for recycling -- food and drink cans, aluminium foil and food containers. These items are easy to handle and store and can be included in any type of kerbside collection.

Key findings
Metal recycling has many environmental advantages and is economically extremely viable Opportunities for recycling domestic metal in Jersey are extremely limited at present

7.6 Plastic

7.6.1 The production and use of plastics has a range of environmental impacts. Plastic production requires significant quantities of resources, primarily fossil fuels, both as a raw material and in energy for the manufacturing process. It is estimated that 4% of the world's annual oil production is used as a feedstock for plastics production and an additional 3-4% during manufacture.

7.6.2 Reusing plastic is preferable to recycling as it uses less energy and fewer resources. Long life, multi-trip plastic packaging has become more widespread in recent years, replacing less durable and single-trip alternatives, so reducing waste. [98]

7.6.3 The UK Waste Strategy 2007 noted that "burning plastics has a general net adverse greenhouse gas impact due to the release of fossil carbon. Recycling shows significant potential of carbon and energy savings through displacing virgin materials although the scale of this varies widely with the processing route"[99]

7.6.4 There are about 50 groups of different of plastics, with hundreds of different varieties. All types of plastic are recyclable. To make sorting and thus recycling easier, the American Society of Plastics Industry developed a standard marking code to help consumers identify and sort the main types of plastic. These types and their most common uses are:

PET **Polyethylene terephthalate** - Fizzy drink bottles and oven-ready meal trays.

[98] Waste Online Plastics recycling information sheet.
[99] UK Waste Strategy 2007, p 56

	HDPE	**High-density polyethylene** - Bottles for milk and washing-up liquids.
	PVC	**Polyvinyl chloride** - Food trays, cling film, bottles for squash, mineral water and shampoo.
	LDPE	**Low density polyethylene** - Carrier bags and bin liners.
	PP	**Polypropylene** - Margarine tubs, microwaveable meal trays.
	PS	**Polystyrene** - Yoghurt pots, foam meat or fish trays, hamburger boxes and egg cartons, vending cups, plastic cutlery, protective packaging for electronic goods and toys.
	OTHER	**Any other plastics** that do not fall into any of the above categories. - An example is melamine, which is often used in plastic plates and cups.

7.6.5 Demand for recyclable plastics, particularly post-consumer bottles and manufacturing scrap, is high. Plastic bottles are the main post-consumer source of plastics. They can be recycled using a variety of technologies and be used to produce high-quality products ranging from pipes to fleece jackets. It takes 25 two litre plastic drinks bottles to make one fleece garment.[100]

7.6.6 A national UK household plastic bottle recycling survey, undertaken in 2006, noted that an increasing number of local authorities are now recognising that plastic bottles can be collected for recycling cost-effectively. Ninety-one of the local authorities that responded to the survey reported that it cost them little or no extra to collect their plastic bottles for recycling compared to collecting them for other disposal routes.[101]

- Reprocessor demand for plastic bottles outstrips supply by over three times. UK reprocessors are unable to source sufficient domestically-collected bottles for reprocessing and are therefore forced to seek alternative markets.
- 11% of household waste is plastic, 40% of which is bottles. They are easy for the public to identify and remove from the residual waste stream.
- Recycling one plastic bottle saves enough energy to power a 60 watt light bulb for 6 hours.[102]

[100] Recoup. Recyclable Plastic.
[101] Wrap: Plastic bottle recycling survey 2006
[102] Facts about recycling plastic

7.6.7 Plastic bottles are easy to recycle because they are made from one of only three polymer types and are very easily identified, both by members of the public and those sorting the collected bottles. The three polymer types used are

PET (e.g. fizzy drink bottles and squash bottles),

HDPE (e.g. milk bottles and detergent bottles) and

PVC (e.g. large squash bottles),

although the use of PVC in such applications is in decline.

7.6.8 Other types of plastic products are less easy to recycle because they are made of mixtures of plastics. These items can be recycled to create products such as plastic wood.

7.6.9 Carrier bag recycling facilities are now available in some supermarkets. The facilities are not yet widespread due to the very lightweight nature of carrier bags and sale outlets are because of the contamination effect of the printing ink, making it only suitable for dark colours, such as grey or black.[103] Some supermarkets offer biodegradable plastic bags. These products made however cause confusion in the recycling and composting processes. It may be difficult to identify bags that are suitable for composting, and some biodegradable bags may act as a contaminant in recycling processes.[104]

7.6.10 The Irish government introduced a plastic bag tax in March 2002. The PlasTax scheme was reported as an extraordinary success, with consumption down by a staggering 95%. Prior to the introduction of the levy annual carrier bag usage in Ireland stood at 1.2 billion. Although initially viewed with scepticism by retailers and the general public alike the PlasTax has come to be seen as a hugely positive step with the funds raised through the tax re-invested in waste recycling and litter initiatives.[105]

7.6.11 On the other hand, there are various arguments against such a tax including an article in *The Irish Examiner Newspaper* showing the following:

- Tesco – 77% increase in pedal bin liner sales;
- Superquinn(Ireland's biggest supermarket) – 84% increase in nappy bag sales;
- Superquinn – 13.5% increase in bin bag sales;
- Supervalue/Centra – 25% increase in nappy bag sales;

[103] Recycling Specifics
[104] UK Waste Strategy 2007 annex D p 30
[105] http://www.hovis21.com/byob.html

- Supervalue/Centra – 75% increase in swing bin liner sales.[106]

7.6.12 In February 2007, The British Retail Consortium (BRC) announced a voluntary initiative to reduce the environmental impact of plastic carrier bags by

- Encouraging customers to reduce significantly the number of carrier bags they use
- Reducing the impact of each carrier bag (e.g. by using less plastic or incorporating recycled content
- Enabling the recycling of more carrier bags where appropriate

7.6.13 Scottish Environment Minister Ross Finnie said:

"I want to reduce the amount of waste we produce. Stopping the unnecessary use of bags is one small but significant step to achieve this.

I welcome today's commitment to reduce the environmental impact of bags. This forms another part of our ongoing work to get people to reduce waste and unnecessary packaging, reuse resources and recycle where appropriate.

It's clear that by working together, retailers, Government and consumers can all reduce the amount of waste and help the environment."[107]

7.6.14 Progress will be monitored jointly by the retailer signatories, government and WRAP. A review will be completed before the end of 2008 to see what would be required to make further reductions by 2010.

7.6.15 Current recycling in Jersey

There are no facilities for recycling plastic produced by households. Plastic waste is incinerated - as a by-product of oil, plastic burns well and is a valuable feedstock within the incineration process. However there is a net greenhouse impact due to the release of fossil carbon which can outweigh returns of energy recovery[108]. PVC products will always produce cancer-forming chemicals such as dioxins but modern incinerators will minimise the amount of these chemicals released to the atmosphere, capturing the chemicals in the fly ash which is then disposed of in sealed pits.

7.6.16 There is some recycling of commercial plastic. The majority of this is agricultural plastics that are dealt with by an agricultural contractor. Plastic wrap, which is used by supermarkets and other warehouses for the packaging of pallet boards of goods, is dealt with by a private company. This is a new process with 59 tonnes being collected during 2006.

[106] http://www.carrierbagtax.com/downloads/CBC2ppLeaflet61.pdf
[107] http://www.scotland.gov.uk/News/Releases/2007/02/27142902
[108] UK Waste Strategy 2007 annex D p 30

7.6.17 The potential for extra recycling

The domestic recycling of plastic bottles is well-established and cost-effective. This can be incorporated into a variety of kerbside collection methods. Plastic is light and easy to handle. It can be baled for export.

7.6.18 T&TS have plans to introduce bring banks for some types of plastic.

7.6.19 The UK government is encouraging retailers to make additional use of materials such as PET and HDPE for which recycling routes are established and to reduce the use of PP and PS. It is also encouraging the use of recycled PET and HDPE

7.6.20 Lower grade plastic can be used to create products such as plastic wood. This is then manufactured into plastic furniture and garden products.

7.6.21 Much domestic plastic currently arises from food packaging. Some manufacturers have already taken steps to reduce the amount of plastic within their product packaging. Two major yoghurt manufacturers have replaced a thick plastic pot with a much thinner plastic pot and a cardboard sleeve to reduce the amount of plastic used and increase the recycling potential[109].

7.6.22 In addition to moves to reduce the amount of packaging by manufacturers, there are also alternative materials made from corn starch which can replace plastic packaging. For example, Marks and Spencer have replaced the plastic packaging for sandwiches with new boxes made of card with a window made from cornstarch. The sandwich box is intended to be 100 per cent home compostable.[110]

Key findings

There are many different types of plastic and some have more value in recycling than others. There is a well-established market for plastic bottles and other single polymer streams.

Mixed and lower grade plastics can be used to create useful products such as plastic wood.

Plastic recycling in Jersey is very underdeveloped at present and could be expanded dramatically

7.7 Organic Waste

[109] http://www.sustainabilitysouthwest.org.uk/images/BUSINESSES.doc accessed 23/6/07

[110] http://www.manufacturingtalk.com/news/sxj/sxj101.html accessed 23/6/07

7.7.1 The UK government considers that “home composting remains the preferred option for garden waste”.[111]

7.7.2 Food waste will be dealt with separately in chapter 8. Green waste from household and commercial sources is accepted free of charge at La Collette and is composted in open windrows to produce a variety of grades of compost and soil improver. It has been suggested that many contractors only use the service because it is free, and if a charge was made they would compost the material themselves. Agricultural waste is no longer accepted for composting by the States, and for several years farmers have been undertaking their own composting operations at their own expense.

7.7.3 The recent working party on waste examined the existing operation at La Collette and the proposals of T&TS to establish a centralised facility for green waste composting. The working party concluded that a number of distributed sites would be more appropriate for Jersey and T&TS have followed this recommendation by seeking expressions of interest for sites throughout the island

Key findings
Home composting is the preferred route for garden waste
Jersey provides free composting facilities for garden waste
Agricultural waste is composted by farmers at their own expense
The working party on compost concluded that a number of distributed reception sites would be appropriate for Jersey

7.8 Timber

7.8.1 The recycling of timber has several advantages

- Often, discarded timber is in excellent condition, and would therefore make ideal material for reuse, rather than simply "being binned and burned"
- The growing, harvesting and processing of virgin timber uses energy, and water, thereby using other natural resources which are not as renewable as timber

7.8.2 If unwanted wooden furniture is still in good condition, then a furniture reuse project may be interested in collecting it so that it is available for reuse.

