BILLET D'ÉTAT

IV
2012

TUESDAY, 21st FEBRUARY 2012

Volume 1

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[a] Accompanying Projet de Loi entitled "The Civil Contingencies (Bailiwick of Guernsey) Law, 2012"

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B I L L E T D'É T A T

TO THE MEMBERS OF THE STATES OF

THE ISLAND OF GUERNSEY

I have the honour to inform you that a Meeting of the States of Deliberation will be held at **THE ROYAL COURT HOUSE,** on **TUESDAY,** the **21st FEBRUARY 2012** at 9.30am, to consider the items contained in this Billet d'État which have been submitted for debate.

G. R. ROWLAND
Bailiff and Presiding Officer

The Royal Court House
Guernsey
13 January 2012

POLICY COUNCIL AND HOME DEPARTMENT

ALTERNATIVE MEMBERS OF THE CIVIL CONTINGENCIES AUTHORITY

1 Executive Summary

1.1 On 1 December 2011, the States approved proposals from the Policy Council and Home Department for a Bailiwick Civil Contingencies Law and the establishment of a Civil Contingencies Authority, the permanent membership of which would be the Chief Minister and the Minsters of the Home Department, Public Services Department and Health and Social Services Department.

1.2 That approval was subject to the further approval of the States of Deliberation of proposals from the Policy Council and Home Department for arrangements for voting replacements if any of the Ministers named above were unavailable. This Report contains such proposals.

2 Background

2.1 On 1 December 2011, the States approved the establishment of a Civil Contingencies Authority with a permanent membership of -

a) the Chief Minister ,

b) the Minister of the Home Department (to provide an immediate link to the emergency services),

c) the Minister of the Public Services Department (to provide an immediate link to direct labour, plant and equipment, the public water supply and ports and hence links to external transport routes), and

d) the Minister of the Health and Social Services Department (to provide an immediate link to health services).

2.2 The States also approved an amendment, proposed by Deputy Gillson and seconded by Deputy Fallaize, that such approval was subject to further:

"approval by the States of Deliberation, with or without amendment, of proposals to be submitted by the Policy Council and Home Department for arrangements for voting replacements if any of the named Ministers were unavailable.".

2.3 The proposals below address this amendment.

3 Proposals for Substitute Members of the Civil Contingencies Authority

Chief Minister

3.1 The States has appointed a Deputy Chief Minister to deputise for the Chief Minister. The Policy Council and Home Department do not therefore consider that it is necessary to propose an alternative arrangement for voting a replacement for the Chief Minister on the Civil Contingencies Authority.

3.2 It is therefore proposed, that in the absence of the Chief Minister, the alternative member of the Civil Contingencies Authority would be -

a) the Deputy Chief Minister, or

b) in the absence of the Deputy Chief Minister, another member of the Policy Council nominated by the Chief Minister.

3.3 It is however possible that the Deputy Chief Minister will also be a permanent member of the Authority in his or her capacity as Minister of either the Home Department, Public Services Department or Health and Social Services Department. In that circumstance, the Policy Council and Home Department propose that in the absence of the Chief Minister, the alternative member of the Civil Contingencies Authority would be another member of the Policy Council nominated by the Chief Minister.

Ministers

3.4 As prescribed by resolutions of the States, the Constitution and Operation of States Departments and Committees sets out the arrangements for the appointment of Deputy Ministers. Departments are entrusted with this function.

3.5 Deputy Ministers deputise for Ministers at departmental meetings and on the Policy Council. The Policy Council and Home Department consider that it is also generally accepted that Deputy Ministers have the authority to represent their relevant Departments in all other circumstances.

3.6 As there is an established method for appointing Deputy Ministers to deputise for Ministers, the Policy Council and Home Department do not consider that it is necessary to propose an alternative arrangement for voting a replacement for a Minister who is a member of the Civil Contingencies Authority in his or her absence.

3.7 It is therefore proposed that the Deputy Minister of the Home Department, Public Services Department or the Health and Social Services Department should be the alternative member of the Civil Contingencies Authority in the absence of the Minister of the relevant Department.

3.8 Furthermore, the Policy Council and Home Department consider that the links to the relevant departments (and through those links immediate access to resources, facilities, individuals and organisations that may be essential in an emergency) will be a significant factor in ensuring the effectiveness of the Authority. A Deputy Minister will be able to maintain those links.

3.9 In the event that both a Minister and Deputy Minister are unavailable it is proposed (for the same reason as that in paragraph 3.9) that another Member of the relevant Department should deputise for them, that other Member being nominated by the Minister.

Nominations

3.10 It is envisaged that the nominations specified above would be made when the Law comes into effect and subsequently at the start of the term of each States of Deliberation.

3.11 A nomination would last for the duration of a term of the States of Deliberation unless-

a) during that time, a nominee ceased to be a Member of the Policy Council or one of the relevant Departments, in which case a new nomination would be made, or

b) circumstances dictated that a different nomination was necessary or appropriate.

3.12 Nominations could be made in writing or orally and would be notified to the Civil Contingencies Authority.

4 Consultation

4.1 The Law Officers have been closely involved in the preparation of these proposals.

4.2 The Policy Council and Home Department believe that they have complied fully with the six principles of corporate governance in the preparation of this States Report.

5 Legislation

5.1 A Projet de Loi will be required to give effect to the recommendations approved by the States on 1 December 2011. The Policy Council and Home Department consider that it is essential that new civil contingencies legislation comes into effect as soon as possible, as there are currently no powers to deal with a developing situation that falls short of an emergency.

5.2 The approval of the Presiding Officer has therefore been sought for this Report and the Projet de Loi to appear in the same Billet d'État. The Policy Council and Home Department are grateful to the Presiding Officer for his consent in this regard. The wording of the Projet de Loi reflects the recommendation set out in this Report.

6 Recommendations

6.1 The Policy Council and the Home Department recommend the States to agree that in the absence of a permanent member of the Civil Contingencies Authority, that person shall be replaced for the duration of such absence as follows:

a) for the Chief Minister:

i) by the Deputy Chief Minister, or

ii) in the absence of the Deputy Chief Minister, by another member of the Policy Council nominated by the Chief Minister, or

iii) if the Deputy Chief Minister is also a permanent member of the Civil Contingencies Authority, by another member of the Policy Council nominated by the Chief Minister, and

b) for a Minister of the Home Department, Public Services Department or the Health and Social Services Department:

i) by the Deputy Minister of the relevant Department, or

ii) in the absence of the Deputy Minister, by another Member of the relevant Department, nominated by the Minister of that Department.

L.S.Trott
Chief Minister

12th December 2011

G.Mahy
Minister, Home Department

21st November 2011

Policy Council
B. M. Flouquet
Deputy Chief Minister
C. S. McNulty Bauer
M.G.O'Hara
C. A. Steere
P. R. Sirett
G.Mahy
A. H. Adam

Home Department
F W Quin
Deputy Minister
J M Tasker
M S Laine
B N Kelly
States Members
A L Ozanne
Non States Member

D. B. Jones
M. H. Dorey
C. N. K. Parkinson
Members

(NB As there are no resource implications identified in this report, the Treasury and Resources Department has no comments to make)

The States are asked to decide:-

I.- Whether, after consideration of the joint Report dated 12th December 2011, of the Policy Council and Home Department, they are of the opinion:-

1. To agree that in the absence of a permanent member of the Civil Contingencies Authority, that person shall be replaced for the duration of such absence as follows:

   a) for the Chief Minister:

      i) by the Deputy Chief Minister, or

      ii) in the absence of the Deputy Chief Minister, by another member of the Policy Council nominated by the Chief Minister, or

      iii) if the Deputy Chief Minister is also a permanent member of the Civil Contingencies Authority, by another member of the Policy Council nominated by the Chief Minister, and

   b) for a Minister of the Home Department, Public Services Department or the Health and Social Services Department:

      i) by the Deputy Minister of the relevant Department, or

      ii) in the absence of the Deputy Minister, by another Member of the relevant Department, nominated by the Minister of that Department.

2. To approve the Projet de Loi entitled "The Civil Contingencies (Bailiwick of Guernsey) Law, 2012" and to authorise the Bailiff to present a most humble petition to Her Majesty in Council praying for Her Royal Sanction thereto.

THE REGULATION OF HEALTH PROFESSIONALS (ENABLING PROVISIONS) (GUERNSEY) LAW, 2012

The States are asked to decide:-

II.- Whether they are of the opinion to approve the draft Projet de Loi entitled "The Regulation of Health Professionals (Enabling Provisions) (Guernsey) Law, 2012" and to authorise the Bailiff to present a most humble petition to Her Majesty in Council praying for Her Royal Sanction thereto.

THE ANIMAL WELFARE (GUERNSEY) ORDINANCE, 2012

The States are asked to decide:-

III.- Whether they are of the opinion to approve the draft Ordinance "The Animal Welfare (Guernsey) Ordinance, 2012", and to direct that the same shall have effect as an Ordinance of the States.

THE HOUSING (CONTROL OF OCCUPATION) (AMENDMENT OF HOUSING REGISTER) ORDINANCE, 2012

The States are asked to decide:-

IV.- Whether they are of the opinion to approve the draft Ordinance "The Housing (Control of Occupation) (Amendment of Housing Register) Ordinance, 2012", and to direct that the same shall have effect as an Ordinance of the States.

THE INHERITANCE (GUERNSEY) LAW, 2011 (COMMENCEMENT) ORDINANCE, 2012

The States are asked to decide:-

V.- Whether they are of the opinion to approve the draft Ordinance "The Inheritance (Guernsey) Law, 2011 (Commencement) Ordinance, 2012", and to direct that the same shall have effect as an Ordinance of the States.

POLICY COUNCIL

MATERNITY AND PATERNITY PROVISIONS AND THE UNITED NATIONS CONVENTION ON THE ELIMINATION OF ALL FORMS OF DISCRIMINATION AGAINST WOMEN (CEDAW)

1. Executive Summary

1.1. This report considers statutory leave and Social Security Department benefits for expectant mothers and parents. It therefore addresses one of three issues preventing Guernsey's compliance with the United Nations Convention on the Elimination of All Forms of Discrimination against Women (CEDAW).

1.2. The proposals will also help to meet the social policy specific objective of the States Strategic Plan (SSP) (Billet d'État XVI, October 2011) of greater equality, social inclusion and social justice.

1.3. The main aims of providing statutory leave and enhanced Social Security benefits recommended in this report are to:

- promote gender equality;
- protect health; and
- support the family.

1.4. Statutory leave is the legal entitlement to time off work, but does not give a legal right to pay or benefits. This report proposes that all new mothers should have two (2) weeks compulsory leave immediately after the birth. Dependant on the length of employment, this compulsory leave would be part of either a basic statutory maternity leave entitlement of 12 weeks or an enhanced entitlement of 26 weeks. The report also deals with related conditions for the leave entitlement.

1.5. In addition to the entitlement for the mother there is also a proposal for 2 weeks statutory maternity support for the partner of a woman who has just given birth.

1.6. Given the need for parents to bond with their children, however those children enter the family, and given the particular need for adopted children to adapt to their new environment, the Policy Council proposes that parents who adopt a child of any age should be entitled to the same periods of leave and benefits as the parents of a newborn child.

1.7. The report considers changes to maternity benefits and suggests that the Social Security Department bring proposals back to the States to consider these with

other benefit changes and funding. The total costs of these changes are likely to be £1.9 million per annum (2011 rates) which the Policy Council suggests should be split equally between employer and employee contributions, if these benefits were introduced. To allow sufficient time for all relevant legislation to be prepared and to come into effect on the same day (or other appropriate and co-ordinated effective dates) and to give all employers sufficient notice of the changes, it is anticipated that the proposals will be implemented from 1 January 2014 at the earliest.

2. Background

2.1. CEDAW was adopted by the UN in December 1979 and came into force in 1981. Guernsey decided not to be included in the UK's ratification in 1986. Further States debates have ensued, and it was decided in September 2003 (Billet d'État XXI, 2003 p. 1923) and July 2007 (Billet d'État XVIII, 2007) to prioritise work to allow CEDAW to be extended to Guernsey.

2.2. Advice in 2000 stated that existing legislation would be insufficient to meet CEDAW requirements as it did not cover:

- the right to equal pay for work of equal value;
- maternity leave without loss of former employment and maternity pay; and
- protection from discrimination in the field of education and goods, facilities and services.

2.3. The proposals contained in this report are intended to meet the requirements of CEDAW in relation to maternity leave without loss of former employment and maternity pay. Whilst resolving issues on maternity provision only goes part of the way towards meeting the requirements of CEDAW, it is nevertheless an important step. More information on CEDAW can be found in Appendix 1.

2.4. The proposals will help to meet the Social Policy Specific Objective of the SSP of greater equality, social inclusion and social justice. According to the SSP the States will:

"strive to promote equality wherever possible, especially with respect to previous States objectives to minimise sex, race and disability discrimination ...." (Billet d'État XVI, 2011 p.1956)

2.5. Before the UK can request an extension of CEDAW to cover Guernsey, further work on the right to equal pay for work of equal value and protection from discrimination in the field of education and goods, facilities and services will be needed. This work will need to continue over the next few years.

2.6. Guernsey is some way behind most other countries in terms of equality legislation. Providing statutory maternity leave and changing benefits would help meet the aims of CEDAW and would go some way towards the States objective of eliminating discrimination against women.

2.7. Improved maternity provisions will also contribute to increased social inclusion; improving child and maternal health; helping to reduce child poverty by giving families with newborn children more income security; improving the work-life balance of families; and maximising the workforce by making it easier for women to re-enter employment.

3. Consultation

3.1. A consultation was undertaken on the Policy Councils initial ideas through its Social Policy Group. This was carried out using an online survey which was also available in hard copy and by writing to relevant organisations for their comments. The consultation was intended to enable employees and employers to share their views on proposed changes which could affect them.

3.2. 125 employees completed the questionnaire out of 32,186 people employed in the Island at March 2011 (0.39%). 42 employers responded to the consultation questionnaire out of 2,279 employing organisations at March 2011 (1.84%). There were also 19 from others and 1 unspecified. This gave 187 responses on the consultation questionnaire.

3.3. However, several of the additional written replies were from umbrella organisations, which represent a larger number of people and organisations.

3.4. The number of questionnaires and written responses compares favourably with other recent consultations on employment legislation. However, this cannot be considered a representative sample of employers' and employees' views – at best, it might highlight some trends in islanders' opinions towards maternity provisions. 70.3% of responses were from women; only 29.7% were from men. As would be expected, employers and employees often had different views.

3.5. The results of the consultation are given throughout the report in relation to specific proposals.

4. Statutory Maternity Leave

4.1. This section refers to statutory maternity leave which is leave that is provided as a right in legislation. These proposals consider leave for expectant mothers and new mothers which they would have a right to take by law. Following the leave a mother would also have a right to return to work without losing her job.

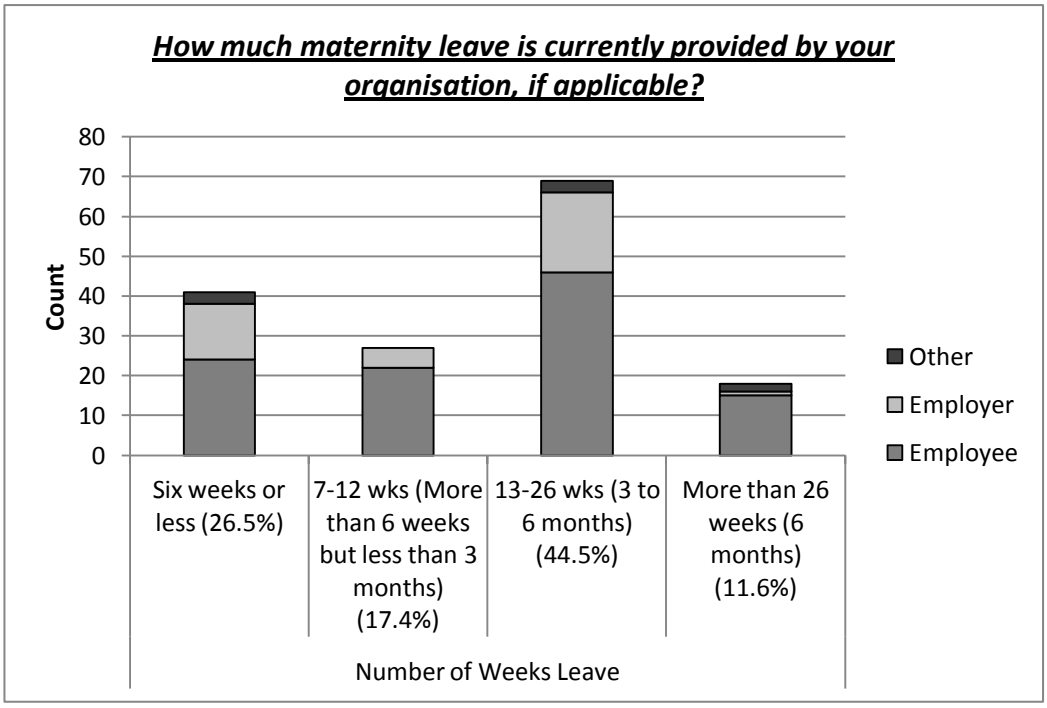
However, the right to leave does not provide a right to payment by the employer or Social Security benefits whilst on leave which is covered in section 7 below.

4.2. Guernsey has no statutory maternity leave at present. Nevertheless, under current legislation a woman cannot be dismissed on the grounds of pregnancy or because she has to take maternity leave and therefore all women should be entitled to take some maternity leave. However, the current legislation does not stipulate the length of the maternity leave an employer is required to provide. CEDAW does not set out how long maternity leave should last or whether there should be any compulsory period of leave.

4.3. In a recent consultation carried out by the Commerce and Employment Department, the majority of respondents felt that statutory maternity leave was one of the most important forms of employment protection that should be offered in the Island.

4.4. In many European/North American countries there is a minimum period of compulsory leave of 2 to 6 weeks and a maximum statutory period of maternity leave of between 12 and 52 weeks. The majority provide between 26 to 52 weeks, including the UK and Isle of Man.

4.5. From the consultation, of the number of people who responded, 56% said their organisation provided more than 3 months maternity leave. However this meant that 44% said their organisation provided less than 3 months, with over a quarter of respondents saying their organisations provided 6 weeks or less.



Graph 1. Maternity Leave

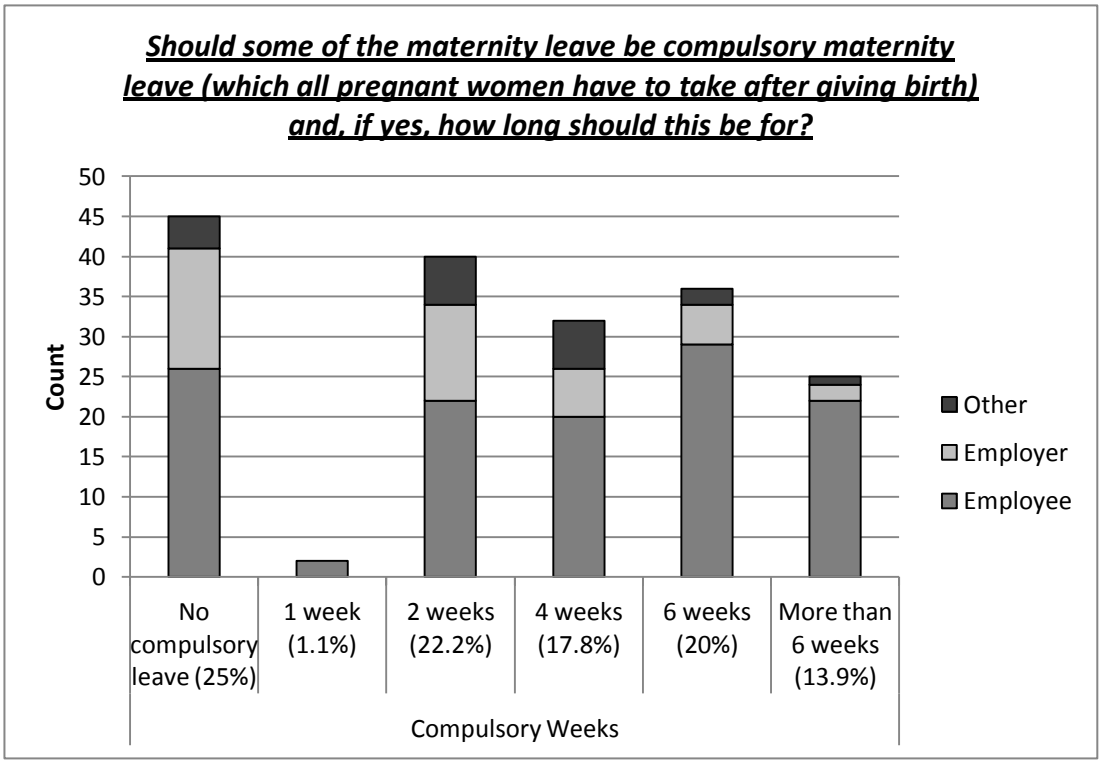
4.6. While many organisations are already making provision for maternity leave, these responses suggest that there are still a number who would not provide more than six weeks leave unless there was compulsion to do so.

4.7. The Policy Council has considered how long statutory maternity leave should be and whether a longer period of leave should be provided to women who have already worked for an employer for a certain qualifying period. It has also considered whether there should be a shorter compulsory period of leave.

Compulsory Period of Maternity Leave

4.8. The Policy Council is proposing that a compulsory period of 2 weeks leave, immediately following the birth, should be provided. A period of compulsory leave is considered important in protecting the health of the mother and the child, and is in line with best practice in other jurisdictions. The woman would not be able to return to work during this period. The employer would have to ensure that this was complied with.

4.9. 75% of respondents to the consultation agreed that some maternity leave should be compulsory, but there were different views on its length. The remaining respondents felt that it should be up to the mother if she wished to take leave or not.



Graph 2. Compulsory Maternity Leave

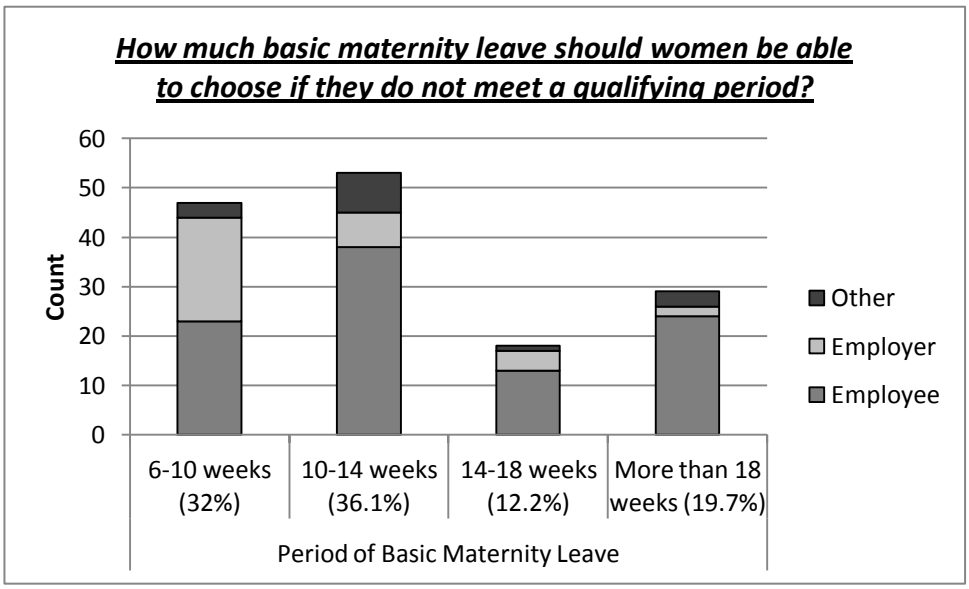
Basic Period of Statutory Maternity Leave

4.10. Under existing employment legislation a woman cannot be dismissed on the grounds of pregnancy. This means that all women should have a right in law to some maternity leave. Policy Council is proposing this should be 12 weeks statutory maternity leave, at least 2 weeks of which would have to be taken immediately after the birth as compulsory maternity leave.

4.11. If a pregnant woman is required to take time off work by reason of a pregnancy-related illness, up to six weeks before her due date, the Social Security Department currently treats this as a claim for Maternity Allowance (rather than Sickness Benefit).

4.12. It would therefore seem unreasonable if maternity related illness is treated in this way not to have a statutory right to take this period off work. In addition the compulsory 2 week period of maternity leave has been proposed. Babies rarely arrive on the due date and may be up to 2 weeks late. Therefore 12 weeks was felt to be an appropriate period for basic maternity leave.

4.13. It is proposed that there should be universal entitlement to 12 weeks statutory maternity leave. However, apart from the two weeks' compulsory leave, the individual would be able to choose not to take the full period of leave and would, in all cases, be guaranteed a right to return to work after the leave.



Graph 3. Basic Maternity Leave

4.14. From the consultation there was a range of responses on how long the basic maternity leave should be, but most (68%) fell below 14 weeks with the majority of employers opting for 6-10 weeks.

Example 1
Aimee started work for her current employer 10 months before her due date. She wanted to start her maternity leave 2 weeks before her baby was due.

Under the proposals she would take 2 weeks basic maternity leave before the baby was born. She would have to take 2 weeks of compulsory maternity leave at the time of the birth. She would then be entitled to take up to a further 8 weeks of basic maternity leave. Maximum total leave would be 12 weeks basic maternity leave including the compulsory maternity leave.

Enhanced Period of Statutory Maternity Leave

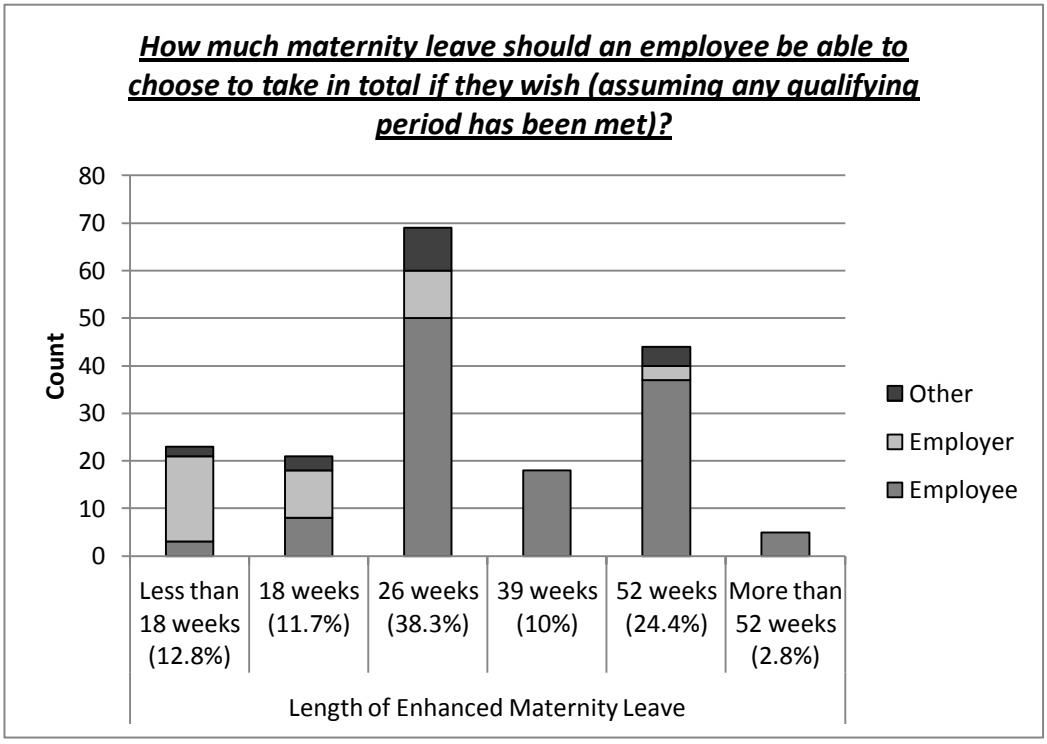
4.15. The Policy Council proposes that women should have an enhanced period of statutory maternity leave if they have worked for their employer, including an associated employer, for a qualifying period of at least fifteen (15) months prior to their due date. This should be a right to 26 weeks maternity leave in total of which two weeks immediately after the birth would be compulsory leave.

4.16. This would give these women an additional 14 weeks on top of the basic period of maternity leave.

4.17. Having considered what employers are currently offering (graph 1 above) and what other countries provide, the Policy Council is suggesting that, for women that have undertaken the qualifying period, a total of 26 weeks is a reasonable statutory period. Employers would still have the option to give more leave if they wished.

4.18. It is proposed that women who are entitled to enhanced statutory maternity leave should be able to start taking this leave up to 12 weeks before the due date.

4.19. As with the basic period of leave the woman could choose not to take all the leave, and would be guaranteed a right to return to her job after the leave.



Graph 4. Enhanced Maternity Leave

4.20. The consultation regarding the enhanced period of maternity leave indicated a preference (38%) for 26 weeks. Only a quarter of respondents (25%) opted for less than 26 weeks.

Example 2

Kate has been working for her employer for four years and two months before her due date. She therefore satisfies the qualifying period of having worked for her employer for 15 months or more prior to the due date. She wanted to start her leave 6 weeks before her baby was born.

Under the proposals she would be entitled to a maximum total of 26 weeks statutory leave. Kate would take 6 weeks enhanced leave before the baby was due. She would then have to take 2 weeks compulsory maternity leave at the time of the birth. She could then take an additional period of enhanced maternity leave of up to 18 weeks.

Return to Work

4.21. Women would have the right in law to return to their specific job without loss of former employment, seniority or social allowances. This would apply after compulsory maternity leave, basic maternity leave or enhanced maternity leave.

4.22. This does not preclude employers from re-organising their businesses in the normal way, but means that they must treat a woman on maternity leave as if she were still in post, with seniority and terms and conditions preserved. In the UK there are special regulations dealing with redundancy during maternity leave. These ensure that if by reason of redundancy it is not practicable for a woman's employment to continue, she is entitled to be offered alternative employment, where there is a suitable available vacancy, with terms and conditions that are not substantially less favourable to her than if she had continued to be employed under the previous contract.

Antenatal Appointments

4.23. Women should be allowed time off to attend ante-natal appointments. The Policy Council propose that there would be a right in law to take time off for appointments but payment for the time would be at the discretion of the employer.

Working During Maternity Leave

4.24. It is proposed that women should be able to work for up to ten days during their maternity leave (except during the period of compulsory leave) at their former rate of pay plus allowances, without their period of maternity leave formally ending. Maternity benefits would continue to be paid, except in respect of the days on which paid work was carried out. This would enable the employer and employee to "keep in touch," thus making the transition back to work easier.

5. Statutory Maternity Leave Notice Period

5.1. The Policy Council recognises the importance to employers of being able to plan ahead effectively. As such, it proposes that a reasonable notice period should be set for the start and end dates of the maternity leave period.

5.2. It is proposed that, where possible, women should give their employer at least 3 months written notice of their birth due date and when they would like their maternity leave to start. Leave could start up to 12 weeks prior to the birth due date. At this time women should also say when they expected to return to work.