7.8.3 Wood that is not of a quality to be reused as reclaimed timber can be recycled into the following:

[111] UK Waste Strategy 2007 Annex D p 16

- Woodcrete blocks
- Mulch - can be used to prevent soil erosion, enrich soils, help limit water loss and moderate soil temperature change.
- Composting Agent - sawdust and chipped wood can be used as a bulking agent to improve air flow and decomposition.
- Pet Bedding / Equestrian Surfacing - Untreated material can be used for pet bedding, and can also be used in all weather exercise rings for horses.
- Chipboard and Medium Density Fibreboard (MDF) **-** these are produced by mixing chipped wood with a resin and applying heat and / or pressure to form a board.
- Fuel pellets for wood fired boilers[112]

7.8.4 Recycling opportunities in Jersey

There are no organised facilities for the recycling or reuse of domestic wood products.

7.8.5 A number of private companies and individuals extract wood from demolition sites for recycling and re-use or collect pallet boards for kindling wood.

7.8.6 Potential for future recycling

7.8.7 Facilities for discarded furniture should be provided in a suitable facility (as described in the waste strategy)

7.9 Waste electrical and electronic equipment (WEEE)

7.9.1 All waste electrical and electronic equipment in the UK now comes under regulations relating to their disposal which has been driven by the EU WEEE Directive.

7.9.2 There are ten categories of WEEE.

Type	Reuse/recycle Targets
1. Large household appliances	**75%**
2. Small household appliances	**50%**
3. IT and telecommunications equipment	**65%**
4. Consumer equipment	**65%**
5. Lighting equipment	**50%**
6. Electrical and electronic tools	**50%**
7. Toys, leisure and sports equipment	**50%**

[112] Waste Online Wood Information Sheet.

8. Medical devices	
9. Monitoring and control equipment	**50%**
10. Automatic dispensers	**75%**

7.9.3 The WEEE Regulations apply to electrical and electronic equipment (EEE) in the above categories with a voltage of up to 1000 volts AC or up to 1500 volts DC. The regulations came into force on 2 January 2007 requiring producers to join a compliance scheme by 15 March 2007 (UK). Full responsibility for treating and recycling household WEEE begins on 1 July 2007. UK dealers must have a clearly explained system that customers can use to dispose of WEEE free of charge. [113]

7.9.4 Larger items are increasingly being manufactured in such a way that at the end of the useful life of the original product, it will be returned to a manufacturing facility where a simple process of disassembly will provide the manufacturer with many parts that can be reused. [114]

7.9.5 500 tonnes of waste electrical and electronic equipment (WEEE) are produced in Jersey each year. For many years, dealers in Jersey have been collecting old appliances and taking them to the scrap yard voluntarily as part of the service when selling new appliances. Equipment containing primarily metal construction such as washing machines and cookers is shredded with metals being separated for recycling.

7.9.6 Transport and Technical Services tried exporting fridges but found it was financially unviable. The fridges are now are de-gassed and sent to the scrap yard for dismantling and shredding. There is a trial in progress at the HM Prison where computers are being dismantled. Following the separation of the component parts, the metal is recycled, the plastic is of a low grade which currently has no recycling market and is therefore incinerated and the motherboards and other internal parts are sent to the UK for specialist recycling. The circuit boards contain precious metals and are subject to some high-tec shredding to extract the substance.

7.10 Tyres

7.10.1 There are a number of established routes for the processing of waste tyres.

7.10.2 Many tyres can be reused – in 2005 32,000 tonnes of tyres were re-used in UK and a further 20,000 tonnes were exported for reuse or as casings for retreading markets. Within the UK, 55,000 tonnes of tyre casings were retreaded.[115]

[113] DTI Sustainable Development
[114].better by design, new scientist 6/1/2007
[115] UK Waste Strategy annex C12, p 1,2

7.10.3 Old tyres are also used to create protective barriers around race tracks, as dock fenders and on silage clamps. Some have been used to create artificial reefs.

7.10.4 Tyres can be processed to remove the metal content (which has a high value application as an additive to concrete) and create a rubber crumb. This has numerous uses including carpet underlay, playground and sport surface dressings. Shredded tyres can be used as a blocking agent in composting

7.10.5 Tyres are a high calorie waste, but as they contain sulphur, they produce significant quantities of sulphur dioxide when burnt. However the use of tyres as a fuel in cement kilns is well established and can replace the use of fossil fuels.

7.10.6 Recycling opportunities in Jersey

In Jersey, tyres are incinerated.

7.11 Textiles

7.11.1 Introduction and benefits

The reuse and recycling of textiles provide strong environmental benefits, partly due to the high resource requirements of primary material production. There are also social benefits to be derived from the reuse of clothing – charity shops play an important role in providing low-cost clothing to disadvantaged people in the UK and elsewhere. There is a potential to create jobs by developing value-added markets for recycled textiles[116]

7.11.2 Textiles made from both natural and man-made fibres can be recycled. Textiles in the UK make up about 3% by weight of a household bin. At least 50% of the textiles we throw away are recyclable, however, the proportion of textile wastes reused or recycled annually in the UK is only around 25%.

7.11.3 Many of the bring banks throughout the UK are run by the Salvation Army or other associations in conjunction with the local authority. Scope for example runs a door to door collection service for textiles. The 3,000 banks in the UK are estimated to be operating at about 25% capacity. Each bank estimated to collect six tonnes of Textiles each year. Clothes are given to homeless, sold in charity shops or sold in developing countries. Nearly 70% of clothing placed in the banks are reused as clothing and any unusable items are sold to merchants for other uses.[117]

7.11.4 Current recycling in Jersey

[116] UK Waste Strategy annex D p 40
[117] Waste online textiles

In Jersey, the Salvation Army collect and distribute textiles, selling the items in a shop in St Helier to raise funds. Other charities operate similar undertakings, which deal with much of the islands unwanted used clothing. Transport and Technical Services have no arrangements or systems to deal with textiles. As a result, much of the stream is contaminated and all textiles received in the household stream disposed of by incineration.

7.11.5 At present, the consumer has the option of putting textiles in Bring Banks, taking them to charity shops or having them picked up for jumble sales.

Key findings

Recycling routes exist for electrical equipment, tyres, textiles and timber

Recycling of these waste streams is underdeveloped in Jersey at present

7.12 Hazardous household waste

Although most hazardous wastes are produced by organisations (hospital, engineering, agriculture), household paint and garden chemicals do merit separate consideration within the household waste stream. The recent UK Waste Strategy proposes that steps be taken to increase the separate collection, recycling and recovery of these types of waste.

Key finding

Some hazardous waste are found in household rubbish and there should be separate facilities to deal with these products

7.13 Types of Collection

7.13.1 Throughout the UK and Europe there are many different collection systems, including co- mingled and source separated kerbside collections, bring banks and traditional black bag collections.

7.13.2 Kerbside collections

Typically, a kerbside collection system will collect paper, glass, plastic and metal from the doorstep. In order to maintain maximum value on return of the recyclate, sorting of the streams is necessary. The householder may separate the items with possibly further sorting at the roadside by the collecting crew or the separation can occur on return to a Material Recycling Facility prior to baling. In Jersey there is currently an island wide kerbside collection system only for glass.

7.13.3 The panel visited a modern recycling facility in Cardiff in November 2006.

Fact-finding visit to Lambeth Way Material Recycling Facility (MRF) in Cardiff. On Wednesday 29th November 2006, the Environment Scrutiny Panel responded to an invitation to visit the Lambeth Way Material Recycling Facility (MRF) in Cardiff.

This new Material Reclamation Facility (MRF) cost £6m to build including a computer system controlling the input standards.

The viability of recycling is dependent on the financial return from the recyclate sold on. High quality products command a high price but poor quality, contaminated or poorly sorted products have little value. The Cardiff plant therefore had to establish a robust and simple method of obtaining the materials in a suitable condition. The chosen solution was to optimise the collection procedure.

A computer database holds all the addresses in the area. Every household received simple instructions, thin green plastic bags and two wheelie bins, one brown and the other green, each with a bar code permanently attached. All recyclable materials are deposited in the green bins. The brown bin is for the residual rubbish. The collection day is the same for both bins and remained weekly. The brown bins are collected in black vehicles and go to landfill. The green bins are collected in green vehicles with the recyclate delivered to the MRF.

Initially, when a problem arose with the content of a bin, by contamination or incorrect loading etc, the vehicles crew left the bin without emptying it and placed upon it a sticker explaining the reason it had been left. The crew then used a hand held barcode scanner to enter the address and the nature of the problem. On the return of the vehicle to the depot, the scanner was returned to the recharging unit and the information automatically downloaded. The main computer then produced a letter to the householder stating the problem and either issued

- Words of advice,
- A written warning
- Or in the case of repeated offenders, threat of legal action and or a fine.

The only human involvement was the scanning of the bin and the placing of the letter into the envelope. Initially, there were numerous letters sent out to each collection round but as time went on and the householders understood the new system, there was little need for letters. At the time of the Panel's visit, it was unusual to send one letter on any one round.

This particular, newly installed, hi-tech machinery is capable of dealing with 90,000 tonnes of Cardiff's recyclable waste. This means that Cardiff can easily

achieve the targets set by the Welsh Assembly Government for the recycling of municipal waste for the future.

It was noted that there was some manual sorting to augment the machine sorting and about six staff were employed in that process. It was also noted that staff sickness and injury had reduced possibly because there was no manual lifting of bags or bins on the collection rounds or in the MRF. The Panel noted a clean and efficient working environment with a large quantity of recyclate entering the MRF in plastic bags and in a mixed condition.

Perhaps most impressive was the enthusiastic public involvement in the scheme. Cardiff's approach of a scheme that is very simple for the householder to understand has proved to be successful.

The plant cost £6 million with approximately £3 million of that spent on the software, offices, new vehicle fleet and staff training. However, the plant generates an income of £100,000 per month through recyclate sales and it is anticipated that the facility will have paid for itself well within its 20-year lifespan. Cardiff's recycling will therefore reach a point where it is cost free and is expected to continue on to make a profit. [118]

7.13.4 Kerbside collections will generally achieve higher recycling rates than bring bank systems. For example, plastic bottles have a collection rate on average four times higher through kerbside schemes than through bring banks [119]

7.13.5 Depending on the method of kerbside collection, the recyclates may need to be sorted in a recycling facility. A popular method of kerbside collection is known as "co-mingled" – a selection of clean dry recyclable materials are placed in a suitable container by the householder. At the recycling facility a variety of methods are used to separate the materials into individual streams.

7.13.6 Bring Banks and Recycling Centres throughout Europe [120] do not offer the same convenience as kerbside collection. Bring Systems encourage the separation of items by having containers for specific streams of waste in central and regularly visited community areas. Members of the community deposit their various streams of recyclables in to the containers giving a ready-sorted recyclable stream. Whilst considered the most cost effective and simplest method, it has generally good support although the limited convenience restricts participation from the householder.

[118] Cardiff Visit Report
[119] UK plastic bottle recycling survey 2006 (page 25) – Wrap , March 2006
[120] Photograph of Facility in Dinan, France taken by Mr Don Filleul OBE.

7.13.7 For example Dinan, has significant facilities for bring banks which are purpose built for ease of use and landscaped for minimum effect on the environment. These are well supported and offer separation in burnable items, metals, plastics, inert, cardboard and newspaper.[121] Jersey has a number of bring sites for paper, with additional facilities now available at Bellozanne.

Key finding

Bring banks are a simple method of providing recycling facilities

Kerbside collections achieve higher recycling rates as they offer more convenience to the householder

7.13.8 **Examples of good practice in the UK**

The top five local authorities in terms of recycling success (excluding composting) for 2005/2006[122] were

Authority	**% recycled**
Chiltern	32.1
Broadland	30.96
South Norfolk	29.57
Mole Valley	29.43
Chichester	29.35

(The equivalent rate in Jersey for 2006 was 15.1%[123])

All of these local authorities operate kerbside collections from domestic properties.

7.13.9 Chiltern collects paper every second week and glass every fourth week. Mixed rubbish is collected every week[124]. The other local authorities all collect mixed rubbish one week and mixed recyclates next week. The recyclate collection caters for paper, card, metal cans and plastic bottles[125],[126],[127],[128]

[121] Submission by Deputy D. Filleul OBE.
[122] http://www.DEFRA.gov.uk/news/2006/061116a.htm
[123] Jersey in figures 2006
[124] http://www.chiltern.gov.uk/site/scripts/documents_info.php?categoryID=420&documentID=318
125 http://www.broadland.gov.uk/environment/1739.asp
[126] http://www.edp24.co.uk/Content/Your_Rubbish/South/asp/Twin.asp
[127] http://www.molevalley.gov.uk/index.cfm?articleid=502

7.13.10 These councils all provide extensive information on their websites as well as helplines for local residents. Numerous bring banks are available for other types of recyclables – glass, textiles, garden waste. These local authorities are making a real effort to engage the public in recycling initiatives.

Key findings

Local authorities with high recycling rates operate kerbside collections on a fortnightly cycle

Recycling rates of 30% and above are already being achieved using kerbside collections

The recycling rate in Jersey is 15.1%

7.13.11 St Edmundsbury is an authority which achieves high recycling and composting rates, using a three bin collection with compostables and dry recyclables one week, mixed waste next week. The council has been used as an example of best practice by the UK government Improvement and Development Agency (IDeA).

7.13.12 IDeA provide the following information:

"High recycling and composting rates

The three-bin alternate weekly collection system achieved a 50.46 per cent recycling and composting rate in 2004–05.

Participation rates

A total of 90 per cent of residents participate in the alternate weekly collection on the kerbside recycling schemes. A continuous educational and promotions campaign has led to high levels of participation.

High satisfaction levels

St Edmundsbury understands its residents' behaviour and opinions. This is because it has carried out customer satisfaction surveys, waste analysis and bin monitoring. Residents read about any significant changes to the service in the council's magazine, 'Community Spirit' and in the local press.

[128] http://www.chichester.gov.uk/media/pdf/2/r/A5_Bin_Sticker_-_February_2005.pdf

The Waste and Resources Action Programme (WRAP) funded a door-stepping campaign in the Suffolk Waste Partnership. This helped improve customer satisfaction and ensure waste does not become a political issue.

High quality of material

When the blue bin was introduced leaflets, stickers and roadshows told residents what to put in each bin.

Since then, a new enforcement procedure has been introduced. This is to 'fine tune' the scheme and improve the quality of material collected. A yellow sticker is put on the recycling bin when there is 'light contamination', for example polystyrene, shredded paper. Bins containing contamination, such as bagged waste, kitchen waste or nappies are not emptied. "[129]

Key findings

Households require clear and simple information about recycling methods and facilities in order to maximise public participation

7.13.13 The Isle of Man recently undertook a pilot kerbside collection. The results of the pilot were encouraging and the Manx government plans to introduce kerbside collections across the island in 2008. [130]

7.13.14 The recently published UK Waste Strategy suggests that financial incentives can be a useful tool in encouraging household recycling.[131] The strategy suggests that cost savings of up to £17 per household could be achieved using financial incentives. Such incentives could also result in a five percentage point increase in recycling / composting rates and a 7% reduction in waste quantities[132]

7.13.15 Current collection methods in Jersey

The 12 Parishes each organise their own waste collection services. Some of the Parishes run their own service and others employ private companies to make the collection. All Parishes offer kerbside collections for mixed household refuse. All Parishes require glass to be separated – apart from St Helier, parishes operate a monthly kerbside glass collection

7.13.16 The Parish of St John runs a separation system where glass, paper and metal are collected on a monthly basis. St Helier began a zero waste trial in July

[129] http://www.idea.gov.uk/idk/aio/5373109
[130] Isle of man governors hill kerbside collection (see pdf)
[131] UK Waste Strategy 2007 p.37
[132] UK Waste Strategy 2007 annex A p 36

2006 with a section of the population in the Havre des Pas area. In the first few months of the trial a recycling rate of 56% was achieved.[133]

7.13.17 Transport and Technical Services have severe budgetary limitations which restrict their ability to expand recycling in Jersey. There is the hope to expand some of the bring banks and to change them to more conveniently collected units. The streamlining of the service will offer some room for expansion. The reception area at Bellozanne has recently been refurbished with additional facilities for householders to deposit a variety of items for recycling.

7.14 Recycling for Businesses

7.14.1 Commercial organisations in the UK are required to dispose of their own waste[134]

7.14.2 The organisation Envirowise[135] is funded by the UK government to provide assistance to UK companies in identifying environmentally friendly waste disposal routes. Helping a business to reduce waste can have a positive economic effect on the business, by reducing unnecessary costs. Envirowise has helped over 4000 UK companies to set up resource efficiency clubs, which have provided savings of the order of 10 times the cost[136]

Key Finding Providing advice to businesses on resource efficiency, including recycling, is cost effective

Summary

Recycling

- As the environmental benefits of recycling are better understood, the UK government is encouraging markets in recycled goods and recycling methods
- There are major environmental gains to be achieved through recycling of many products
- The incineration of residual waste as an alternative to recycling will result in a considerable increase in carbon dioxide emissions in Jersey
- To maintain Jersey's international reputation, environmental policies, including recycling, need to be in line with the best accepted practice

[133] St Helier Zero Waste Report

[134] http://www.DEFRA.gov.uk/environment/waste/legislation/pdf/waste_man_duty_code.pdf

[135] http://www.envirowise.gov.uk/page.aspx?o=about

[136] UK Waste Strategy 2007 p.59

- The UK government has recently published much higher recycling targets, with the whole country expected to achieve recycling rates of 40% by 2010 and 50% by 2020
- Some local authorities have already exceeded the 50% target
- Guernsey has set a target of a 50% recycling rate to be achieved by 2010
- Reducing the growth in waste arisings to 1% per annum and increasing the recycling rate to 50% per annum would limit the amount of residual waste for disposal in Jersey to less than 70,000 tons throughout the next 25 years
- Recycling rates are likely to rise with the increasing proportion of elderly people in the population
- The Jersey target of 32% recycling is now well below the UK target
- The Jersey waste strategy does not differentiate between household and commercial recycling targets
- There are established markets for recycling all types of paper products.
- Existing Paper and card recycling in Jersey is working well and could be expanded considerably
- Glass is an ideal material for recycling.
- The colour separation of glass increases its recycling potential. Lower value glass can be recycled successfully as an aggregate
- Glass has been collected separately in Jersey for many years but the value of the resource is not fully realised at present
- Recycled glass could be used to much better effect, in both closed loop and open loop recycling
- Metal recycling has many environmental advantages and is economically extremely viable
- Opportunities for recycling domestic metal in Jersey are extremely limited at present
- There are many different types of plastic and some have more value in recycling than others. There is a well-established market for plastic bottles.
- Mixed and lower grade plastics can be used to create useful products such as plastic wood.
- Plastic recycling in Jersey is very underdeveloped at present and could be expanded dramatically
- Home composting is the preferred route for garden waste
- Jersey provides free composting facilities for garden waste,
- Agricultural waste is composted by farmers at their own expense
- The working party on compost concluded that a number of distributed reception sites would be appropriate for Jersey
- Recycling routes exist for electrical equipment, tyres, textiles and timber
- Recycling of these waste streams is underdeveloped in Jersey at present
- Some hazardous waste are found in household rubbish and there should be separate facilities to deal with these products

Collection Methods

- Bring banks are a simple method of providing recycling facilities
- Kerbside collections achieve higher recycling rates as they offer more convenience to the householder
- Most Local authorities with high recycling rates operate kerbside collections on a fortnightly cycle
- Recycling rates of 30% and above are already being achieved using kerbside collections (excluding composting)
- The equivalent recycling rate in Jersey is 15.1%
- Households require clear and simple information about recycling methods and facilities in order to maximise public participation
- Providing advice to businesses on resource efficiency, including recycling, is cost effective

Recommendations

5. Jersey should increase its recycling targets at least in line with the UK

6. Jersey should encourage improved recycling opportunities for paper and glass

7. Jersey should encourage the introduction of recycling opportunities for plastic, domestic metal and other waste streams

8. Parishes should be encouraged to provide high quality kerbside collection schemes and other recycling facilities

8. Economics

8.1.1 At present the cost of waste disposal in Jersey is shared between parishes and states. Parishes pay for the collection of household rubbish, and the States disposes of it. No charges are currently raised and the costs are met through parish rates and taxation revenue.