5.3. Both the maternity leave start date and the return to work date could be changed as long as this was discussed and agreed between the woman and her employer and provided one month's notice of the return to work date was given. These dates could also be changed where either the mother or baby was ill or the baby was delivered prematurely and employers would be expected to be flexible in these circumstances.

5.4. An employer would be allowed to require an employee on pregnancy-related sick leave to start their maternity leave 6 weeks prior to their due date (in line

with current Social Security Department policy on sickness benefit and maternity allowance).

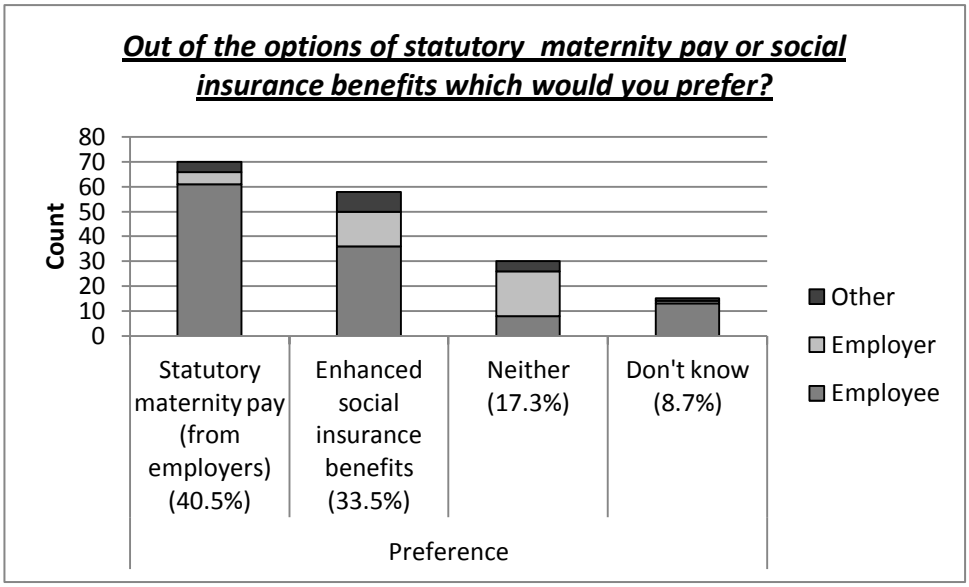
5.5. It would be the employer's responsibility to confirm the maternity leave and agreed return to work date. This should be done within two weeks of receiving the initial request and within two weeks after being notified of the birth or when a change to the return to work date was requested.

5.6. From the consultation the majority of both employers and employees thought the notice periods proposed were reasonable.

6. Statutory Maternity Pay or Comparable Social Benefits

6.1. Sections 4 and 5 of this report deal with statutory leave entitlement which does not provide for either statutory pay or benefits whilst on leave. However, CEDAW requires that maternity leave is introduced with **pay or with comparable social benefits** without loss of former employment, seniority or social allowances. Comparable benefits for Guernsey would be those provided by the Social Security Department.

6.2. From the consultation 69% of employers felt they should not be required to pay statutory maternity pay although 60% of employees believed the employers should.



Graph 5. Preference for Statutory Pay or Benefits

6.3. Employers were equally divided with 50% expressing a preference for either statutory pay or enhanced social benefits and 50% answering "neither" or "don't know" to the question of their preference between statutory maternity pay or enhanced social insurance benefits.

6.4. 37% of employers preferred enhanced social insurance benefits, but 52% of employees expressed a preference for statutory maternity pay.

6.5. The Policy Council proposes that enhanced Social Security benefits are used rather than providing for statutory pay. This will allow the cost of supporting families to be more evenly distributed across the whole community. It also reduces both the burden on individual employers and the likelihood of employers discriminating against women of reproductive age which would be a potential risk if statutory pay were introduced.

7. Enhanced Maternity Benefits Paid by Social Security Department

7.1. There are already two maternity benefits paid by the Social Security Department

- Maternity grant, and
- Maternity allowance

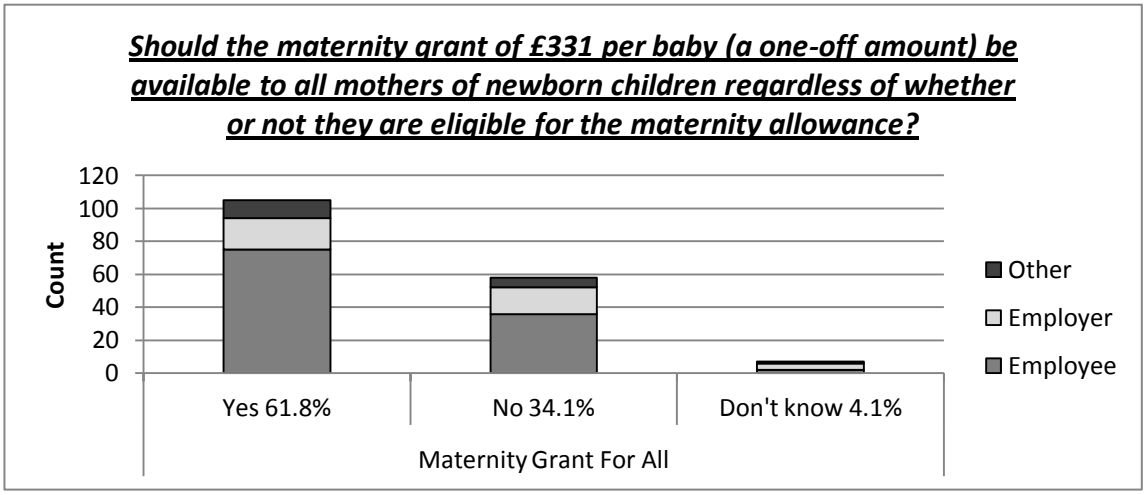
7.2. The proposal is to enhance the maternity grant with changes to current rules but to change maternity allowance to maternal health allowance and newborn care allowance.

Maternity Grant

7.3. Maternity grant is paid as a lump sum to help with the cost of having a baby. To receive the grant the woman must be insured under the Guernsey social insurance scheme and be ordinarily resident in the Bailiwick.

7.4. At present, only mothers who do not qualify for the maternity allowance can claim the maternity grant. However, this is not a means-tested benefit – it is payable to any mother who has not made social insurance contributions, whether she is unemployed or has sufficient other income to choose not to work.

7.5. The birth of a child involves considerable one-off and ongoing costs to any household. Recognising that all newborns have the same basic needs and associated costs, the Policy Council recommends that all mothers should be entitled to claim a maternity grant, regardless of any other maternity benefits she may be receiving. 62% of respondents to the consultation supported the universal maternity grant.



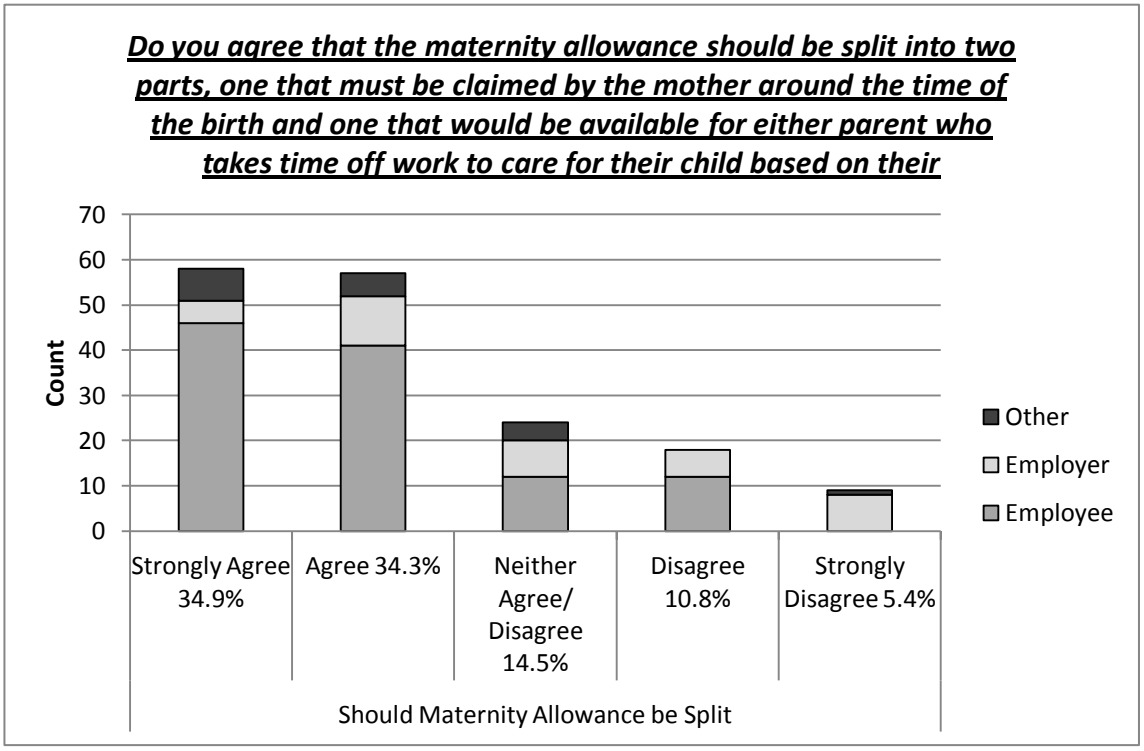
Graph 6. Preference for whether the maternity grant should be paid as well as the maternity allowance.

7.6. 43% of respondents said the current maternity grant of £331 was adequate with a further 31% neither agreeing or disagreeing with the statement. The Policy Council therefore recommends maintaining the current value of the maternity grant (£331 per baby in 2011).

Maternity Allowance

7.7. Maternity allowance is the current allowance for pregnant women and new mothers. It is normally paid for a flexible 18 week period. It starts no earlier than 11 weeks before the week in which the baby is expected and ends no later than 18 weeks after the baby is born. Before maternity allowance can be paid, the woman must satisfy certain Social Security contribution conditions. Currently you must choose either to claim the allowance or the maternity grant.

7.8. It is recognised that all birth mothers need a certain amount of leave for health reasons. However, the mother may not necessarily be the primary care-giver for the baby, and her partner should not be prevented from taking that role because of a lack of financial support. It is therefore proposed that maternity allowance be replaced by two new benefits: maternal health allowance and newborn care allowance.



Graph 7. Preference for whether the current maternity allowance should be split

7.9. From the consultation there was strong support for a split to be made. 89% of employees and 63% of employers who responded were either neutral or agreed that the maternity allowance should be split in two parts.

Maternal Health Allowance

7.10. The proposed maternal health allowance would only be able to be claimed by the mother, whilst off work in the initial pre- or post-birth period. It is proposed to be for a maximum of 14 weeks, but would finish at the end of the compulsory maternity leave, 2 weeks after the birth.

7.11. The combined maximum time off proposed for both maternal health allowance and newborn care allowance would be 26 weeks.

7.12. It is recommended that there would be flexibility to start the maternal health allowance up to 12 weeks prior to the due date, or on the birth of the baby if the baby is premature. Two weeks would have to be taken after the birth to coincide with the compulsory maternity leave period.

7.13. The maternal health allowance would only be payable to the birth mother and would be based on her contribution record. It is proposed that it would be paid at the same rate as the newborn care allowance and that the rate, in 2011 terms for both new benefits, would be £180.

7.14. In 2011, Guernsey's maternity allowance was a maximum of £132.23 and is paid for up to 18 weeks whilst on maternity leave. This is at the same rate as

sickness and unemployment benefit rates. Comparisons that have been made between the current Guernsey maternity allowance and other benefits are shown in the following table.

	2011 Guernsey			**Other**	
	Maternity Allowance	**Sickness and Unemployment Benefit Rate**	**Supplementary Requirement Rate (Single parent and baby – long term rate)**	**Jersey Maternity Allowance 2011**	**Isle of Man up-rated by difference in average earnings 2009/10**
Weekly payment	£ 132.23	£ 132.23	£ 184.00	£ 179.97	£ 180.00

7.15. The current rate of maternity allowance (£132.23) is very low in comparison to women's average earnings (median weekly = £467.50). If it is to be an effective substitute for earnings, and if it is to help meet the costs of a newborn child as well as the needs of the benefit recipient herself (which is not a concern with sickness or unemployment benefits), a higher level of maternity benefit payment is considered necessary.

7.16. Currently maternity allowance or maternity grant would be payable anytime after the 24th week of pregnancy. If a pregnancy lasts less than 24 weeks the allowance or grant is only paid if a living child is born. It has been proposed that the same arrangement apply to maternal health allowance and newborn care allowance. However, sickness benefit could be claimed by anyone not fit to work due to an earlier miscarriage and an employer cannot fairly dismiss an employee on the grounds of pregnancy under existing legislation.

7.17. Maternal health allowance and newborn care allowance would be contributory benefits, and would therefore not be available to young people while they remain in full-time education as these allowances are intended to be a wage replacement based on contribution record. However, it is recommended that in such cases the maternity grant would be paid as these families would have the same needs regarding essential equipment for a newborn baby.

Newborn Care Allowance

7.18. Whereas the proposed maternal health allowance is for the birth mother only, it is proposed that the newborn care allowance would be for either parent.

7.19. CEDAW states in the preamble

"...that a change in the traditional role of men as well as the role of women in society and in the family is needed to achieve full equality between men and women..."

7.20. Many women choose to reduce their work commitment to look after children. However, traditional gender roles, along with the typically lower earnings of mothers, have created a strong incentive for women to take on the majority of child care responsibilities. In addition the benefits provided can encourage this behaviour. As a result, women take on a larger amount of child care responsibilities than men, which often affects their ability to progress their careers in the short to long-term.

7.21. If benefits were only provided to the mother this would mean that they would have no choice but to be the main carer if the family wants to receive the benefit. It would also mean that men are denied the same opportunity of actively participating in the care of their children. As a result many countries have moved from the traditional 'male breadwinner model' to a more gender-neutral model of parental benefits.

7.22. It is therefore proposed that newborn care allowance be payable to either parent and would be based on the social insurance contribution record of the parent who was taking the leave. To make the allowance fully flexible, it is recommended that parents be able to elect to split the newborn care allowance into two or three periods divided between the parents. It is proposed that it would be paid at the same rate as maternal health allowance being £180 at 2011 rates.

7.23. The maternal health allowance and newborn care allowance for one child/family would not overlap and would be payable for a maximum combined total of 26 weeks only. Maternal health allowance would be claimed up until the end of the 2 weeks compulsory maternity leave. The remainder of the 26 week period would then be the newborn care allowance. This allowance could be claimed by whichever parent assumed responsibility for the care of the child.

7.24. The maximum length of the newborn care allowance available would depend on how much maternal health allowance had been taken. The maximum would be if the maternal health allowance had only been claimed for the 2 weeks compulsory leave and the remaining 24 weeks would then be available to be taken as newborn care allowance.

7.25. The proposal of a maternal health allowance together with a newborn care allowance would have the dual benefit of protecting women's health around the time of birth as well as promoting equality between men and women. It would also enable the benefit system to be more flexible in assisting couples of the

same-sex. If there were a dispute between the parents as to who should claim the newborn care allowance then it would be paid to the birth mother.

Example 3
From Example 1, Aimee started work for her current employer 10 months before her due date. She wanted to start her maternity leave 2 weeks before her baby was due. Aimee has worked for different employers in the past and would satisfy the relevant Social Security Department contribution conditions as would her husband Bob. She has her baby on the due date.

Under the proposals Aimee would receive £331 as a maternity grant. She would receive maternal health allowance at £180 per week for the 2 weeks basic maternity leave before the baby was born and for the 2 weeks of the compulsory maternity leave at the time of the birth.