8.1.2 The proposal by T&TS to build a large new incinerator will add substantially to the cost of waste disposal as the public bear the capital cost of the new plant (at least £80 million). Given this very high cost at a time of budgetary restraint, it is essential that alternatives are considered which could avoid some or all of this expenditure

Key finding The commissioning of a new incinerator will cost approximately £80 million and will be a considerable financial burden to the taxpayer at a time of budgetary restraint

8.1.3 Increasing recycling rates creates a different economic picture and allows public, private and voluntary sector organisations to work together.

8.1.4 The UK government is recommending that local authorities consider a wide range of options when determining the organisation of waste services. It suggests that "contracts… should be sized to combine benefits of economies of scale and attracting the interest of a wide range of suppliers as appropriate. The move to disaggregated contracts has the potential to open the market for less capital intensive services such as collection services and running material recovery facilities (MRFs), composting plant and household waste recycling centres (HWRCs)"[137].

8.1.5 The UK Waste Strategy also recommends that third sector organisations (charities and voluntary organisations) have an important role to play in providing separate kerbside collections of specific materials[138]

8.1.6 For example, Magpie recycling is a co-operative operating in Brighton providing a range of recycling services to both domestic and commercial premises.[139]

[137] UK Waste Strategy p.81
[138] UK Waste Strategy p. 96
[139] http://www.magpie.coop/ Accessed 15/6/07

Key finding

The provision of waste and recycling services can be undertaken by a wide range of commercial and non-commercial organisations

8.1.7 High recycling rates will require

- Improved collection methods –)
- Processing of items on island (sorting, baling, etc) –) parishes
- Sale of items on island -) businesses and charities
- Export of items –) T&TS
- Sale of items off Island -)
- Disposal of residual waste – organised by T&TS

8.1.8 There will be costs involved in collection, sorting and export with income from sale of items both on and off Island.

8.1.9 Enormous progress has been made, in all areas of recycling in the last five years – collection equipment and methods, sorting techniques and the processing of recyclates into new materials.

8.1.10 The UK government recognized some years ago that it would be necessary to increase the demand for recycled goods to ensure that a satisfactory market would be available for recyclate materials. The Waste and Resources Action Programme (WRAP) was set up in 2000 to help with market development. WRAP's current business plan (2006-08) includes commitments to deliver three major projects that will switch a significant manufacturing process from virgin material to recyclate material, as well as supporting existing major recycling markets and identifying further opportunities for the use of recyclates[140].

8.1.11 When considering the economic impact of an energy from waste plant, the Commerce and Employment Department of the Guernsey government identified three factors that would be likely to affect the market for recycled goods:

" (i) the rising economic demand for raw materials from the high-growth economies of China, India and the Pacific basin countries. This is increasing demand and therefore prices for the raw materials supplied by the recycling industries.

(ii) An increasing oil cost over this period. Oil is the source of the main material for plastics and packaging products. A rising oil price also increase its production costs for non-oil-based products like glass.

[140] UK-waste strategy 2007 annex D p 4

(iii) Increasing regulation, particularly by the European Union, on reducing landfill as a means of disposal and of legally binding directives for the recycling of used products and packaging materials. This may not have an immediate effect in the short term but over the full life period of the plant it is almost certain that many production and product distribution processes will have to change to meet the new European directives. "[141]

Key finding
Market for recycled goods are being developed and increasing demand is likely to lead to higher prices

8.2 Cost of Collection

8.2.1 According to figures supplied to the Environment Scrutiny Panel by the Parishes, during the 12 months to May 2006, the 12 parishes spent approximately £2.5 million collecting 42,988 tonnes of waste.

Parish Collection Costs 2005/6

Parish	2005/6 Cost	2005/6 Tonnes	£/Tonne
St Helier*	£942,912	16,805	£56.11
St Saviour	£255,015	5,724	£44.55
St Clement	£242,264	2,972	£81.52
St Martin	£74,300	1,648	£45.08
Trinity	£32,000	1,188	£26.94
St Lawrence	£64,391	1,595	£40.37
St Mary	£22,574	574	£39.33
St Brelade	£302,005	5,064	£59.64
St Ouen	£121,212	1,623	£74.68
Grouville	£58,222	2,108	£27.62
St Peter	£90,035	2,674	£33.67
St John	£31,684	1,013	£31.28
Total	£2,236,614	42,988	

Ave £/Tonne	£52.03

* Figures not supplied – estimated figure used extrapolated from previous years.

Whilst the cost of the kerbside collections in the Parishes varied from £81/tonne to £27/tonne, the average cost for collection of a tonne of waste was £52.03. Per household, the cost is £62.89 (based on 35,562 households)

[141] Waste disposal through an energy from waste plant – an economic impact assessment, John Ogier, commerce and employment Department, Guernsey, September 2004

8.2.3 UK Local authorities are responsible for household collections and provide bring banks and civic amenity sites. Costs in 2006 ranged from

Description	Cost per household	
All local authorities (LA)	£47 71	
LAs with recycling rate less than 32%	£46.20	
LAs with recycling rate greater than 32%	£53 36	
LAs with recycling rate greater than 40%	£53 97	
LAs with recycling rate greater than 45%	£51 92	

It can be seen that there is a small increase in the cost of collection services for local authorities with high recycling rates, although the additional cost is not great.

8.2.4 The cost per household of collection for the highest performing authorities ranges from £39 46 (Waveney) to £69 35 (Lichfield).

8.2.5 The UK government is working with local authorities to help them reduce their costs through

- " reducing the waste they collect
- More efficient collection, treatment and disposal operations; and
- Better and more strategies, partnership working and procurement"[142]

Key finding

High recycling rates can be achieved by relatively small increases in collection costs

8.3 Social and Voluntary Enterprises

8.3.1 A greater emphasis on recycling in Jersey would create opportunities both for local small businesses and for the employment for individuals who may find it hard to gain employment in other sectors of the economy. By encouraging the provision of worthwhile job opportunities in small recycling businesses, the States can provide a route to self dependence for individuals with medical or social problems. These individuals will otherwise require financial support through social benefits, an ongoing cost to the Island.

8.3.2 Kyocera Mita Ltd is an example of a UK company providing employment to individuals with a poor employment history. The company collects unwanted computers and refurbishes them for ongoing use.[143]

[142] UK Waste Strategy p.80
[143] http://www.westfield.lancsngfl.ac.uk/assets/documents/academic/recycle.pdf accessed 23/6/07

8.3.3 A government initiative in East Renfrewshire is providing job-training for young people from disadvantaged backgrounds in waste recycling technologies[144]

8.3.4 FEAT is an organisation that provides commercial job opportunities for people with disabilities. It has just started a mattress recycling facility, which collects mattresses from civic amenity sites, takes them to pieces and then recycles each constituent part.[145]

Key finding
Recycling initiatives can provide valuable employment opportunities for individuals who might find it hard to gain employment otherwise

8.4 Improved collection methods

8.4.1 Parishes are responsible for the collection of household waste. Several parishes have already initiated innovative schemes for improving collection methods. By providing facilities and collections that are appropriate to each individual parish and establishing links with local businesses, the Constables are in a strong position to maximise the value of the waste that is collected on a parochial level.

Key finding
Parish Constables are in a good position to maximise the value of waste collected through provision of local collection services

8.5 Processing and sale of items on island (sorting, baling, etc)

8.5.1 Several local businesses have already taken initiatives to create commercial opportunities from locally-based recyclates. Examples include

- Pallets boards used for kindling wood.
- Glass as an aggregate replacement
- Textiles used to create new garments
- Refurbishment of office furniture and effects
- Local firms collect specific recycling streams (office paper aluminium cans, etc) for baling and export

[144] http://www.communitiesscotland.gov.uk/stellent/groups/public/documents/webpages/otcs_011279.pdf accessed 23/6/07
[145] http://www.crns.org.uk/tz/graphics/CRN_newsletter_12.pdf accessed 23/6/07

- Individual collection service for paper and cardboard

8.5.2 Businesses able to take local recyclates, add value and sell back to the local market, are creating profit and employment opportunities within the island.

Key Finding
Local businesses are already finding opportunities to create profit from the processing of recyclable materials

8.6 Export of items – organised by private businesses

8.6.1 One of the main barriers suggested to prevent high level recycling in Jersey is that of the financial and environmental cost of exporting material to the UK and Europe

8.6.2 Jersey imports by sea approximately 440,000 tonnes of goods p.a. Goods exported from Jersey total only approximately 85,000 tonnes. Therefore well over three quarters of the freight containers leaving Jersey are currently empty.

8.6.3 Two major shipping companies have provided the scrutiny panel with information suggesting that this spare capacity could be available at a very reasonable cost

Shipping company	Cost per tonne	Number of tomes per year
A	£25.50	30,000
B	£26.50	Not specified

8.6.4 The other cost associated with export is that of Harbour dues in the order of £8/tonne. This is a fee levied by Government and increases the cost of exporting recyclate material.

Key Finding
Harbour dues act as a disincentive to recycling opportunities

8.7 Sale of items off Island

8.7.1 European and UK markets for recyclates are still developing. Governments are encouraging new initiatives in this area and prices for recyclates have stabilised over the last few years.

8.7.2 Prices for an enormous range of materials are quoted weekly in various publications including Materials Pricing Report (Wrap) and www.letsrecycle.com

8.7.3 Typical prices for May 2007 are shown in the table

Material	Price range in £ per tonne[146]
Newspaper	50-73
Mixed paper	45-63
Clear glass	25-34
Green glass	15-22
Mixed glass	12.5-20
HDPE plastic	190-250
Clear PET plastic	120-175
Coloured PET	120-175
Mixed polymers/bottles	90-160
Aluminium cans	800-920
Steel cans	90-100
Textiles	100-400
Compost	10

8.7.4 There is a significant value to the total amount of material available for recycling in Jersey. A rough calculation based on the above prices indicates a potential value within the waste stream of £2 - £2.5 million per annum.

Key finding

The value of recyclate streams is sufficient to cover the additional cost of processing and transport.

8.7.5 Cardiff has recently introduced a co- mingled collection service and a MRF processing facility (see report of Panel visit section 7.13.3) .. There are similar plants in St Albans, Hill and Moor in Worcestershire, Rotherwas in Herefordshire, Trewern in Powys County and Calne in Wiltshire.

8.7.6 In June 2007, the Panel visited a recycling company in France.

Report on Fact Finding visit to France 12 June 2007

The Environment Scrutiny Panel decided to undertake a fact finding visit to France in order to see first hand the results which could be achieved from the recycling of mixed paper products on a large scale.

[146] Materials Pricing Report May 2007 (Wrap), www.letsrecycle.com, Access Controlled Solutions Ltd, www.mrw.co.uk

The Director of Romi Recyclage provided a tour of his recycling company. The Panel members visited two sorting and initial treatment sites, one just outside of St. Malo and the other on the outskirts of Dinan. Both plants received waste mainly from industrial producers and were equipped to deal with large quantities of paper, cardboard, plastic, metals of all types, tyres, electrical equipment and wood. The visit provided the opportunity to view basic mechanical sorting of the waste products together with the baling process undertaken prior to the products sale to a number of specialist recycled goods producers. The delegation was advised that Romi deals as a generalist recycling company which affords it some comfort during periods of fluctuation in the recyclable waste commodities market.

The company deals with 45,000 tonnes of waste paper annually.

Paper, card and cardboard in addition to plastic was separated using a digger with a grab and a small amount of manual intervention. The waste products are prepared for resale by baling, shredding or container packing ready for distribution to companies producing materials from recycled matter.

The Panel was advised that distribution streams had been identified by the company for the five different types of waste plastics that it received. Some plastics could raise 400 euros per tonne when processed. The flexible stretch plastic was processed by a company to produce plastic tarpaulins.

Wood processed by the plant when clean was shredded and sold for the production of chip board whilst dirty wood was rough shredded and sold as heat generating material for the production of fertilizer.

It was explained that some recyclables were purchased, shredded and sold on to the appropriate recycling production stream. Mixed metals could be purchased by a company at approximately 50-70 euros and once sorted sold on at 100 Euros per tonne or more. The plants processed in excess of one thousand tonnes of recyclables per month and had the capacity to significantly increase that volume.

The company advised that it provides 1,400 recycling bins in the Dinan area for paper, wood, card and plastic. Some of the large chain supermarkets were responding to French and EU statute and experimenting with the composting of waste foods from shops in order to reduce their ultimate waste tonnage/percentage to ensure that they complied with the tighter reduction levels being imposed on waste products throughout industry.

A new contract had recently been secured in conjunction with a partner company to recycle computer screens and televisions.

The Panel was provided with an overview of how eco taxes applied to goods such as tyres to ensure that industries take an active role in the environmentally safe recycling or destruction of the products that they create.

Following the visit to both recycling sorting depots the Panel visited a paper mill just outside of Redon. The paper mill produced 6 different types of egg boxes and a number of other containers on a three shift 24/7 operation. The plant was highly automated and had minimum staffing. The process which in effect produced papier maché from a mix of newspaper, cardboard, grey card and magazines together with a grey paper waste product from another company was shredded and mixed at set ratios and processed using water as the other main ingredient, moulded wet and dried. Approximately 90,000 egg boxes could be produced per hour.

The Panel was encouraged to see the useful end product which could be achieved through the recycling of printed matter which would not normally be able to be re-used.

The Panel discussed the potential for the export of recyclable materials from Jersey to France for onward introduction into the recycling industry which it was noted was an area of significant economic growth and employment.

Issues of transporting clean waste to France were discussed in addition to the possible impact or otherwise of EU transportation of waste conventions (the Basle convention).

8.8 Disposal of residual waste

8.8.1 T&TS are proposing to purchase a new incinerator at a capital cost of approximately £80 million. Burning residual waste in an incinerator creates substantial amounts of ash and additional storage facilities will be required when the existing space at La Collette is filled. This would need to be provided through additional reclamation schemes or through an inshore site. Both possibilities are likely to raise objections on environmental grounds.

8.8.2 The operating costs of Incineration include the running of the incinerator itself, the disposal of bottom ash, the disposal of fly ash, the cost of preparing ground at La Collette for lined ash pits, the transport and disposal of the ash etc.

Key findings

Additional storage facilities for ash will need to be identified by T&TS during the lifetime of the proposed incinerator

Summary

- The commissioning of a new incinerator will cost approximately £70 million and will be a considerable financial burden to the taxpayer at a time of budgetary restraint
- The provision of waste and recycling services can be undertaken by a wide range of commercial and non-commercial organisations
- Market for recycled goods are being developed and increasing demand is likely to lead to higher prices
- High recycling rates can be achieved by relatively small increases in collection costs
- Recycling initiatives can provide valuable employment opportunities for individuals who might find it hard to gain employment otherwise
- Parish constables are in a good position to maximise the value of waste collected through provision of local collection services
- Local businesses are already finding opportunities to create profit from the processing of recyclable materials
- Harbour dues act as a disincentive to recycling opportunities
- There is enormous spare capacity for off island freight by sea
- Shipping companies are prepared to offer this spare capacity at a reasonable rate
- The value of recyclate streams is sufficient to cover the additional cost of processing and transport.
- Additional storage facilities for ash will need to be identified by T&TS during the lifetime of the proposed incinerator

Recommendations

9. **Parish authorities should work with local businesses and other organisations to organise household waste collections which maximise the value of the various waste streams**

10. **The States should facilitate the export of recycled material by waiving harbour dues on exports**

11. **The States should facilitate commercial and social enterprises that seek to create value from waste materials and provide employment opportunities for local residents including those with special employment needs.**

9. Food waste

9.1 Introduction

9.1.1 Food waste has been identified as a key waste stream to improve environmental performance by the UK Waste Strategy.[147]

9.1.2 The recent Waste strategy published by the UK government explained that

"There are strong arguments for encouraging more separate collection of food waste, especially since it can help achieve environmental gains more cost-effectively, including through the use of anaerobic digestion to provide energy…. Separate collection of food waste has so far been introduced by a small number of authorities, all on a weekly basis and WRAP research suggests this can lead to higher tonnage and participation rates. The Government welcomes the fact than many local authorities are promoting home composting of organic waste."[148]

9.1.3 A more detailed report from WRAP included the following conclusions

"1. Where home composting is promoted intensively, local authorities can save money. Many local authorities make some effort to encourage home composting, though the intensity of the approach and level of support available to residents varies. For many there is still a dilemma - do we collect biowaste or do we promote as much home composting as possible? However, on the basis of costs, promotion of home composting to those households with gardens makes sense and should be a common element in virtually all authorities' programmes. Results of work undertaken by WRAP show that, on average, a household that stops composting at home is likely to send an additional 105 kg per annum of biowaste to HWRCs and will set out an additional 115 kg per annum into the collection system. To put this in context, on average a household in the UK produces a total of 1,200 kg per annum of waste.

2. In general systems collecting mixed garden and food waste fortnightly or systems where unlimited garden waste is collected or services are provided free of charge are more costly than systems collecting food waste weekly. This may seem counter-intuitive – surely a weekly collection should be more costly than a fortnightly collection? The key reason that a weekly food waste collection can be less costly is that it can achieve good capture and it diverts material directly from the residual bin. Mixed collections of garden and food waste increase the quantity of material that must be treated at higher cost facilities. Garden waste collections, particularly if the service is free at the point of provision, can pull additional material into the waste management system and this incurs additional treatment costs. The potential for attracting additional tonnage is greater in those areas with larger gardens.

[147] UK Waste Strategy DEFRA May 2007 p.68
[148] UK Waste Strategy DEFRA May 2007 p.74

Where food waste is collected separately, the frequency of collection should be higher than for refuse. In terms of financial costs, systems where food waste is collected weekly and refuse fortnightly are likely to be the most cost-effective. This approach has been shown to increase the capture of both food waste and dry recyclables, thereby reducing the quantity and cost of residual waste for disposal, whilst increasing the costs of collecting and processing biowaste and dry recyclables. This approach to optimising costs is important in the context of the operation of the overall collection and disposal system and the net effect on council tax.

3. When total costs – financial and environmental – are considered, the research suggests that the following are likely to be features of a preferred collection and treatment system:

   - Home composting will be actively promoted and supported;
   - The collection system will seek to avoid attracting additional or new garden waste into the collection system (principally so as to constrain system costs), either through limiting the volume provided for collection or where the service is charged for;
   - The collection system will target food waste as a separate fraction, with the collection frequency weekly so as to achieve high capture of food waste;" [149]

   The separate collection of food waste has several advantages. By removing the "smelly" food from the waste bin, the remaining rubbish is easier to manage and has much less chance of being contaminated. Food waste is easy to collect as it does not need a special compacting vehicle."

9.1.3 Local authorities that collect food waste separately, usually make weekly collections. Preston, Lancashire, is a good example. Householders are provided with a small (7 litre) kitchen caddie and a supply of biodegradable liners. All cooked and uncooked food scraps are collected in the lined kitchen caddie. When full the liner is knotted and stored in a larger (25 litre), lockable, outside container.[150]

9.1.4 The zero waste trial in St Helier produced very good results for participation in separating food waste, and this was seen to be one of the most successful and popular elements of the trial

Key findings
Weekly collections of food waste can increase the amounts of both food waste and dry recyclables collected separately

[149] Wrap food waste report (pdf)
[150] "your weekly kitchen food waste collection" Preston City Council

Weekly collections of food waste can be shown to be cost-effective in comparison with other methods

made from natural materials, mainly cellulose, that the digester bacteria can break down in moderate quantities. The wipe-clean plastic used to make the kitchen caddy, mini-bin and wheelie bin are all designed to make keeping the insides fresh with the occasional rinse round, and should be easy to maintain.

If you really want to use liners in any of your bins, please make sure they have the 'OK – Compost' symbol or make sure the liner conforms to DIN Certco 54900 or BS EN 13432:2000. Any other liners are not suitable.

You can use ordinary black plastic bags in your black wheelie bin, but it's better for the environment if you don't.

Waste Services on 01584 813382, or david.hughes@southshropshire.gov.uk

Feed the biodigester

Food waste, cardboard packaging and garden waste will keep the digester busy. It turns rubbish that would otherwise go into landfill, where it would produce polluting methane, into useful materials.