Aimee or Bob would then be entitled to newborn care allowance. As Aimee's employer does not offer any maternity leave above the statutory leave she goes back to work after a further 8 weeks of basic maternity leave during which time she will be paid newborn care allowance at £180 per week. Bob's employer allows him to take unpaid leave when Aimee goes back to work and he claims newborn care allowance at £180 for 14 weeks, before returning to work.

The total number of weeks for maternal health allowance and newborn care allowance claimed by Aimee and Bob is the maximum of 26 weeks.

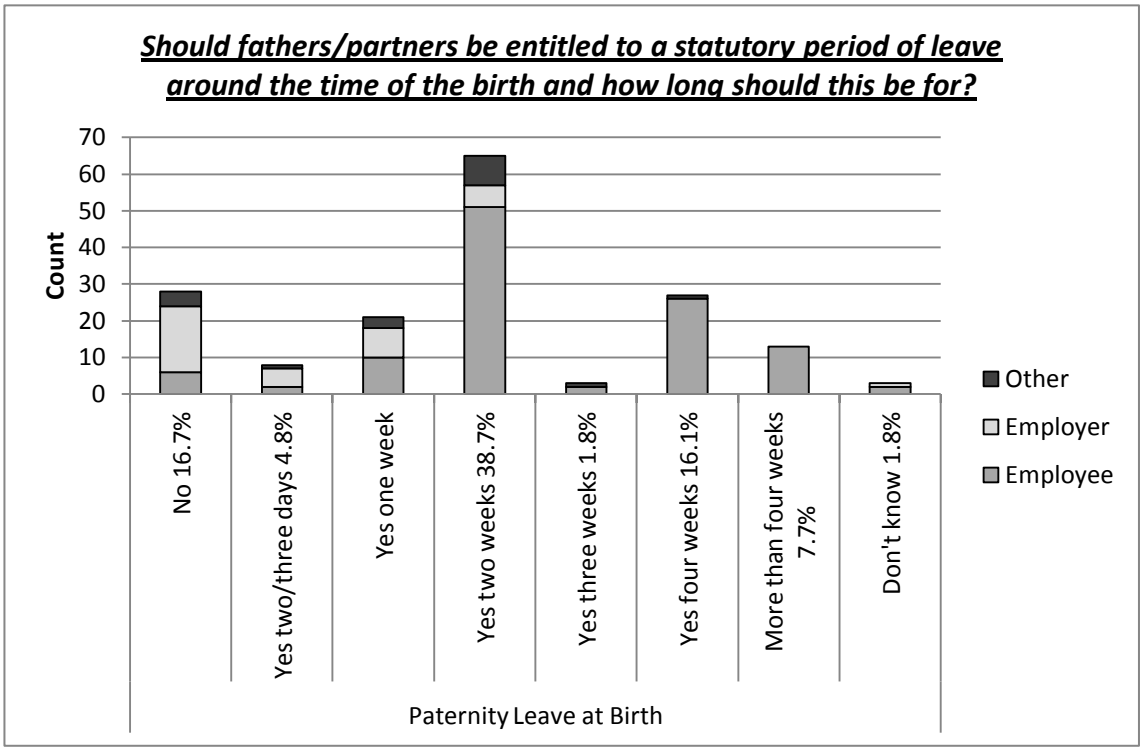
8. Statutory Paternity Leave

8.1. CEDAW does not have a specific Article requiring countries to provide paternity leave. However, there is considerable evidence that these rights play a significant part in achieving gender equality, which is the goal of CEDAW.

Statutory Maternity Support Leave

8.2. The Policy Council considers the introduction of some leave for fathers or the mother's partner to be important in terms of promoting gender equality and would help support the mother as well as help bonding in the family, particularly with siblings, and establishing a new family routine.

8.3. It is therefore proposed that a statutory period of maternity support leave should be available to fathers or the mother's partner of 2 weeks to be taken immediately after the birth or on the mother or baby leaving hospital. This would be on the same qualifying period as for the mother taking enhanced maternity leave that they would have to have been an employee who had worked for their current employer for at least 15 consecutive months.



Graph 8. Statutory leave for fathers / partners around the birth

8.4. From the consultation two weeks statutory leave around the time of the birth was favoured by 39% of respondents. However, 47% of employers who responded did not want any paternity leave at the time of the birth.

Longer Paternity Leave

8.5. Consideration of a newborn care allowance for either parent raises the question of whether fathers/partners should have a statutory right to time off work for parental leave. The alternative would be for it to be at the employers discretion whether or not to allow fathers/partners time off work. This might mean a father/partner could not take time off work to care for newborn children and therefore could not claim the newborn care allowance.

8.6. One potential benefit of such statutory parental leave might be to reduce the likelihood of employers discriminating against women of childbearing age in the recruitment process and against men of child rearing age who ask to take parental leave.

8.7. 59% of employers who responded to the consultation said that fathers should not have the statutory right to take some parental leave after the birth to enable them to care for the baby while the mother goes back to work. However, 78% of employee respondents said that this should be a statutory right.

8.8. On balance the Policy Council decided not to recommend a longer period of paternity leave beyond the maternity support leave proposed above for 2 weeks. The Policy Council will be interested in the developments in the UK and other countries regarding paternity leave and may review this in future.

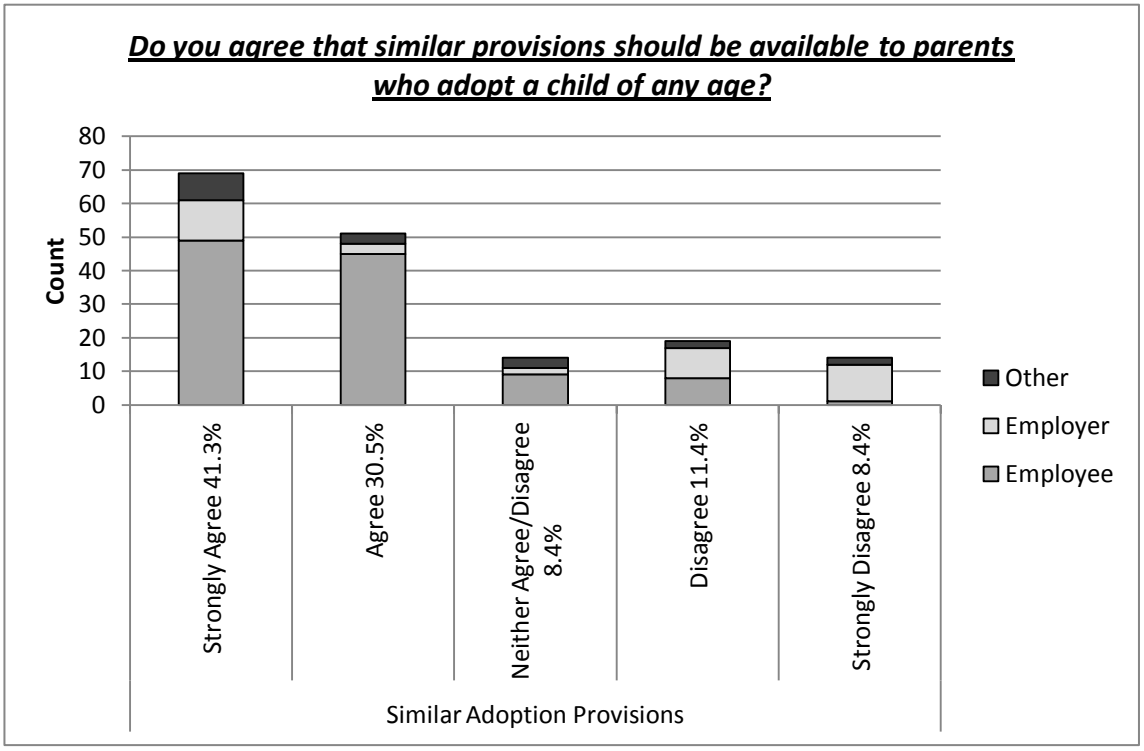
8.9. This means that the proposals do not provide a partner taking leave to claim newborn care allowance with any new employment protection rights.

9. Adoption

9.1. The Policy Council proposes that there should be similar provisions for parents adopting a child of any age, up to 18 years, as those proposed above for other parents.

9.2. This would mean:

- the introduction of a Social Security benefit of parental allowance payable for up to 26 weeks, available to either parent immediately following the adoption of a child of any age;
- a similar amount of statutory leave should also be available as provided to parents of newborn children;
- a period of at least two weeks mandatory leave in order to encourage bonding between the parent and the adopted child, immediately after adoption; and
- a grant payable by the Social Security Department , at same rate as a maternity grant in the case of adoption for a child of any age.



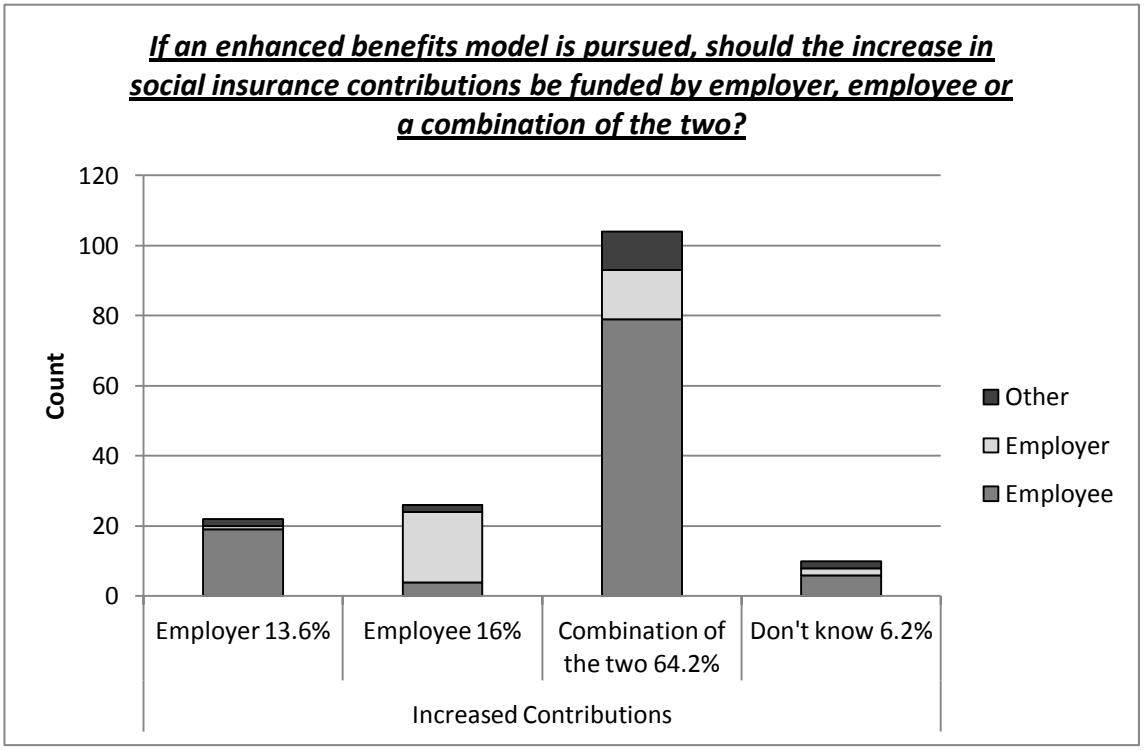
Graph 9. Adoption provisions

9.3. The consultation supported similar provisions being made available to parents adopting a child as to other parents. However, while 84% of employees favoured this, only 41% of employers agreed.

10. Financial Implications

10.1. The proposal for enhanced Social Security benefits will require increased contributions to be collected. The enhanced maternity provisions will cost around £1.9 million per annum and require an increase in social insurance contributions of up to 0.2% overall. The Policy Council is suggesting that these should be split equally between employer and employee.

10.2. From the consultation (see graph 10) the majority of all respondents (64%) wanted the contribution increase to be split between employer and employee. However the majority (54%) of employers who responded wanted the total increase to be paid by the employee.



Graph 10. Split of Social Security contributions

10.3. Concern has been raised over the overall affordability of any increase in social security contributions bearing in mind other commitments of the funds particularly in respect of the "Pensions Puzzle" and Long Term Care. Therefore the States are asked to direct the Social Security Department to report back on the funding of the enhanced benefits so that the decision on these benefits is made at the same time decisions are made on a wider review of social insurance contributions in 2012 or early 2013.

10.4. If increases in social insurance contributions are agreed it would also affect the amount the States pays as an employer and additional funding would be required to meet this expenditure. This has been estimated to be in the order of £100,000 per annum, having taken account of the benefits returned to the States under the contracts of employment of employees who receive paid maternity leave. However, the cost per Department would be in the order that would be expected to be absorbed within existing cash limits.

10.5. The 0.2% increase in contributions would provide around £2m and therefore the proposed increase could be fully funded without additional revenue from the formula led General Revenue grant.

10.6. The magnitude of potential funding that might be required for all social insurance contributions and the grants from General Revenue is a concern that means the funding for these proposals and the effect on the States Fiscal and

Economic Policy Plan, as required under rule 15(2) of the rules of procedure will be considered as part of the wider review of social insurance contributions.

10.7. In addition to the costs of the benefits, there would be a one-off cost for changing computer systems (estimated at £100,000) which would be met by the Social Security Department's funds. It is not anticipated that any staff changes would be required in order to administer the new benefits.

11. Legislative Implications

11.1. Legislation will need to be put in place to specify the statutory leave requirements. As this will make provision for the implementation of CEDAW the subordinate legislation (an Ordinance) may be made under the Prevention of Discrimination (Enabling Provisions) (Bailiwick of Guernsey) Law, 2004.

11.2. In addition, should the States in due course approve the proposals for funding the enhanced benefits as suggested in this Report, the Social Insurance (Guernsey) Law, 1978 will require amending and associated subordinate legislation will need to be drafted. It is anticipated that approval for the drafting of the necessary legislation would be dealt with in any further States Report relating to funding.

11.3. The Policy Council recommends that, insofar as practicable, the commencement date for all legislation involved be the same so that training and information can be provided for all changes as a package. Due to the timetable required for legislation and introduction of new benefits the earliest date for the implementation will be 1st January, 2014.

11.4. In drafting the legislation the Policy Council is mindful that it should be as flexible as possible to allow for same sex couples as well as surrogacy and adoption.

11.5. Other detailed information on the legislation required is contained in Annex 1.

12. Recommendations

12.1. The Policy Council recommends the States to agree:

i) the introduction of 2 weeks compulsory statutory maternity leave;
(Paragraphs 4.8 to 4.9)

ii) the introduction of 12 weeks basic statutory maternity leave;
(Paragraphs 4.10 to 4.14)

iii) the introduction of an enhanced period of 26 weeks statutory maternity leave for employees who have been continuously employed by their current

employer, including an associate employer, for at least fifteen consecutive months prior to their due date;

(Paragraph 4.15 to 4.20)

iv) the introduction of statutory time off to attend ante-natal appointments;

(Paragraph 4.23)

v) that employees who elect to work for their employer for up to 10 days whilst on maternity leave, except during the period of compulsory maternity leave, should remain entitled to maternity leave and benefits;

(Paragraph 4.24)

vi) that women intending to take statutory maternity leave should give their employer at least 3 months written notice of their birth due date and when they would like their maternity leave to start, this notice period to be subject to other conditions as specified in paragraphs 5.2 to 5.5;

(Paragraphs 5.1 to 5.6)

vii) the introduction of a 2 week period of statutory maternity support leave for the partner of an expectant woman provided the person taking the leave has worked for his or her current employer for at least fifteen consecutive months;

(Paragraphs 8.2 to 8.4)

viii) the introduction of similar statutory leave provisions for parents who adopt children as would be available for parents of a new born, that is:

a) statutory leave be available as provided to parents of newborn children, dependant on whether qualifying periods had been met; and
b) a period of two weeks mandatory leave in order to encourage bonding between the parent and the adopted child, immediately after adoption;

(Paragraphs 9.1 to 9.3)

ix) that such legislation as may be necessary to give effect to the foregoing shall be prepared;

x) to direct the Social Security Department to report back to the States, at the same time it reports on the funding of other benefits, with proposals for funding and requesting the preparation of the necessary legislation to provide for:

a) changes to the maternity grant to make it available to all new mothers;

(Paragraphs 7.3 to 7.6)

b) changes to maternity allowance to split it into a maternal health allowance and a newborn care allowance with the rate of both being £180 per week (2011 rate) and the conditions as set out in paragraphs 7.10 to 7.25;

(Paragraph 7.8 to 7.25)

c) a new adoption grant at same rate as a maternity grant in the case of adoption for a child under 18;

(Paragraph 9.2)

d) a new benefit of parental allowance of £180 per week (2011 rate) which can be claimed by either parent immediately following the adoption of a child under 18 years of age;

(Paragraph 9.2)

xi) to direct the Treasury and Resources Department to report back to the States, at the same time as the Social Security Department reports back on recommendation x) above, with proposals to fund any consequential expenditure incurred by the States as an employer or in the grant from General Revenue.