The digester process, developed over several years by local company Greenfinch, breaks down organic waste and turns it into three products: biogas; a liquid digestate; and a solid material, that is quite like a peaty compost.

The biogas is used as a fuel inside the plant, and also generates electricity, which will be sold as renewable power. Your food waste is important to us: food scraps give the best yield of biogas.

The liquid and solid digestates will be used as soil conditioner, helping to grow local food. So if you feed the digester, the digester can help feed you!

The plant and the bins needed for the new dual collection system have been jointly funded by Defra, the Department for Environment, Food and Rural Affairs, and by Advantage West Midlands, our regional development agency.

Advantage West Midlands

defra

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To apply in person, take your completed coupon to one of these collection points. Please circle the Caddy Collection Point you use in the list below:

- Sandford Hardware, Church Stretton
- E C Davies and Son, Bishop's Castle
- Post Office and Stores, Worthen
- Mumfords, Cleobury Mortimer
- Myriad Organics, Ludlow
- Cyril Bason (Stokesay) Ltd, Craven Arms
- D S Britten Ironmongers, Clun

To apply by post, complete this coupon and mail it to: Freepost RLYY-XEBR-JTKB, Gardening Delights Ltd, P O Box 4571, Lichfield, Staffs, WS14 4AW. No need to use a stamp.

Please supply ONE kitchen caddy in ***Pigeon Blue / Moss Green*** (delete as appropriate)

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.....

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Gardening Delights and South Shropshire District Council may periodically send you information designed to support your recycling and gardening activities. If you do not wish to receive this information, please tick this box ❑. SM001

Offer limited to ONE caddy per household and to South Shropshire District Council residents only. Please allow up to 28 days for delivery if you apply by post. If you wish to cancel your order before delivery, please telephone 01543 419141. If your caddy has been delivered and you wish to return it, please contact 01543 419141 within 7 working days to arrange suitable collection. Offer is made on 'first come, first served' basis against limited stocks, so is subject to availability. We reserve the right to offer an alternative colour. Offer closes 30th June 2006. Bins used in these pictures were posed by models! Your free bin may not be exactly as pictured on these pages.

9.2 Home disposal

9.2.1 It is estimated that household waste in Jersey includes about 17,00 tonnes of food waste. This is a significant proportion of household waste and its removal from the residual waste stream would have a major impact on the quantity of waste for disposal. Food waste has a low calorific value as it contains large amounts of water. "… water present in the waste will consume energy through evaporation and so reduce the overall amount of useful heat that can be recovered. Thus the wetter the fuel and the more ash it produces, the lower will be the heat recovered"[151]

9.2.2 It is possible for householders to dispose of their own kitchen waste using a system such as "Green Cone".[152] The Green Cone digests all forms of domestic food waste including cooked food meat and fish and can be installed in any garden area with a reasonable amount of sunshine. Several local councils in the UK provide green cones at a subsidized price as part of their overall waste management strategy, (for example Guildford Borough Council [153]). Vegetable and fruit scraps can be added to a normal garden compost heap.

Key finding Disposal of all forms of kitchen waste can be achieved at home through the use of a digester such as a Green Cone

9.3 Island wide disposal

9.3.1 Not everyone has a garden and there are now several alternatives to incineration (the current disposal method in Jersey) such as in-vessel composting and anaerobic digestion. Anaerobic digestion is a biological process whereby anaerobic bacteria break down organic material producing methane and a digestate for further composting.

9.3.2 Composting technology has developed over the last few years and, in addition to traditional " Windrow" type facilities, enclosed ("in vessel") composting units are now available. These units ensure that compost is heat treated and the resulting product can be used on agricultural land. The production and use of compost holds carbon in the soil, and improves soil fertility and water retention.

9.3.3 There are two relevant standards used to measure the quality and safety of compost products– the Animal By Products Regulations (ABPR) and PAS100.

[151] A changing climate for energy from waste (p.57) Eunomia May 2006
[152] www.greencone.com
[153] http://www.guildford.gov.uk/GuildfordWeb/Environment/Recycling/GardenWasteRecycling/HomeComposting.htm

9.3.4 PAS 100 was developed by the Composting Association in association with WRAP. It specifies the minimum requirements for the selection of input materials for composting, the process of composting itself, the quality of the compost material, and the marketing and information labeling of the product. It sets out standards for

- Process control
- Input materials
- Composting activity – sanitization
- Composting activity – stabilization
- Compost quality requirements
- Product preparation
- Compost sampling and analysis
- Final product storage
- Classification compost
- Informative labeling and marketing
- Monitoring and traceability

9.3.5 To meet PAS100, the compost must satisfy stringent quality requirements with regard to pathogens, heavy metals, foreign material and phytotoxins.[154]

9.3.6 PAS100 compost is suitable for

- Growing media manufacture
- Landscaping as a blended product
- Direct use on restored sites
- Direct use in agriculture

9.3.7 ABPR - the Animal By-Products Regulations 2004 set out rules for the treatment of animal by-products. The regulations permit the treatment in approved composting and biogas premises of low risk animal byproducts and catering waste which contains meat or comes from a premises that handles meat. This allows compost to be produced from food waste in controlled conditions with guaranteed health and safety standards. The main requirement is for treatment at 70℃ for one hour. The treatment also needs to have multiple barriers (i.e. more than one treatment stage).[155]

9.3.8 The ABP Regulations also require an interval of

- Two months in the case of pigs
- Three weeks in the case of other farmed animals

[154] Introduction to BSI PAS 100 - WRAP
[155] DEFRA animal health and welfare- animal byproducts-composting-Q&A

between applying compost and allowing animals to graze.

Key finding
Strict controls (PAS 100 and ABPR) exist to ensure that compost containing food waste is of a very high standard

9.3.9 The report on the working party on composting Jersey 10/10/06 – included the text of a letter from Rosemary Collier senior scientific adviser/plant pathologist in which she stated

" compost that meets the requirements of the British standards institution publicly available specification 100 (BSIPAS 100) will guarantee an appropriate and safe product. This also requires that the compost shall contain no substances toxic to animals or plants and possess no objectionable odours…

' as long as these standards and requirements are adhered to there is unlikely to be an issue with supermarket customers with appropriate use in annual production of potatoes"[156]

Key finding
Compost that meets PAS100 can be applied to land used for growing potatoes

9.4 Process

9.4.1 To produce good quality compost, food waste needs to be mixed with woody material to obtain the correct carbon - nitrogen balance and to provide the correct structure for the composting material. On its own, food waste is too high in nitrogen and too "sloppy" to make compost. Adding in green waste (approximately 50% by weight) [157] – prunings, hedge clippings etc - adds additional carbon as well as maintaining air spaces within the material.

9.4.2 The process of producing compost reduces the weight of the waste material by about 50%.[158] Using the figure of 17,500 tonnes of kitchen waste, mixed with 8,50 tonnes of garden waste, would produce just under 13,000 tons of compost. An application rate of 36 tonnes per hectare[159] would require 360 ha of land to be available per year.

[156] Report of the working party on compost in Jersey p.11
[157] UK Waste Strategy annex D p 16
[158] Recycling materials to land in Yorkshire and Humberside p.33 – recycling action Yorkshire, September 2005
[159] Ibid.

9.4.3 Compost also has a useful function in soil remediation, to improve the quality of subsoil for future use as topsoil or to improve the condition of soil that has been heavily worked over a period of years. In September 2006, the European Commission adopted a comprehensive EU strategy specifically dedicated to soil protection as the degradation of soil becomes an increasing problem throughout Europe.

Key findings
Composting all the island's food waste, mixed with a proportion of green waste, would provide compost for 360 hectares of land each year

9.4.4 Most types of in vessel composting system operate on a modular basis. Additional units can be purchased as demand increases. Some units use a vertical tower system. A sealed conveyor delivers shredded waste material to the top of the tower (approximately 4.5 metres high). The material is fed into the tower. Inside the tower it slowly moves downwards. The heat energy created by the composting process is used to draw air through the tower to ensure that aerobic digestion takes place and the temperature is monitored to ensure that the compost reaches a minimum temperature of 70 degrees. As compost is removed from the bottom of the tower, the maturing material moves downwards – it takes one to two weeks to complete the process[160].

9.4.5 In other systems the material is moved horizontally using a slowly rotating drum[161]. Both types of system include bio-filters. The compost produced can then be taken for secondary treatment, in a conventional windrow.

9.5 Preston

9.5.1 The scrutiny panel visited Preston to view vertical compost in units (VCU) in operation.

In February 2006 the Panel visited Preston in Lancashire.

The food waste collection scheme involves residents disposing of all cooked or uncooked food waste food in biodegradable bags in specially provided lockable caddies. The containers are collected on a weekly basis. The caddies are small seven litre container for inside and a larger 25 litre container for outside designed to safely and hygienically collect food

[160] VCU technology website www.vcutechnology.com
[161] Rotocom www.allertex.co.uk

waste, were issued to around 7,500 terraced houses in the Deepdale and Tulketh areas of Preston in May 2005. Households on the scheme are also supplied with special biodegradable liner bags made from corn starch instead of plastic.

Food waste containers are collected weekly and are currently producing 1.56 tonnes per day. Once collected by a specially designed vehicle, food waste is taken to the composting plant in Ingol to be composted.

Feedback from residents using the food waste collection scheme has been very positive, with a high level of participation from the outset.

Preston City Council began operating their vertical composting unit on Thursday, 2 June 2005. The unit recycles biodegradable kitchen waste including cooked food, meat and kitchen scraps in a closed, high temperature system. The mixed food and garden waste spends seven days in the vertical compost unit, during this time the food waste starts to break down, any bacteria within the material will not survive the high temperatures reached. The technology being used is the OrrTec system, designed and constructed by VCU Technology. The unit has the annual capacity of 1300 tonnes of mixed food and green waste, with an output of approx 850 tonnes compost. The mixed shredded waste is loaded at the top, the process takes 7 days and is discharged at the bottom. During the process the temperatures needed to ensure the Animal By Product Regulation and British PAS100 Standard are achieved. Probes positioned within the tower record this data. The compost discharged is then secondary treated to refine the end product.

9.5.2 The units are suitable for both urban and rural locations – they produce no odour and only require a small site to operate from. The process of producing compost reduces the weight of the original material – most of the excess water is captured as a leachate (which itself is recycled as part of the process).

9.5.3 As well as large composting units suitable for municipal operations, a wide range of smaller units is now available. Prisons[162] and schools have introduced these units.

Key finding

Modern self-contained composting units can be located in urban areas as odour and leachate are fully controlled

Summary

- Weekly collections of food waste can increase the amounts of both food waste and dry recyclables collected separately
- Weekly collections of food waste can be shown to be cost-effective in comparison with other methods
- Disposal of all forms of kitchen waste can be achieved at home through the use of a digester such as a Green Cone
- Strict controls (PAS 100 and ABPR) exist to ensure that compost containing food waste is of a very high standard
- Compost that meets PAS100 can be applied to land used for growing potatoes
- Composting all the island's food waste, mixed with a proportion of greenwaste, would provide compost for 360 hectares of land each year
- Modern self-contained composting units can be located in urban areas as odour and leachate are fully controlled

Recommendation

12. T&TS should re-evaluate the viability of separate collections for food waste, from the point of view of being able to separate the organic material for suitable treatment, and as a way of maximising the value of remaining streams

[162] E.g. HMP Morton Hall, Lincolnshire

10. Public engagement

10.1 Political attitudes

10.1.1 Environmental issues are now mainstream issues in both political and everyday life. It is no longer the province of the "Greenies". British political party policy statements now include:

"Labour is taking action to reduce waste and increase recycling, and to enable individual householders to recycle their waste through doorstep recycling – through innovative schemes such as the Landfill Allowance Trading Scheme, enabling good recycling councils to gain financially from penalties paid by the bad ones, and by a revenue-neutral but significant increase in the landfill tax, to divert waste away from landfill. For the first time in recent years, last year the growth in waste arisings went down, meaning that we are starting to achieve our objective of decoupling it from economic growth".[163]

10.1.2 David Cameron, leader of the Conservative Party stated in the Independent of 20th April 2006,

"This week I saw the fantastic progress that Conservative-run Brentwood council is making on recycling. The council's kerbside green waste collection scheme has increased the rate of recycling and composting to almost 30 per cent in the past year."

10.1.3 The UK government has acknowledged the importance of public engagement in contributing to the better management of waste. The recent strategy report sets out eight key policies[164] including

- Encouraging local communities to be identified as " zero waste places"
- Providing more recycling bins in public places to help people recycle wherever they are
- Ensuring that government offices and departments set a good example by reducing their own waste and purchasing recycled materials.

10.1.4 UK government departments are already committed to both reducing their total waste arisings and increasing their recycling rates progressively over the next decade[165]

[163].http://66.102.9.104/search?q=cache:vGUk6iO4dQAJ:www.younglabour.org/environment04+achieve+our+objective+of+decoupling+it+from+economic+growth&hl=en&ct=clnk&cd=1&gl=uk
[164] UK Waste Strategy p.93
[165] UK Waste Strategy p.101

10.1.5 In Jersey the Planning and Environment Minister has launched the "eco-active" campaign which aims to increase environmental awareness amongst local residents. The campaign has achieved a high profile since its launch and local media are increasingly reporting on environmental issues and concerns.

Key finding Recycling is now part of mainstream politics and has a high profile at all levels

10.2 UK Community Schemes

Recycling projects are commonplace throughout the UK encouraging people towards better recycling. For example,

- West London GREENFEST & London FRN campaign to take the F out of ReFuse! has launched a pioneering campaign advocating that furniture reuse becomes part of everyday life to help ensure London stops wasting furniture which could be given to those in need.[166]
- Cambridgeshire Community Reuse and Recycling Network develops community reuse and recycling schemes across Cambridgeshire and Peterborough.[167]
- Monmouthshire Community Recycling Ltd (MCR) is a partnership between Monmouthshire Environment Trust and ECT Group, the largest social enterprise in the UK. It provides information and services to reduce and recycle waste locally. This includes the Monmouthshire Black Box Scheme, workplace recycling and an active educational programme.[168]

10.3 Public engagement by scrutiny panel

10.3.1 Planet Jersey Exhibition Stand

During the 10th to the 12th February 2006, the Panel manned a stall at the Planet Jersey Exhibition. The event was well attended and the panel agreed that it had afforded members a useful opportunity to promote Scrutiny and to engage with, and obtain views from, the public in relation to the waste and recycling within the island on an informal basis.

10.3.2 Composting Exhibition

On Friday 15th and Saturday 16th September 2006 the Environment Scrutiny Panel held an exhibition at the Royal Jersey Agriculture and Horticulture Society Hall with the objective of taking information relating to composting to other States Members and members of the public. Nine representative companies attended

[166] http://lovelondon.london21.org/page/47/show/1340/
[167] http://www.wastebook.org/charity.htm
[168] http://www.monrecycling.co.uk/

and operated stalls. Two further stalls were erected, one displaying information from Waste and Resources' Action Programme (WRAP) and the other with the invited speakers being available for conversation with visitors.
The Friday was specifically for invited guests only and started at 3.00 pm with a reception. Seven company representatives then each gave a 15 minute presentation to the audience. The presentations obtained a good reception with all companies making full use of the power point facilities provided.

A buffet provided during the half hour break allowed the opportunity for the company representatives to talk with the guests. This was followed by 30 minute talks by each of the invited speakers with time for questions. Professor Chris Coggins and Dr John Mullett. Having worked in the field of organic waste treatment and recycling for 20 years John is one of the most experienced organic waste specialists in the business. The two speakers produced a co-ordinated approach to the speeches which were well received by the audience.

The following companies were represented at the show:-

Vital Earth
Green Cone Ltd
Allertex
Accelerated Compost
Agrivert.
TEG Environmental
Susteco
Bioganix
Wiggley Wigglers

All the attending companies were completely aware that this was not part of the tendering process being undertaken at the same time by T&TS and were enthusiastic to be offering information relating to their products to interested parties in the Island. All travelled at their own expense.

The following Members of the States of Jersey attended

Senator Routier	Deputy Hill
Senator Vibert	Deputy Scott-Warren
Senator Cohen	Deputy Fox
Senator Perchard	Deputy Martin
Connétable du Feu	Deputy Southern
Deputy De Faye	Deputy Ferguson
Deputy Huet	Deputy Reed
Deputy Le Claire	Deputy Le Fondre
Deputy Mezbourian	Deputy Pryke
Deputy Lewis	Deputy Gorst

Deputy Gallichan Deputy Breckon

Four of the Panel's five members supported the event throughout.

Other guests included representatives of States Departments, Parish Halls, Waste Recovery Firms and Agriculturalists. The presentations had an audience of in excess of 50 people who filled the seating in front of the stage and overflowed into the seating in the buffet area.

Saturday opened at 10.00 am. This session was for the public who kept a constant stream throughout the day. Panel members were interviewed on BBC Radio Jersey and Channel TV . This was broadcast on the local news on Tuesday 19th September 2006.

10.3.3 Airport Exhibition

The Environment Scrutiny Panel created an exhibition to demonstrate some recycled products. The exhibition ran for one week from Monday 25th September 2006 with screens erected in the centre of the Departure Hall at Jersey Airport. The exhibition was divided into three sections:-

- Textiles
- Glass
- Rubber

10.3.4 On one side of each screen was the raw rubbish, in the case of rubber, an old tyre; glass, empty bottles and old curtains on the textiles stall. There was also the first step to dealing with the products, such as imploded glass cullet, rubber crumb and granule and unpicked wool. On the other side of the screen were examples of recycled products.

Rubber mats used for children's play areas (supplied by Fort Regent), rubber buckets and animal matting (supplied by Animal Kingdom), recycled glass (supplied by Julie Bolton) and Clothing from recycled textiles (supplied by Kalina Le Marquand and Louise Evans from Evolve). A hand dyed and stitched duvet (supplied by Mr P Le Louarn) added significant colour to the display.

A comments book was provided and the following entries were amongst those recorded

Good luck with your recycling efforts. With commitment to zero waste from the whole island you would not need a new incinerator costing millions of pounds. JW

Very interesting JR

It is good to see that recycling is firmly on the agenda – well done! Please also consider the availability of recycled products on the island (eg encouraging offices to buy recycled paper) – it's no good sending stuff to be recycled unless there is demand for it at the other end! LS

A very impressive display. The old adage "waste not, want not" comes to mind. JC

Great display, I just hope the environment policies will continue throughout the island. AR

Wonderful initiative. Keep it up. MV

Thought provoking display – makes me think about the question "who is cleaning up my mess?" Which helps to create a more responsible attitude to our place on this planet. V. Good. LS

Excellent display very, pleased to see it. It was really impressive display, I found it interesting.

Amazing. It was totally mind-blowing! Invent one for every airport please. S

A wonderful display! It's fabulous to see and understand the process of recycling in Jersey. Very encouraging! C

10.3.5 Homes and Leisure Exhibition

Between 9th and 12th November 2006 the Panel manned a stall within the Homes and Leisure Exhibition at Fort Regent. This once again took the Panel into the forefront of public engagement, giving the public the opportunity to express their opinions on recycling and general environmental issues The overall message received by the Panel throughout the show was that the people of Jersey were ready to recycle in a far more serious manner than was currently being proposed.

Key Finding
There is a keen interest in recycling amongst the Jersey public and an overall desire to undertake more recycling

10.4 Zero Waste

10.4.1 Worldwide

The concept of zero waste has been growing around the world for several years. Zero waste is based on the understanding that all the materials we use are resources and only become waste as a result of poor management, bad design and out-dated attitudes to sorting and disposal. Subscribing to zero waste is

therefore a way of thinking, a path to travel, rather than meaning we must instantly eliminate every last piece of waste whatever the cost. Zero waste simply defines waste as something that is not acceptable. It sets a new paradigm with a target of a 100% resource-efficient economy where material flows are cyclical and everything is reused or recycled harmlessly back into society or nature. 'Waste' as we think of it today will cease to exist because everything will be viewed as a resource. [169]

10.4.2 In November 1998 the Opotiki District Council in New Zealand was the first local authority to adopt a Zero Waste strategy. From a peak waste volume of 10,000 tonnes at that time, waste reduction measures and recycling initiatives reduced this to approximately 5,500 tonnes by June 2000. A kerbside recycling scheme instituted in July 2000 for the urban Opotiki area together with three planned Resource Recovery Facilities has seen a reduction to 1,500 tonnes per annum by June 2002. That is an 85% reduction in thirty six months**.**[170]

10.4.3 In Australia, the objective of 'Zero Waste South Australia[171]' is to promote waste management practices that, as far as possible, eliminate waste or its consignment to landfill, advance the development of resource recovery and recycling.