(Paragraph 10.1 to 10.8)

L S Trott
Chief Minister
7 December 2011

G H Mahy
C N K Parkinson
D B Jones
A H Adam
M H Dorey
P R Sirett
C A Steere
M G O'Hara
M S Lainé
S J Ogier

Annex 1

In accordance with the requirements of the Policy Council, this Annex contains the necessary detailed information concerning the drafting and implementation of new legislation as follows:

Justification for Legislation

Legislation is required as a step to implementing the requirements of CEDAW and meeting the States objectives set out in the States Strategic Plan:

> *"to strive to promote equality wherever possible, especially with respect to previous States objectives to minimise sex, race and disability discrimination ...."*

Funding

Funding of Social Security Benefits will be reliant on a further States decision viewing all increases proposed for Social Security Contribution increases at the same time. If benefits are introduced this will also require increased contributions from the States as an employer and this will need to be considered at the same time as the arrangements for the introduction of these benefits.

As no money will be available for new service developments in 2013 consideration of funding through other means will need to be considered.

Risks and Benefits of Enacting / Not Enacting the Legislation

If the legislation is not enacted the States objective to strive to promote equality will not be met and the UK would not request an extension of CEDAW to cover the Island.
The benefits of enacting the legislation are:

- helping to meet the aims of CEDAW;
- going some way towards meeting the States objective of eliminating discrimination against women and thereby improve equality;
- bringing Guernsey up to date with most other countries in terms of equality legislation;
- improving child and maternal health;
- increasing social inclusion;
- helping to reduce child poverty by giving families with newborn children more income security;
- improving the work-life balance of families; and
- making it easier for women who have children to re-enter the workforce.

Estimated Drafting Time

The Department is advised that, on the assumption that no significant policy issues arise that need to be resolved, the necessary legislation should take no more than 5 working days to draft.

Annex 2

Compliance with the Principles of Good Governance

In accordance with Resolution VI of 2011 (Billet d'État IV, 2011) this annex sets out the degree to which the Policy Council considers that the Report complies with the six principles of good governance

Core Principle 1 – Good governance means focusing on the organisation's purpose and on outcomes for citizens and service users.

One of the objectives in the States Strategic Plan (SSP) is to improve equality and reduce discrimination. These proposals are intended to help achieve this objective.

In the global context, this will be a step towards meeting the requirements of CEDAW with the aim of allowing the UK to request an extension to cover Guernsey.

The proposals will provide a high quality service through current benefit administration resources with revised computer systems.

Core Principle 2 – Good governance means performing effectively in clearly defined functions and roles.

Responsibility for benefits legislation, administration and determination of claims including appeals will be the responsibility of the Social Security Department under its revised legislation.

Legislation, in relation to statutory leave entitlement, will provide detail on how this will be administered. Some civil remedies may sit within the Courts whilst other actions may sit with the Commerce and Employment Department. Appeals would normally be administered by the Royal Court.

Core Principle 3 – Good governance means promoting good values for the whole organisation and demonstrating the values of good governance through behaviour.

Determination of claims for benefit or appeals / complaints regarding statutory leave will be supported by the culture of Social Security Department and the Commerce and Employment and will be considered in the legislative framework that is to be developed.

Core Principle 4 – Good governance means taking informed, transparent decisions and managing risk.

As the decisions will be backed by legislation there will be transparency in the decision making process for claims, complaints and appeals.

If the legislation is not enacted Guernsey will not be in a position to comply or demonstrate compliance with parts of CEDAW as a first step to its request for an

extension to cover the Island. The States will be at risk of being seen as not wanting to take on its international responsibilities as a result. Providing for suggested legislation is, of itself, a demonstration that risk – in this case reputational risk to the States and Guernsey - is being adequately managed.

Core Principle 5 – Good governance means developing the capacity and capability of the governing body to be effective.

It is intended that legislation relating to benefits and statutory leave are implemented at the same time not before 1st January 2014. This will allow training to be provided in the administration of the new legislation and to publicise it to employers as a package of implementations.

Precedence and case law from other territories will be considered in determination of claims and cases.

Core Principle 6 – Good governance means engaging stakeholders and making accountability real.

The proposals in this report have been subject to extensive consultation through a universally available survey, which was advertised through local media and through explicitly eliciting the views of representative bodies.

Consultation between States Departments at staff and political level has also taken place in particular with Social Security Department and C&E as well as extensive consideration by the Social Policy Group.

Appendix 1

Requirements of CEDAW

The full requirements of CEDAW can be found at the United Nations' website at http://www.un.org/womenwatch/daw/cedaw/text/econvention.htm and the UK reservations to CEDAW can be found at http://www.un.org/womenwatch/daw/cedaw/reservations-country.htm#59.

The following boxes quote the maternity and paternity provisions of CEDAW relevant to this report.

CEDAW preamble

...Bearing in mind the great contribution of women to the welfare of the family and to the development of society, so far not fully recognized, the social significance of maternity and the role of both parents in the family and in the upbringing of children, and aware that the role of women in procreation should not be a basis for discrimination but that the upbringing of children requires a sharing of responsibility between men and women and society as a whole,

Aware that a change in the traditional role of men as well as the role of women in society and in the family is needed to achieve full equality between men and women, ...

Article 4

...2. Adoption by States Parties of special measures, including those measures contained in the present Convention, aimed at protecting maternity shall not be considered discriminatory.

Article 5

States Parties shall take all appropriate measures: ...

(b) To ensure that family education includes a proper understanding of maternity as a social function and the recognition of the common responsibility of men and women in the upbringing and development of their children, it being understood that the interest of the children is the primordial consideration in all cases.

Article 11

...2. In order to prevent discrimination against women on the grounds of marriage or maternity and to ensure their effective right to work, States Parties shall take appropriate measures:

(a) To prohibit, subject to the imposition of sanctions, dismissal on the grounds of pregnancy or of maternity leave and discrimination in dismissals on the basis of marital status;

(b) To introduce maternity leave with pay or with comparable social benefits without loss of former employment, seniority or social allowances;

(c) To encourage the provision of the necessary supporting social services to enable parents to combine family obligations with work responsibilities and participation in public life, in particular through promoting the establishment and development of a network of child-care facilities;

(d) To provide special protection to women during pregnancy in types of work proved to be harmful to them.

(NB The Treasury and Resources Department supports this States Report. The future funding of the Social Security Funds and finding the right balance between contributions from employers, employees, self-employed, non-employed and the States grant will be a key challenge for the next States Assembly to address. It is imperative that this is not considered in isolation but within the overall context of the States fiscal and economic strategy.)

The States are asked to decide:-

VI.- Whether, after consideration of the Report dated 7th December 2011, of the Policy Council, they are of the opinion:-

1. To agree the introduction of 2 weeks compulsory statutory maternity leave.

2. To agree the introduction of 12 weeks basic statutory maternity leave.

3. To agree the introduction of an enhanced period of 26 weeks statutory maternity leave for employees who have been continuously employed by their current employer, including an associate employer, for at least fifteen consecutive months prior to their due date.

4. To agree the introduction of statutory time off to attend ante-natal appointments.

5. To agree that an employee who elects to work for his or her employer for up to days whilst on maternity leave, except during the period of compulsory maternity leave, should remain entitled to maternity leave and benefits.

6. To agree that women intending to take statutory maternity leave should give their employer at least 3 months written notice of their birth due date and when they would like their maternity leave to start, this notice period to be subject to the following conditions:

    a) where possible, women should also say when they expected to return to work;

    b) both the maternity leave start date and the return to work date could be changed as long as this was discussed and agreed between the woman and her employer and provided one month's notice of the return to work date was given. These dates could also be changed where either the mother or baby was ill or the baby was delivered prematurely and employers would be expected to be flexible in these circumstances;

    c) an employer would be allowed to require an employee on pregnancy-related sick leave to start their maternity leave 6 weeks prior to their due date (in line with current Social Security Department policy on sickness benefit and maternity allowance);

d) it would be the employer's responsibility to confirm the maternity leave and agreed return to work date. This should be done within two weeks of receiving the initial request and within two weeks after being notified of the birth or when a change to the return to work date was requested.

7. To agree the introduction of a 2 week period of statutory maternity support leave for the partner of an expectant woman provided the person taking the leave has worked for his or her current employer for at least fifteen consecutive months.

8. To agree the introduction of similar statutory leave provisions for parents who adopt children as would be available for parents of a new born, that is:

a) statutory leave be available as provided to parents of newborn children, dependant on whether qualifying periods had been met; and

b) a period of two weeks mandatory leave in order to encourage bonding between the parent and the adopted child, immediately after adoption.

9. To direct that such legislation as may be necessary to give effect to the foregoing shall be prepared.

10. To direct the Social Security Department to report back to the States, at the same time it reports on the funding of other benefits, with proposals for funding and requesting the preparation of the necessary legislation to provide for:

a) Changes to the maternity grant to make it available to all new mothers.

b) Changes to maternity allowance to split it into a maternal health allowance and a newborn care allowance with the rate of both being £180 per week (2011 rate) and the conditions as set out in paragraphs 7.10 to 7.25.

c) A new adoption grant at same rate as a maternity grant in the case of adoption for a child under 18.

d) a new benefit of parental allowance of £180 per week (2011 rate) which can be claimed by either parent immediately following the adoption of a child under 18 years of age.

11. To direct the Treasury and Resources Department to report back to the States, at the same time as the Social Security Department reports back on proposition 10 above, with proposals to fund any consequential expenditure incurred by the States as an employer or in the grant from General Revenue.

PUBLIC SERVICES DEPARTMENT

REVISED WASTE STRATEGY

The Chief Minister
Policy Council
Sir Charles Frossard House
La Charroterie
St Peter Port

6th December 2011

Dear Sir

1. Executive Summary

1.1 In February 2010 the Public Services Department was directed by the States to produce proposals for a revised strategy for disposing of solid waste.

1.2 This report briefly explains how the Department has gone about determining what the proposed revised strategy should be.

1.3 The proposed strategy itself is very much focused on ensuring that as little as possible remains for treatment or disposal. This report sets out three different options for delivering the strategy, which differ only in terms of the waste treatment component.

1.4 Common to all proposed options are kerbside collections of both dry recyclables and food waste, and processing of food waste for potential use on the land.

1.5 Consequently the Department believes that there is benefit to progressing measures in order to prevent, re-use and recycle waste, as these are common to preferred options. Therefore a resolution is sought for consideration and approval of appropriate business cases from the Department for the implementation of these schemes, to be funded from the existing surcharge revenues generated from waste charges.

1.6 A further integral part of the proposed strategy is the introduction of a challenging but achievable 70% recycling rate to be reached by 2025, with interim targets of 50% by the end of 2013 and 60% by the end of 2018.

1.7 Analysis of the options for residual waste disposal concludes that the recommended course of action is to export pre-treated waste to Jersey or potentially another jurisdiction.

1.8 Given the subject matter of the report, it uses terminology that may be unfamiliar to some readers and a glossary is therefore included as Appendix 1.

2. Background

2.1 It has been acknowledged for many years that Guernsey's current method of waste disposal – i.e. landfill – cannot continue in the long term. The Island's only remaining putrescible landfill site at Mont Cuet has a limited life span and, based on a rolling five-year average at current tipping rates, is predicted to be full by July 2022. In addition, landfill of putrescible waste causes an unacceptable level of damage to the environment and it is necessary to find a method of dealing with the Island's waste in a sustainable and less environmentally harmful way.

2.2 Whilst there is agreement that a new solution needs to be found to the problem of waste management, it has not, to date, proved possible for the States to agree on what that solution should be.

2.3 In June 2004 proposals to construct an Energy from Waste (EfW) plant on Longue Hougue were rejected by the States. In July 2009 the States agreed to proposals to appoint Suez Environnement as the preferred bidder for the design, building and operation of a residual waste treatment facility on Longue Hougue.

2.4 Negotiations with the preferred bidder were at an advanced stage when, in February 2010, the States overturned the decision of July 2009 and resolved as follows:

> *"3. To direct the Public Services Department to give written notice to Suez Environnement of the States' decision to withdraw its status as Preferred Bidder and to withdraw from the procurement process.*
>
> *4. To direct the Public Services Department to return to the States as soon as practicable with a Report setting out proposals for a revised strategy for disposing of solid waste.*
>
> *5. To direct the Policy Council, with assistance from the Public Services Department, to ascertain from the States of Jersey the most beneficial contractual terms on which the States of Jersey will agree to import and dispose of waste exported from Guernsey and to report to the States thereon as soon as practicable."*

2.5 Although not specifically covered in the Resolution, the debate centred on a desire to minimise the amount of waste produced in Guernsey in order to ensure

that as little as possible remained for treatment or disposal. Consequently, in keeping with the spirit of the debate, the Public Services Department has focused on achieving as much waste prevention and minimisation as possible. Therefore, the revised strategy that it is recommending focuses on the Waste Hierarchy, which is essentially a guide to sustainable waste management, (see Appendix 2). In applying the Waste Hierarchy, the Department has taken into consideration the requirement of identifying the best practical environmental options in accordance with the Environmental Pollution (Guernsey) Law, 2004.

2.6 The Hierarchy gives top priority to waste prevention, followed by re-use; after which comes recycling and then recovery (including energy recovery), with disposal at the bottom. Processes that are higher up the Hierarchy will therefore be considered more sustainable and will score well in any system comparing different options.

3. Developing the Strategy

3.1 In view of the importance and urgency of this matter the Public Services Department was anxious from the outset to engage and consult with as wide a cross-section of the community as possible throughout the process of developing proposals for a revised waste strategy. It considered that by doing so the strategy would have more "buy-in" from the community and thus a greater chance of success.

3.2 Given the strength of public opinion voiced against the previously proposed waste management solution, the Department wanted to gauge the feelings of Islanders at an early stage in the strategy formulation and find out tolerance levels for different aspects of any new waste management proposals as part of identifying the best practical environmental options in a Guernsey context. For example, what appetite is there for compulsory measures? How do people feel about different technologies?

3.3 Under the Environmental Pollution (Guernsey) Law, 2004 the Department, as Waste Disposal Authority, is required to identify the best practical environmental options for the disposal of waste in Guernsey. "Best practical environmental options" is not defined in the Law and so will take its natural meaning. In the context of the Law, it is clear that this refers to the best practical environmental option looking at pollutants into all environmental media as the term "environment" and "pollutant" are widely defined. Consequently, the Department adopted a process for developing the proposed new waste strategy broadly based on the Northern Ireland Best Practicable Environmental Option (BPEO)[1] process, adapted to suit local circumstances where necessary. This provided a logical framework for the strategy development, incorporating a high level of stakeholder consultation at key stages.

[1] BPEO – Decision Makers' Guide, Environment & Heritage Service, Northern Ireland, 2001

3.4 The Twelfth Report of the UK Royal Commission on Environmental Pollution (RCEP) defines BPEO as:

> *".....the outcome of a systematic and consultative decision-making procedure which emphasises the protection and conservation of the environment across land, air and water. The BPEO procedure establishes, for a given set of objectives, the option that provides the most benefits or the least damage to the environment as a whole, at acceptable cost, in the long-term as well as the short-term."*

3.5 The BPEO guidance sets out a 10-step process but in adapting it to suit local needs the Department actually followed 13 steps, which are detailed in Appendix 3. Reports and results regarding each stage of the consultation process are available on the website: www.gov.gg/publicservices/wastestrategy. The criteria used in assessing different options and the weightings given to those criteria are attached as Appendix 4.

3.6 In order to ensure that the process was transparent and would stand up to scrutiny, the Department set up an independent Consultation Review Panel to act as a "critical friend" and review the consultation activity as it progressed. Its mandate was: *"To act as a Review Panel to work with the Public Services Department in scrutinising the consultation process for developing a revised waste strategy for Guernsey."* As such the Panel had no responsibility to comment on or become involved with the content of the strategy as it developed; its role was purely concerned with the consultation process.

3.7 The make-up of the Panel is detailed in Appendix 5, and its final report is included as Appendix 6. The Department would like to place on record its gratitude to those individuals who agreed to join the Panel for the time they devoted on a voluntary basis to ensuring that the Panel's mandate was fulfilled.

3.8 Four rounds of stakeholder workshops were held between September 2010 and June 2011 (one of which was split into two sessions). The first three workshops were supplemented by public drop-in sessions, to allow people who did not attend the workshops the opportunity to review outputs from these sessions and have their own say in the process.

3.9 Following input from stakeholders at the first workshop the Public Services Department, acting in its role as the Waste Disposal Authority (WDA) agreed that the objectives of the revised waste strategy should be as follows:

- To endorse and implement the principles of the Waste Hierarchy, which focuses on waste minimisation;
- To develop an environmentally, economically and socially sustainable waste strategy that is practicable and adaptable to meet Guernsey's needs currently and in the foreseeable future;

- To consider all waste streams and identify and adopt the most appropriate methods to manage them in accordance with the Waste Hierarchy.

(Please note that the above are not in order of importance; the view of the Department was that all should be given equal emphasis in the strategy development.)

4. Quantities of Waste

4.1 Before determining the best options for managing and treating the waste stream at all levels of the Waste Hierarchy it was necessary first to establish the quantities of waste involved and their composition. Following competitive tender the Department engaged SLR Consulting Ltd (SLR) to consider and report on these issues. A summary of their report is included in Appendix 7 – Waste Arisings, Composition and Growth – Summary.

4.2 In 2010, approximately 35,000 tonnes of waste was deposited at Mont Cuet, which comprised just over 14,000 tonnes of household waste and roughly 21,000 tonnes of commercial and industrial waste. Such waste is termed "residual waste" and is what is left for disposal after recycling has taken place.

4.3 The largest proportion of domestic residual waste at 4,850 tonnes is kitchen organics, or food waste. Consequently it is considered a priority to introduce a way of recycling this fraction of the waste stream.

4.4 With regard to commercial/industrial waste, it has been established that there is approximately 18,500 tonnes of commercial waste in the waste stream currently that could potentially be reduced through waste minimisation, recycling and treatment. This is largely mixed commercial and industrial waste, builders' waste, and fragmentiser waste (shredder residues resulting from scrap metal processing). In addition to this there is wood waste which is currently segregated within the commercial sector and is not sent to landfill. It is not however certain that current processes for wood waste will continue, which means that the strategy has to include a means of dealing with it should it materialise in the waste stream. Assumed tonnages for segregated waste wood are calculated at approximately 7,000[2] tonnes.

[2] Total wood waste is estimated at 9,000 tonnes including approximately 7,000 tonnes segregated by commercial operations, with the remaining landfilled in mixed loads from household and commercial sources.

5. Waste Prevention/Minimisation

5.1 The stakeholder workshops identified a strong desire for any new strategy to focus on the top levels of the Waste Hierarchy, which echoed many of the views expressed during the February 2010 States debate.

5.2 It must be recognised that inevitably not all measures to achieve waste prevention and minimisation can be achieved swiftly. For example, some will require legislative changes; others may rely on charging regimes; and some will be dependent on cultural and behavioural change.

5.3 As acknowledged in Defra's[3] 2011 Review of Waste Policy in England, absolute prevention of waste is in many areas unrealistic, and arguably this is even more the case in an island context where we are very dependent on imports from other jurisdictions and can have very little direct influence on manufacturers/producers. Nevertheless, this does not mean that it is not possible to target a number of waste prevention initiatives, and indeed work on a number of such initiatives is already under way.

5.4 There are many small behavioural changes that can be encouraged to contribute towards a culture of reuse, a concept with which the older generation is already familiar. Indeed it is only in relatively recent times that we have seen the advent of the "throwaway society" albeit that the current economic climate is causing many people to rethink wasteful behaviour.

5.5 The attached Waste Minimisation Plan (Appendix 8) sets out in detail the measures that are recommended to address issues of waste prevention and minimisation. Certain initiatives will potentially provide "quick wins", whilst others, particularly those involving legislative changes, will, of necessity, take longer to implement and consequently for the effects to be felt.

5.6 Opportunities to reuse items discarded by others already exist through the Recycling Facility at Longue Hougue, although it is recognised that this temporary facility, which has been operated at minimal cost, requires significant upgrading to ensure that it facilitates as much re-use as possible. Consequently there are plans to include a Civic Amenity (CA) Facility within any new waste infrastructure, ideally incorporating a repair and reuse centre, which could potentially bring other benefits to the community, such as vocational training for the unemployed, etc. The strategy includes approximate costings for such a facility.

6. Recycling Targets

6.1 The current recycling target is 50%, which comprises a 50% target for domestic, or household, waste and a 50% commercial recycling target. In 2010 rates of

[3] Department for Environment, Food and Rural Affairs

45.8% and 41.6% respectively were achieved. Both these figures include green waste recycling, which equates to 14% of total household waste recorded, and 11.5% of total commercial waste recorded. Household recycling rates are calculated in line with UK Local Authority guidelines, with a similar methodology devised for commercial waste. These rates represent very good progress against the targets, and, for household waste, compare favourably with the level of 40% achieved in England as reported by Defra, but also indicate that more work is required to achieve previously set targets.

6.2 The revised target (combined for household and commercial) recommended as part of the revised waste strategy is 70%. This is a challenging target and is unlikely to be reached for several years, as it will take time to develop the measures needed to increase recycling to this extent. However, there is no reason why, once the 70% target is reached, another, higher target cannot be set. It is not the intention that recycling efforts should stop at this point but it is necessary to have a target in place for formulation of the revised waste strategy. 70% was considered challenging but achievable.

6.3 It is acknowledged that 70% recycling will not be achieved immediately as this requires the introduction of services and facilities; a review of existing legislation; and behavioural change. It is therefore proposed to set some interim targets:

- 50% recycling by end of 2013;
- 60% recycling by end of 2018; and
- 70% recycling by end of 2025.

More details of how it is proposed to meet these targets are included in the draft Waste Disposal Plan, included as Appendix 9 to this report. This draft plan sets out recommendations made to the Environment Department under section 31(1) of the 2004 Law on the preparation of the Plan. The Environment Department will consider the Plan as recommended by the Public Services Department, together with responses from the statutory consultation (Appendix 10), before later laying the final draft Plan before the States for approval.

6.4 It must be understood that these high recycling rates will only be achieved through significant behavioural changes on the part of all individuals in the community, coupled with the provision of improved infrastructure. The success of the bring bank system has demonstrated that the public of Guernsey are very willing to "do their bit" in respect of recycling, which is to be applauded but current facilities are in need of investment in order to make recycling easier.

6.5 Despite this enthusiasm, further changes are inevitable if recycling rates are to increase significantly. Not all members of the community are keen to embrace recycling and, given that high participation rates will be a key factor in

achieving the targets, some legislative measures may be required to bring about behavioural change.

7. Development of Options

7.1 A review of the various methods for reducing and treating waste was carried out by SLR. From this a number of options were developed for more detailed assessment including life cycle analysis carried out by Environmental Resource Management Ltd (ERM). A summary of the review of options and the methods used in assessing them to develop a shortlist of options suitable for Guernsey is included as Appendix 11.

7.2 Three options were initially selected to be taken forward. These are summarised in Tables 7.1, 7.2 and 7.3.

Table 7.1 – Summary of Option A

OPTION A	PREVENT	REUSE	RECYCLE	COLLECT/ TRANSFER	TREATMENT	DISPOSAL
Maximising Recycling (up to 70%), Food Waste Collections with In-Vessel Composting, Kerbside, Incineration, Ash Management	Development of existing measures; raising awareness; new initiatives; some enforcement and incentives.	Development of existing measures; raising awareness; advanced Civic Amenity Site(s); collection & redistribution of reusable items.	Maximising recycling measures; raising awareness; food waste recycling.	Kerbside: food waste & dry recyclable collections; some bring banks. Review of residual waste collections.	Commercial waste Materials Recovery Facility (MRF); Energy from Waste through heat treatment; In-Vessel Composting of food waste; ash management.	Special/ Hazardous waste to landfill; Air Pollution Control residues to off-Island Hazardous Waste Facility.
Additional Info:	Includes a Clean MRF for commercial waste, and options for other recycling activities. Allowance is made for the processing of segregated food waste using In-Vessel Composting.					

Table 7.2 – Summary of Option B

OPTION B	PREVENT	REUSE	RECYCLE	COLLECT/ TRANSFER	TREATMENT	DISPOSAL
Maximising Recycling (up to 70%); Heat Treatment off-island; MRF & Transfer Station; Food Waste Collections; Kerbside, In-Vessel Composting.	Development of existing measures; raising awareness; new initiatives; some enforcement and incentives.	Development of existing measures; raising awareness; advanced Civic Amenity Site(s); collection & redistribution of reusable items.	Maximising recycling measures; raising awareness; food waste recycling.	Kerbside: food waste & dry recyclable collections; some bring banks. Review of residual waste collections.	MRF for commercial waste; transfer station for household and residual commercial waste; In-Vessel Composting of food waste.	Special/ Hazardous Waste to landfill.
Additional Info:	This prepares residual waste for export to an off-island energy from waste plant (e.g. Jersey). Needs an MRF to extract recyclables before bulking for shipment. Capital costs include preparing waste for shipment, export costs and gate fee to pay at receiving facility. In addition, allowance is made for the processing of segregated food waste using In-Vessel Composting.					

Table 7.3 – Summary of Option C

OPTION C	PREVENT	REUSE	RECYCLE	COLLECT/ TRANSFER	TREATMENT	DISPOSAL
Maximising Recycling (up to 70%), MBT (IVC), Food Waste Collections, Kerbside, In-Vessel Composting, RDF, Export to Heat Treatment Facility	Development of existing measures; raising awareness; new initiatives; some enforcement and incentives.	Development of existing measures; raising awareness; advanced Civic Amenity Site(s); collection & redistribution of reusable items.	Maximising recycling measures; raising awareness; food waste recycling.	Kerbside: food waste & dry recyclable collections; some bring banks. Review of residual waste collections.	MBT for Household & Commercial Waste using IVC technology producing RDF for export for heat treatment, In-Vessel Composting of Food Waste	Special/ Hazardous Waste to Landfill.
Additional Info:	This would produce a refuse derived fuel (RDF) for shipment to a heat treatment facility (e.g. cement kiln or EfW), reducing volume and providing higher quality product, and lower gate fee at the receiving plant dependent on markets. Allowance is also made for the processing of segregated food waste using In-Vessel Composting.					

7.3 As the minimisation/prevention/recycling measures are common to all and are discussed above, this section of the report will focus on the treatment and disposal components of each option.

OPTION A

7.4 Option A comprises the following components:

- Waste Prevention and Minimisation measures;
- Materials Recovery Facility (MRF) for commercial waste, and some household waste (e.g. Bulk Refuse);
- Kerbside Collections for Dry Recyclables and Food Waste;
- In-Vessel Composting (IVC) for food waste;
- Green waste processing at Mont Cuet;
- Heat treatment[4];
- Ash management.

7.5 The preferred approach (subject to planning considerations) is to co-locate the above facilities and, ideally, others, such as a Civic Amenity site – i.e. a site where items can be taken for recycling and re-use – on Longue Hougue.

MRF

7.6 All waste received at the facility, with the exception of food and black bag waste, would be directed through a MRF, where as much separation as possible would take place and all recoverable recyclables would be processed for

[4] This includes incineration, pyrolysis and gasification processes.

recycling. For example, metals, card, paper and plastics would be extracted and redirected to appropriate recycling routes.

IVC

7.7 Food waste would be collected separately, via kerbside collections, and processed in an In-Vessel Composter (IVC), which would result in a compost-like substance that could then be used on agricultural land, provided it met stringent quality control measures. This could potentially reduce reliance on currently imported inorganic fertilisers, which is an added benefit of the process.

7.8 In the event that it does not prove possible to apply the by-products of the IVC process to land – for example, if quality control measures were not met or if the farming community declined to take them – then the contingency plan would be either to use the compost-like substance as cover material at Mont Cuet or to use it for land reclamation purposes at Longue Hougue above the mean high water mark. In both instances recycling figures would not be affected.

7.9 It has been suggested that Anaerobic Digestion (AD) could be used as a potential alternative to IVC. There are a number of reasons why AD did not score as well as IVC as a process to deal with food waste. In particular there are significant issues with applying the digestate outputs to land without jeopardising the water catchment area; however further treatment of the digestate may result in this solution proving a viable alternative.

7.10 In the event that the States agree to proceed with food waste processing, resultant tender documents need not be specific as to which technology must be used to deal with this portion of the waste stream; however it will have to be made clear that tenderers would need to prove that outputs from any technology solution are capable of meeting the standards and conditions laid out in correspondence from Guernsey Water and the Commerce and Employment Department in Appendix 12. As a minimum, compliance with UK Animal By-Products Regulations, BSI PAS100 for composting outputs, and BSI PAS110 for Anaerobic Digestion outputs will be required.

Green Waste Processing

7.11 It is intended that, under all options, green waste processing will take place at Mont Cuet. This will involve the capping of most of the site to produce a suitable flat area for receiving and processing green waste. The processing, as now, would involve the creation of windrows that would be monitored and turned regularly until a soil conditioner was created. Currently the resultant soil conditioner is available for members of the public to remove at no charge but it is possible that a market might be found for it, although this is by no means certain and no allowance has been made for this in the financial projections.

7.12 It should however be noted that any delays to procuring a treatment solution will put further pressure on the existing landfill void space, resulting in the raising of the fill area. This will put in jeopardy the future use of the site for green waste reception, processing and windrowing. In this case an additional area for this facility will be sought, potentially at Longue Hougue, requiring a concrete hard-standing area with leachate collection and management measures.

Heat Treatment

7.13 Inevitably, there will be a portion of the waste stream that cannot be recycled. For example, some potentially recyclable material may have been contaminated upstream of the MRF or there may be no recycling route for the material in question. Such waste, termed residual waste, would be sent to the heat treatment plant where it would be burnt, ideally with energy recovery taking place. Based on current projections, it is anticipated that the plant would need to have a maximum capacity of 28,000 tonnes per annum. As recycling rates improve, the actual amounts being put through the plant would reduce. This reduction would have an impact on potential electricity generation. It is considered very unlikely that a plant operating with lower throughput (e.g. in the region of 16,000 tonnes per annum) would be able to generate electricity efficiently.