10.4.4 Leicester is committed to the principal of zero waste and has set an ambitious target of achieving zero waste by 2020. By setting such an extreme target for waste reduction it is hoped that new levels of innovation and efficiency will be catalysed and the next few years will focus on steadily working towards a life without waste. Bath and North East Somerset Council has also declared a zero waste policy.[172]

Key finding Zero waste is a concept, which encourages communities to see waste as a resource

10.4.5 Zero Waste Trial Jersey

In 2006 and as a result of discussion with the Environment Scrutiny Panel, the Parish of St Helier conducted a Zero Waste Trial to investigate the feasibility of the separation of kitchen waste and to establish the extent to which the public would be prepared to separate clean, dry recyclables for kerbside collection. The term Zero Waste was chosen for the trial in its generally accepted meaning of the pursuance of the highest standards of waste minimisation and recycling.

[169] Leicester Environment City
[170] Opotiki County, New Zealand
[171] Zero Waste South Australia
[172] http://www.bathnes.gov.uk/BathNES/environmentandplanning/recyclingandwaste/zerowaste.htm

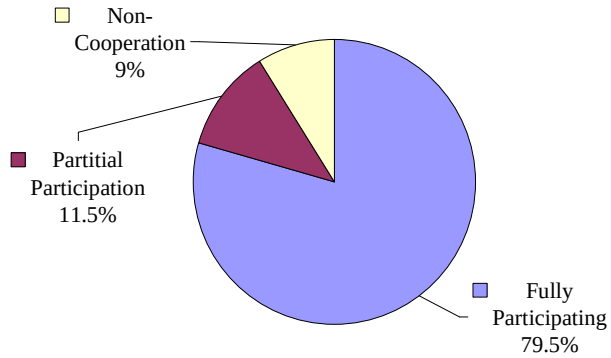
10.4.6 Consultation started for this trial at Parish Assembly level with a unanimous vote from fifty attendees to proceed. Leaflets giving instructions on how the separation and collection systems would work were issued to all residents within the trial and consultation took place with residents groups. A stall was set up in the area to offer further advice to residents.

10.4.7 Textiles, metals, plastics, paper, cardboard, and food waste were subject of separation at source and collected on alternate weeks. Bottle banks in the area were available for collection of the glass. Collection of non-recyclable residue took place on alternate weeks.

10.4.8 During the trial period, a 'Give and Take Day' held in the area proved very successful. The object being that people could deliver unwanted goods free of charge in the morning and could collect and take away anything they could use during the afternoon, again, free of charge.

10.4.9 The overall record of public participation is displayed in the chart below.

Residents' Participation in Scheme

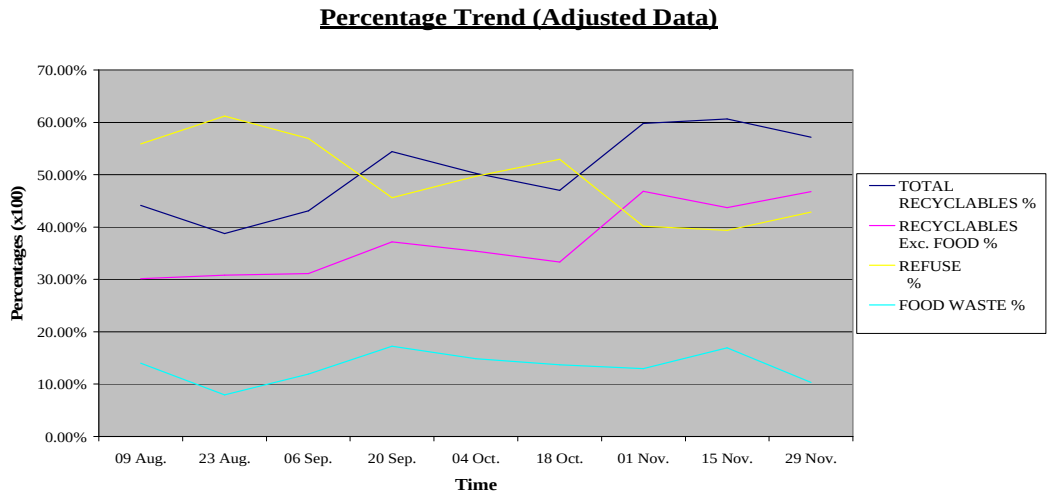


This trial was purely voluntary on the part of the households within the area. The pie chart shows clearly that the vast majority of people (79.5%) are prepared and ready to participate. The trial also shows that whilst the participation rate increased throughout the period, so did the separation amounts. The final collection of the trial revealed the following quantities

Material	Weight Kg.*	Volume Litres*	% by Weight	% by Volume
Plastics (All)	120	4,560	2.64	10.73
Paper	675	3,830	14.87	9.02
Cardboard	560	4,645	12.33	10.93
Cans Mixed	100	2,135	2.20	5.03
Food	470	1,435	10.35	3.38
Glass	595	2,220	13.10	5.22
Other	75	560	1.65	1.32
Sub-Total	**2595**	**19,385**	**57.16**	**45.63**

Recyclables Refuse	1,945	23,095	42.84	54.37
TOTALS	**4,540**	**41,160**	**100**	**100**

10.4.10 The below graph reflects how the public participation increased as time went on with the non-recyclable residue refuse showing a significant decline over the period and total recyclables an increase.



10.4.11 The trial concluded that "without making kerbside separation of waste a duty of those who produce the waste a recycling rate of 56% is achievable initially."

10.4.12 The Zero Waste Report prepared at the end of the trial recommends that the Parish, amongst other things, should

- Continue the weekly collection of food waste, which has proved particularly successful in the current trial, as part of any future trial.
- Note that plant is available to turn kitchen waste into compost fully meeting the Animal By-Products Regulations (ABPR) legislation requirements, and a small-scale operation using the type of technology currently in use in several parts of the U.K. is feasible
- Investigate the availability and cost of suitable sorting and packaging plant
- Investigate the availability and cost of suitable composting plant
- Develop the concept of 'Give and Take' or re-use facilities for Parishioners[173]

10.4.13 The success of the St Helier zero waste project was acknowledged by the International "communities in Bloom" award in October 2006[174]

[173] Zero Waste Report. Parish of St Helier
[174] http://www.communitiesinbloom.ca/Articles/?id=3&aid=116 accessed 15/6/07

Key finding

The St Helier zero waste trial achieved a participation rate of just under 80%

A recycling rate of 56% was recorded during the trial

10.5 Public attitudes to recycling

10.5.1 The Jersey annual social survey 2006 included a comprehensive set of questions on the attitude of the Jersey public to recycling. The survey findings included the following points[175].

10.5.2 A large number of people did not know the way to recycle certain materials. This ranged from 30% for newspapers and magazines up to 62% who did not know the correct way to recycle cardboard and other paper.

10.5.3 The main reasons to prevent people from recycling were identified as the lack of a kerbside collection and the lack of recycling facilities in general

10.5.4 When asked about the recycling of dry recyclable materials, at least three quarters of people would recycle all the waste they could if it were collected from their home, with a further 10% saying they would recycle most of their waste in this way.

10.5.5 Almost two thirds of households (62%) would regularly use a doorstep collection scheme for kitchen and garden waste and a further quarter (24%) would use such a scheme infrequently.

Key findings

Information about existing recycling schemes is not well understood amongst the population in general

The main barrier to increased recycling at present is the lack of a kerbside collection and recycling facilities in general

A large percentage of the population would participate in a kerbside collection scheme for both dry recyclables and organic waste

Summary

- Recycling is now part of mainstream UK politics and has a high profile at all levels

[175] Jersey Annual social survey, 2006

- There is a keen interest in recycling amongst the Jersey public and an overall desire to undertake more recycling
- Zero waste is a concept which encourages communities to see waste as a resource
- The St Helier zero waste trial achieved a participation rate of just under 80%
- A recycling rate of 56% was recorded during the trial
- Information about existing recycling schemes is not well understood amongst the population in general
- The main barrier to increased recycling at present is the lack of a kerbside collection and recycling facilities in general
- A large percentage of the population would participate in a kerbside collection scheme for both dry recyclables and organic waste

Recommendations

13. The States should encourage waste minimisation and recycling amongst all government departments and States employees.

14. The States should ensure that all schools have an active waste minimisation and recycling policy and that all pupils are fully involved in these activities

15 T&TS should provide additional information on local recycling facilities to the general public.

Footnotes

	Footnotes	
Item Number	Item	Paragraph
1	UK waste strategy 2007 annex G, p.1	4.4
2	Waste Not Want Not. Cabinet Office Strategy Unit November 2002.Page 19/20.	6.1.7
3	UK waste strategy annex C1, p2	6.1.7
4	Jersey; Waste Composition. Professor C. Coggins.	6.1.7
5	http://politics.guardian.co.uk/mpsurgery/story/0,,445415,00.html accessed 19/5/07	6.2.4
6	Waste Composition Analysis. Guidance for Local Authorities – DEFRA	6.3.1
7	Waste Composition Analysis. Guidance for Local Authorities - DEFRA	6.3.5
8	DEFRA Waste Implementation Programme Local Authority Support Unit Waste Composition Audits 2004/2005 Programme http://lasupport.DEFRA.gov.uk/ViewDocument_Image.aspx?Doc_ID=196	6.3.6
9	Waste Not Want Not. Cabinet Office Strategy Unit November 2002. Page 21	6.4.1
10	From Table Page 7 Greater London Authority Waste Composition Scoping Study Oct 2004	6.4.2
11	Household Waste Composition Analysis Final Report for Merseyside. Page 10	6.4.2
12	Isle of man waste review 2007 (see pdf)	6.4.4
13	States of Jersey Solid Waste Strategy May 2005 page 99 - EA waste analysis 1999, Hounslow, Cheshire, Scotland	6.5.1
14	Waste Not Want Not. Cabinet Office Strategy Unit November 2002. Page 21	6.5.2
15	Jersey TTSD Directly Delivered Waste Categorisation Summary Report 28th September 2006	6.5.9
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