7.14 Whilst the generation of electricity would be welcome, the Department's position has always been that it would not be the main driver behind the selection of a particular disposal technology.

Ash Management

7.15 Ash management involves the maturation of the bottom ash produced from the incineration process, following which it is rendered inert and can be used for land reclamation and/or as an aggregate substitute in road resurfacing. Usually bottom ash is about 20-25% of the input tonnages by weight. Thus a 28,000 tonne input would result in approximately 5,600 to 7,000 tonnes of bottom ash. Costs for dealing with bottom ash have been factored into the overall cost of option A.

Disposal

7.16 There will be a proportion of the waste stream that cannot be dealt with at the top tiers of the Waste Hierarchy and will have to be disposed of.

7.17 With option A, there will be Air Pollution Control (APC) residues (known as "fly ash") that require disposal. This would represent about 3-5% of input tonnages and disposal costs have been factored into the overall cost of option A. There are currently no suitable facilities in Guernsey to deal with APC residues, which are hazardous and require special facilities. Therefore they would have to be exported for disposal. Other hazardous or special waste – e.g. asbestos – would continue to be landfilled in specially engineered cells at Mont Cuet.

OPTION B

7.18 Option B comprises the following:

- Waste Prevention and Minimisation measures;
- MRF for commercial waste;
- Kerbside Collections for Dry Recyclables and Food Waste;
- IVC for food waste;
- Green waste processing at Mont Cuet;
- Transfer station for non-food household waste and residual commercial waste;
- Off-Island Energy from Waste (EfW) through incineration.

This is based on the proposal that residual waste is shipped off Island for incineration. Consequently the only on-Island disposal is special/hazardous waste to landfill.

MRF

7.19 As with option A all commercial waste would be taken to a MRF for sorting and separation of recyclable materials.

Green Waste Processing

7.20 This does not differ from what is proposed under option A above.

IVC

7.21 This would not differ from the process described in respect of option A.

Disposal (See Appendix 13)

7.22 Under this option residual waste – from household black bags and any commercial waste not suitable for recycling – would be taken to a transfer station where it would be baled in readiness for being transported to Jersey or elsewhere by sea. It would then be subject to incineration in the Jersey facility or elsewhere and energy recovery would take place.

7.23 The Jersey authorities have confirmed in principle that they could offer capacity in their plant to deal with Guernsey's waste. Any waste shipped to Jersey would be subject to strict Waste Acceptance Criteria to ensure that no potentially dangerous items, etc. are able to enter the plant. These criteria are no different to those that would apply if Guernsey had its own plant and therefore do not pose any particular problem. Jersey has set out its position with respect to the possible acceptance of waste by way of a letter from the Chief Officer of the Transport

and Technical Services Department, which is attached as Appendix 13. The Director of Environmental Health and Pollution Regulation has also made comments regarding the regulatory position with regard to waste exports, and these can be found in Appendix 14.

7.24 The Department believes that it would prove possible to strike a commercial deal with Jersey, albeit that this would be subject to the agreement of the States of Guernsey and Jersey.

7.25 At the time of writing, Jersey had not completed the hand-over period of its plant and was consequently unable to provide a definitive gate fee, as its own annual operating costs had not been finalised. Therefore the costings used in this report have been based on anticipated costs, which can only be finalised in 2012. In this respect the Jersey option does not differ greatly from the other options, all of which have been costed on the basis of similar infrastructure elsewhere, plus a "Guernsey weighting" in recognition that the cost of materials and construction is higher in Guernsey than the UK.

7.26 The only difference is that it would theoretically be possible to obtain a definitive gate fee from Jersey at the present time. However, as the Jersey authorities have already provided an indication of the likely gate fee that would be charged, the Department is confident that the Jersey figures are in the right region and are being compared to the others on a like for like basis.

7.27 Recent consideration of export of waste to Jersey has concentrated on the option of Guernsey being treated as a customer of the facility. There is another option, namely that Guernsey should effectively purchase a share of the plant and that a joint managing body be established, perhaps along the lines of the joint venture company established in respect of the electricity cable, the Channel Islands Electricity Grid Ltd (CIEG Ltd).

7.28 Clearly this would require careful negotiation of detailed terms and conditions to ensure that neither party was exposed to unacceptable risk and equally that neither should benefit disproportionately from the arrangement.

7.29 There are potential advantages to both parties, the most obvious being security on both sides. As co-owner of the plant, Guernsey would have the comfort of knowing that the arrangement was not going to change owing to factors in Jersey beyond its control – for example, political changes. Similarly, the Jersey authorities would know that Guernsey was not going to seek another, potentially more advantageous, market.

7.30 Although this possibility has not been discussed in detail with Jersey, such a long-term investment would be likely to represent a more advantageous commercial deal than simply being treated as a customer of the Jersey facility. It does, however, have the disadvantage of restricting flexibility.

OPTION C

7.31 Option C comprises the following:

- Waste Prevention and Minimisation measures;
- Kerbside Collections for Dry Recyclables and Food Waste;
- Green waste processing at Mont Cuet;
- Mechanical Biological Treatment (MBT) for household and commercial waste to produce a Refuse-Derived Fuel (RDF) for export;
- IVC for food waste.

7.32 Under this option, all waste received at the facility would be processed through an MBT plant, where it would be processed into RDF, which is a fuel produced by shredding and dehydrating solid waste and consists largely of combustible components of municipal waste such as plastics and biodegradable waste. Recyclables would also be recovered through pre-treatment of waste as part of the MBT process.

7.33 The RDF can be sold for use as fuel, particularly in facilities such as cement kilns that run at high temperatures and therefore require fuel with a high calorific value. Whilst this means that there is an income stream associated with this option, it is impossible to predict how the market will change over the coming years. Consequently there is a degree of uncertainty associated with this option.

7.34 There are currently very few market opportunities for RDF in the UK, although this is not the case in Europe. A number of UK Local Authorities produce RDF for export to Europe and it is understood that this is a growing trend. Whilst this is an indicator that the market is likely to be there for the long term, it also means that there is a possibility that in the longer term supply may outstrip demand, leading to market prices remaining low.

7.35 Depending on the treatment method employed, many MBT plants will produce a Compost-Like Output (CLO) which can be used as landfill cover, in land reclamation, or land-raising; however given the extent of the water catchment area in Guernsey and reduced landfill requirement, uses for this product would be limited.

Disposal

7.36 As with Option B, special/hazardous waste would be sent to landfill locally, along with an estimated 10% of rejects from the processing stream.

8. Kerbside Collections

8.1 Recycling rates of 50% and beyond are unlikely to be achieved without kerbside collection schemes, including provisions for food waste collection and processing. Consequently, all the options include provision for food waste recycling, which will require kerbside collection.

8.2 As detailed in the attached draft Waste Disposal Plan (Appendix 9), the following are common to all options:

- Kerbside collections of food waste and dry recyclables;
- Some bring banks;
- Review of residual waste collections.

8.3 Market research has confirmed that people are willing to separate their food waste for the purposes of recycling. There are, understandably, issues of concern, such as odour or space constraints, but if appropriate receptacles are provided and frequency of collections is adequate, etc. the Department is confident that it will be feasible for households to participate in a food waste recycling scheme.

8.4 The Department is aware that kerbside collections have already been rejected twice by the States. However, at the time proposals put before them focused on collections of dry recyclables only and there was then no evidence to suggest that recycling rates would be significantly affected if collections were restricted to such materials. Consequently, it was not considered cost-effective to pursue kerbside recycling given the relatively small increase in recycling rates that was expected to follow.

8.5 Since the subject was last debated by the States in 2009 (Billet d'État XXI, 2009) new information has come to light, as a result of which Integrated Skills Limited (ISL) (the consultants who carried out the modelling of kerbside collection scenarios) has revised and updated its model.

8.6 The 2008 model, which was largely used as the basis for the 2009 States Report, was based on information available at that time, when household green waste recycling was in its early stages and the tonnages assumed were below those that are now being achieved. Green waste tonnages have had a significant effect on recycling rates, meaning that it is now possible to achieve higher rates overall than were predicted in 2008/9.

8.7 In fact, without the aid of kerbside collections, the Island has already achieved recycling rates close to the maximum with such collections that were predicted in the ISL report. This is largely attributable to better management of green waste, along with other initiatives such as the Longue Hougue Waste Recycling Facility and the introduction of beverage carton recycling. Increases on the

figures for other dry recyclables have also been achieved over the previous five years. The exception to this is paper, which has fallen in recent years in line with other jurisdictions, reflecting a drop in the sales of newspapers in this period.

8.8 Such improvements and new initiatives have required significant investment from the Department – approximately £660,000 to purchase essential equipment, plus combined running costs for the green waste and waste recycling sites of approximately £1.3 million per annum (including plant operational costs, excluding third party processing costs).

8.9 A major stumbling block previously was the difficulty inherent in managing the outputs from food waste processing. Now that it has been confirmed by the States Agriculture and Environment Adviser and Guernsey Water (see Appendix 12) that it would be more acceptable to spread the output from an In-Vessel Composter (IVC) on the land than that from an Anaerobic Digester (AD), the food waste recycling issue is largely overcome and it therefore no longer needs to be excluded from the recycling streams. Farmers attending a meeting in June 2011 indicated that they would be willing to accept compost outputs, subject to quality standards being met and risks managed.

8.10 The application of compost to land from any In-Vessel Composting scheme will need to comply with strict quality assurance measures, such as BSI PAS100 (an industry standard for composts) or standards set out in EU Commission Regulation No. 142/2011 laying down health rules as regards animal by-products not intended for human consumption. This means that stringent quality controls and monitoring regimes must be put in place. The farmers have indicated that they would not expect to pay for the product and a farming contractor is likely to be required to distribute the material. An appropriate allowance has been made for this in cost projections for this option but it should be noted that the magnitude of this cost is not great and has negligible bearing on the overall cost of the strategy.

8.11 It is acknowledged that there are other issues that need to be resolved regarding kerbside collections. For example, the nature of Guernsey's roads means that some are unsuitable for daytime collections. Route optimisation will be part of the ongoing development of a kerbside collection system and it may not prove practicable to collect from each and every household but the aim will be to service as many properties as possible.

8.12 It is not considered possible to dispense with all bring banks – some will need to be retained – but the introduction of kerbside collections offers an opportunity to rationalise the bring bank sites, not all of which are in optimum locations. Furthermore, it is becoming increasingly difficult to find or retain suitable sites, as is evidenced by the situation that has arisen in St Martin's with the loss of the Manor Stores site and the lack of other viable options for which planning permission can be obtained.

9. Environmental Considerations

9.1 Options A, B and C all feature a focus on waste minimisation and maximising recycling prior to the treatment of residual waste. This represents a significant improvement on environmental impacts compared with the current situation and options with lower recycling targets.

9.2 Life Cycle Analysis based on outputs from WRATE software indicates that for global warming potential, option A performs marginally better than option B, which in turn performs marginally better than option C, based on calculations for greenhouse gas emissions. These conclusions are however based on a snapshot comparison of one year within the strategy. It is important to consider what happens throughout the life of the strategy. Improvements in waste minimisation and recycling will be consistent for each option; however impacts from reduced volumes sent for treatment will change. This is particularly the case for option A where energy recovery becomes an issue at lower operating tonnages meaning that it performs less well towards the end of the strategy.

9.3 The Life Cycle Analysis report prepared by ERM Ltd warns against picking one option on the basis of the results of the WRATE analysis, as other factors should also be considered. In their view no single option could be viewed as a clear favourite on the basis of life cycle assessment.

9.4 In assessing all options a number of environmental criteria were used:

- Air, Land & Aquatic Environment
- Global Climate Change
- Natural Environment
- Human Environment
- Sustainable Waste Management
- Water Resources

Whilst the options perform consistently in terms of the benefits from waste minimisation and recycling, there are differences in the environmental benefits of the treatment methods.

9.5 In assessing each of the options, weighted scores were generated for all the evaluation criteria (see Appendix 4). The scores for environmental criteria only for options A – C show that each option performs differently dependent on the criteria; however option B performs best overall.

10. Financial Implications

10.1 The three options described in this Report have been analysed with respect to estimated costs attributable over the anticipated 20-year life of the capital plants. The whole life costs for each option are summarised below. A breakdown of these costs, including the costs of existing services, is included as Appendix 15.

Table 10.1 – Estimated Whole life costs for all Scenarios

	Whole life costs over 20 years		
	Option A	**Option B**	**Option C**
Total waste strategy costs (£m)	211	180	197
Tonnage of waste processed (T'000)	793	793	793

10.2 It is currently proposed that the cost of procuring the facilities required under any preferred solution should be met through an internal loan from funds under control of the Treasury and Resources Department, on behalf of the States. Capital sums required will be repaid with interest over a 20-year period, with repayments being funded by gate fees – i.e. the fees charged to those who use the facility.

10.3 There are extant States Resolutions dating back to the Capital Prioritisation debate in 2009, (Billet d'État IX 2009 refers), which state, *inter alia*:

6. "That the Treasury and Resources Department shall loan to the capital reserve, from the general revenue cash pool and/or the contingency reserve, up to £83 million, accruing interest at the States Treasury interest rate.....and to be allocated strictly against the solid waste solution.

7. That the internal borrowing referred to in proposition 6 shall be repayable over a 20 year period from income generated by the solid waste solution."

10.4 This direction was given at a time when it was expected that a different solid waste solution would be procured. Consequently the Resolutions in question should now be formally rescinded.

10.5 Other funding options could be available. However, this will depend on the solution agreed, and the expressions of interest received by the Department. An example of this would be a Public Private Partnership (PPP) where the Department could use private sector expertise and resources in order to deliver public sector infrastructure according to a specification agreed by the States of Guernsey.

10.6 As stated above, gate fees would be set by the States to cover not only the capital and interest repayments but also the operating costs, less any income from the sale of energy or other by-products of the process. To ensure the facility operates on a commercial basis the Department is likely to seek to generate a commercial surplus to cover unforeseen expenditure, as well as to cover the costs of recycling, the continued operation of Mont Cuet, etc.

10.7 At such an early stage in the process, it must be borne in mind that the costs set out in this report are purely indicative and based on reasonable estimates and judgements derived from industry expertise. The methodology in calculating the cost indications is consistent between options considered, but the results should not be considered as final, firm costs. As decisions are made and a formal procurement process begins, the costs associated with the preferred option will become more accurate.

10.8 When the strategy is embedded, the assumption is that recycling rates (and therefore tonnages treated - both recyclates and residual waste) will change over time. This has an impact on the costs and consequently costs per tonne over the project planning period (i.e. assumed 20-year useful life of residual waste treatment assets).

10.9 There is a necessary assumption to set prices at a level which will not only encourage recycling, but also discourage the production of waste. The exact mechanics of how charges can be varied to influence behaviours is yet to be examined. The purpose of this report is to establish the principles, following which detailed work, which will include consultation, research and legislative changes, will commence.

10.10 All three options consider the same waste flows; recycling levels; kerbside recyclable collection procedures and costs; and local residual waste collection procedures and costs. The options differ only with regard to the residual waste treatment approach. Capital expenditures related to residual waste treatment under each option are summarised as follows:

Table 10.2 – Estimated Waste Capital Expenditure (Capex) for all Scenarios

	£'000	NOTES
OPTION A On-island micro thermal treatment - Commercial waste Materials Recovery Facility (MRF); Energy from Waste through heat treatment; In-Vessel Composting of food waste; ash management.	49,825	Cost estimate based on a standard facility with energy recovery utilising conventional waste-to-energy technology. Assumed is procurement on design/build terms of a facility with a design throughput capable of treating 2015 residual waste (28,400 tonnes per annum (tpa)).
OPTION B Transfer to off island thermal treatment - MRF for commercial waste; transfer station for household and residual commercial waste to be shipped off island; In-Vessel Composting of food waste.	3,149	Capital expenditures limited to development of on-island transfer station
OPTION C MBT to RDF, to off island thermal treatment - MBT for Household & Commercial Waste using IVC technology producing RDF for export for heat treatment, In-Vessel Composting of Food Waste	15,105	Capex estimate based on a review of turn out costs for MBT facilities adjusted for a design throughput capable of treating 2015 residual waste (28,400 tpa).

It must be stressed that there is considerable uncertainty associated with Capex figures for residual waste treatment facilities on Guernsey owing to a number of factors including:

- A lack of reliable cost data for smaller scale facilities; and
- The market appetite at time of bidding along with the market's perception of risk, uncertainty regarding procurement and contract structure.

Actual costs to be realised by Guernsey following a procurement process may therefore differ greatly from cost estimates presented in the current analysis.

10.11 Early indicative costs suggest that for the scenario to fund itself (including associated recycling initiatives, etc.) the cost per tonne under the various options are as found in Table 10.3.

Table 10.3 Indicative Cost per Tonne for all Options

	Indicative Cost per Tonne in 2015 (£)			Indicative Cost per Tonne in 2025 (£)		
Option	**A**	**B**	**C**	**A**	**B**	**C**
MRF	100	100	100	73	73	73
IVC	88	88	88	77	77	77
Residual	178	182	195	308	182	243

10.12 Currently, gate fees charged at waste sites are set so that other waste costs such as recycling, including initiatives developed and operational costs of collecting and recycling materials, are covered by those fees. As discussed in 10.9, the methods of charging for the strategy are yet to be finalised. But for illustration only, should the cost of these services continue to be added to the cost per tonne of residual treatment, an additional £113 per tonne in 2015 and £181 per tonne in 2025 would be added to the figures for residual treatment above.

10.13 As annual cash flows vary over the planning period for each option, an appraisal and analysis of all costs of the options using the net present value method was undertaken. The detail of this analysis is found in Appendix 16.

Table 10.4 Summarised NPV Costs of Options, 2011 prices

OPTION		Entire Solution *	Residual Treatment
		NPV	NPV
		£, millions	£, millions
A	On-island micro thermal treatment	135	71
B	Transfer to off-island thermal treatment	118	54
C	MBT to RDF, to off-island thermal treatment	127	64

*represents the discounted costs of all waste management initiatives over a 20 year operating period (recycling initiatives, residual waste collection and treatment, landfill operations etc).

10.14 As with the whole life cost estimate summarised above, it can be seen that option B offers more favourable treatment costs than development of on-island micro thermal treatment or MBT, although the results are sensitive in particular to capital expenditure estimates. Further explanation is found in Appendix 17.

10.15 Regardless of which option is selected, the new development will offer facilities far exceeding those currently provided and will include significant environmental improvements and community benefits which justify a higher cost per tonne and therefore gate fee. Also, the new strategy includes measures to reduce waste and improve recycling rates, which will have to be funded by waste activities.

10.16 It is inevitable that the community will want to know how much the average household is going to have to pay for waste disposal and recycling after the introduction of the new strategy. The current system of charging refuse rates based on TRP is not an effective way of using charges to encourage behavioural change and has resulted in complaints from those who make great efforts to recycle, as they pay roughly the same refuse rates as neighbours in similar properties who put out several sacks of refuse every week.

10.17 It should be remembered however that it is this income from the tipping fees, some of which are charged to householders in their Parish rates, which pay for the recycling activities. Consequently it is intended that a review of the existing system will be one of the work streams taken forward as part of the new strategy implementation.

10.18 At present total waste produced by the 26,000 households in Guernsey is 26,451 tonnes per annum, based on 2010 figures. Of this, 12,122 tonnes was recycled in 2010, leaving 14,329 tonnes sent to landfill. Therefore, each household is generating, on average, approximately one tonne of waste per annum, of which just under half is recycled.

10.19 Assuming that all waste management and recycling activity will be funded by fees charged to use the various facilities needed for such purposes, based on the total cost of each option, the average amount payable per household would be as per table 10.5 which shows estimated annual costs faced by households under each scenario in 2015 and 2025. Costs are presented at 2011 prices assuming that Capex expenditures are financed over a 20-year period. All options offer household costs below £200 per household per year over the 2015-25 period with the exception of option A in 2025. By way of comparison, the current average cost per household is £97 based on 2010 costs.

Table 10.5 Approximate Cost per Household per Annum, 2011 prices

OPTION		2015 Household Costs £/year	2025 Household Costs £/year
		TOTAL	TOTAL
A	On-island thermal treatment	178	211
B	Transfer to off island thermal treatment	180	172
C	MBT to RDF, to off island thermal treatment	186	191

10.20 It can be seen that development of on-island treatment facilities becomes increasingly expensive relative to an export solution over the planning period in line with declining residual waste volumes.

10.21 Currently the Department's waste sites generate approximately £5.4m per annum, including an appropriation of £1.2m from the waste surcharge[5]. Of this, the Department spends approximately £4.2m on waste management and recycling activities, which leaves a balance of about £1.2m that is available to fund General Revenue activities, such as road resurfacing. If the new strategy is to become self-financing, it could mean that there will be no surplus available to spend on such General Revenue services in future and an increase in cash limit would be required from General Revenue to ensure that service delivery is not compromised.

10.22 Given that all three options utilise the same methods at the front end to facilitate waste minimisation prior to residual treatment, the Department proposes to progress these areas of the strategy at the earliest opportunity, in addition to the work required to progress the residual treatment element, which will take longer to conclude.

10.23 For clarity, the areas which the Department wishes to see progressed immediately are waste minimisation initiatives, recycling efforts, the construction and operation of a MRF and IVC plant and the commencement of a kerbside collection scheme.

10.24 The costs of progressing these aspects of the strategy are included in the financial models that have yielded the data contained in this report. As has been referred to already, the costs are, at this stage, indicative based on similar plants and schemes in operation elsewhere. These indicative costs can be found in Appendix 15.

10.25 It would be the intention of the Department to fund the front end activities initially from the monies collected by the waste surcharge in place at Mont Cuet, with the exception of the capital costs of construction of the MRF and IVC plant. These would be funded from a loan from States Treasury with the balance on commencement of the operations being paid by any balances left on the Waste Strategy Fund, with the remainder being added to the capital cost of the chosen residual solution. Once progress has been made on residual treatment costs and decisions made about how to fund the strategy as a whole, the method of financing the front end operations may change.

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[5] The Waste surcharge was introduced in 2002 primarily as a mechanism to fund the Lurgi waste plant. Subsequently it has funded the investigations and tender process that resulted in the Suez waste plant. Latterly it has funded the current waste strategy.

11. Assessment of Options

Integrated Waste Management Facility (Option A)

11.1 This option has the disadvantage of potential public opposition, which has proved significant in the past when options involving heat treatment have been recommended. However, it must be borne in mind that the scale of heat treatment involved in the current option is considerably less than that in either of the previous aborted procurement processes.

11.2 Also, the revised waste strategy has much emphasis on waste prevention, minimisation and recycling. Whilst previous strategies have certainly not ignored such issues, they were not seen as central to the success of the strategy. This led to fears (albeit misguided) in some quarters that recycling would not be pursued vigorously because of the need to ensure a steady stream of waste to an incinerator. With the upper levels of the Waste Hierarchy being key to the whole revised strategy it is hoped that such fears have significantly diminished.

11.3 Furthermore, there now exists a greater level of understanding in the community about the challenges involved in waste management and the difficulty in finding an acceptable, reliable long-term solution. This understanding was reflected in the findings of the stakeholder workshops, when solutions involving heat treatment were deemed broadly acceptable to the majority of participants. Consequently it is not considered that this option should be ruled out on the basis of anticipated public opposition.

11.4 However, there are other factors that may make this option unattractive. As previously emphasised, there exists great uncertainty with regard to actual development costs for a residual waste treatment facility which would result from a procurement process on Guernsey. Actual prices may vary considerably from the prices estimated in connection with the current analysis based on design and build procurement terms. Tendered prices will depend on a number of factors including market appetite at the time of tender, uncertainty regarding procurement and contract structure, and potential uncertainty regarding the Employer's (i.e. the States') requirements. It is notable, for example, that the proposed costs of the EfW facility in connection with the 2009 bid were significantly higher (£93 million) than the assumptions used in the current analysis. While this bid was for a larger facility plus good architecture and recycling facilities, it does give an indication of the level of mark-up that can be realised following a procurement process.

11.5 Consideration must also be given to small plant performance. Development of a facility capable of treating 28,000 tonnes per annum at the beginning of the planning period will necessitate that the facility is operated below capacity or with periods of downtime when waste quantities decline in future. Given the very small and declining residual waste quantities forecast for Guernsey, it is unlikely that it will be possible to operate an electricity only facility at the

required level of efficiency to achieve "recovery" status, meaning that the heat treatment process would be classed as disposal.

11.6 In light of the foregoing, the Department has concluded that option A is not the preferred way forward at this time.

Export of Waste (Option B)

11.7 As pointed out in this report, there is potential uncertainty with the option of exporting waste to Jersey, although any contract drawn up would certainly seek to minimise such uncertainty for both parties. The uncertainty is largely centred on political changes in both islands, which could potentially lead to the need to find a different method of waste disposal at relatively short notice. However, it might not be necessary to rely solely on Jersey as the destination for residual waste.

11.8 Export to an off-island facility (Jersey or elsewhere) may provide certain advantages. Larger facilities provide an economy of scale that reduces treatment cost per tonne of waste. At the very low residual waste flow forecast for Guernsey, the costs of constructing a local facility may prove more expensive than export. Some UK authorities are considering sending waste to larger facilities to try to access lower overall cost via the economy of scale of the larger facilities. This suggests that, at small scale, export may be cost effective over developing a local facility, and that transport costs do not necessarily dominate. In some cases UK Authorities are looking at export of waste to European facilities – this has been widely reported in recent months. The suggestion is therefore that even the cost of shipping waste overseas does not dominate this decision.

11.9 It is becoming more common in the UK for Local Authorities to export pre-treated waste to EfW facilities in Europe. The level of pre-treatment varies from the processing of the waste into RDF to minimal treatment, such as the sorting that is carried out in a MRF. Provided that the waste/RDF is being shipped to a facility that is achieving a certain level of efficiency in terms of energy production, then this is classed as export for recovery purposes, rather than disposal, and the UK Environment Agency is prepared to issue an export licence on this basis, provided that the destination country consents to the import.

11.10 In principle therefore it would be possible for Guernsey to obtain any necessary consents to export waste that had undergone minimal pre-treatment to facilities located in locations other than Jersey. Whilst Jersey would be a convenient option, owing to its proximity, this does mean that Guernsey would not be 100% reliant on the ongoing co-operation of the Jersey authorities, thereby making the export option more attractive.

11.11 Furthermore, because the infrastructure associated with the export of waste could be put in place in a shorter time frame than on-Island treatment facilities, this solution is less likely to jeopardise the processing of green waste at Mont Cuet.

11.12 The costs in this report have been based on export to Jersey, using information on gate fees provided by Jersey, but it is possible that a more attractive gate fee could be found elsewhere, although this would of course have to be offset against increased transport costs.

11.13 It has been suggested that export to Jersey (or potentially another location) could be used as an interim solution while a more permanent on-Island solution is sought. This would be possible but in economic terms it is not attractive because the investment in on-Island infrastructure to facilitate export of waste is the same regardless of the length of time over which export takes place. Consequently it would be preferable for export to represent at least a medium term solution. In this respect it is noted that, at present, Jersey has offered only a three year deal with the possibility of renewal at the end of the initial term. The Department considers that if it is agreed that waste should be shipped to Jersey, it is essential to negotiate a longer-term deal.

RDF for Export (Option C)

11.14 The option of producing an RDF for export has the disadvantage that the markets are potentially volatile and if this option were to be pursued it would effectively mean taking a gamble that the markets will move in a direction advantageous to the Department. This might well prove to be the case, but there are of course no guarantees.

11.15 Jersey has indicated that its preference would be to receive pre-treated waste, rather than RDF, which means that the most obvious market would not be available. Given the emerging trend in the UK of the production of RDF for export to Europe, it seems safe to assume that the market will endure but prices are likely to remain favourable to the buyer whilst supply is at least equal to demand.

11.16 It would be possible to defer a decision regarding the production of RDF for export until such time as market conditions are better understood. In the meantime, Guernsey could export pre-treated waste to Jersey or another destination, depending on which option represents the best commercial deal.

12. Location of New Facilities

12.1 Longue Hougue was identified at an early stage as the most appropriate primary location for the comprehensive development of waste management facilities. As

a result, the Urban Area Plan has been amended over the years in response to a series of States debates regarding the most appropriate waste disposal strategy for the Island.

12.2 The Urban Area Plan has been amended so that policies relating to the Longue Hougue Key Industrial Area refer to a Development Brief for the Longue Hougue site, which was approved by the Environment Department in 2009, instead of the previous 2002 Outline Planning Brief for the site. The Development Brief provides planning guidance for determining a broad range of waste management proposals at the Longue Hougue South Industrial and Reclamation Area that might be brought forward by the Public Services Department and/or private waste operators. The Planning Brief requires that development should be planned on a comprehensive basis and meet a range of criteria such as achieving safe and convenient access and a unified architectural concept.

12.3 The amendments to the Urban Area Plan adopted in May 2009 also provide a 'policy gateway' for considering other small-scale solid waste infrastructure elsewhere in the Urban Area such as a Civic Amenity Site or Materials Recovery Facility (MRF).

12.4 In considering any planning permission for waste management facilities the Environment Department will have to consider all relevant material considerations under the Law including the effect on roads, in particular achieving safe and convenient access and the quality of the design.

12.5 Waste management operations are also subject to the licensing requirements under the Environmental Pollution (Guernsey) Law, 2004. A formal application for operating licences under the Law will need to be considered and no licence would be granted until the Director of Environmental Health and Pollution Regulation was satisfied that all regulatory criteria would be met.

13. Environmental Impact

13.1 As part of any planning application process for waste disposal or processing facilities (other than small scale recycling or sorting facilities), an Environmental Impact Assessment (EIA) will need to be undertaken in accordance with The Land Planning and Development (Environmental Impact Assessment) Ordinance, 2007.

14. Staff Resources

14.1 The Public Services and Environment Departments will, in accordance with their respective mandates, be charged with delivering waste prevention/minimisation activities, including the investigation of necessary legislative changes, as well as

the procurement of new infrastructure. It will not be possible for the Departments to deliver on these issues within an acceptable time frame by relying only on existing resources.

14.2 A key factor in bringing about behavioural change is ongoing promotion and education, including one-off events to highlight different initiatives. The Public Services Department currently employs a Recycling Officer on a full-time basis to organise and implement an educational and promotional programme, including various community events.

14.3 Some of the Recycling Officer's time could in future be reallocated to focus more on waste prevention and minimisation but, particularly in the early days, the Department would like to be very active in promoting such activities and believes that better results would be achieved if a second officer were employed to work in this area on a part-time basis, equivalent to 0.5 Full Time Equivalent. It is envisaged that this would be a contract post for a period of two to three years.

14.4 In addition, there is an enormous amount of work needed to examine policies, practices and legislation in order to ascertain the optimum mix of "carrot and stick" and how to incentivise desired behaviours whilst discouraging or punishing behaviours that are less desirable.

14.5 If results are to be achieved in a reasonable time frame, it will be necessary to employ an officer to work in this area on a full-time basis, for an initial period at least. It is considered that the necessary work could be carried out by a full-time contract post holder over a period of three years, with the contract period being subject to review.

14.6 In addition it will be necessary to prepare tender documents and run a procurement process in respect of the infrastructure needed to deliver the strategy. It is proposed that specialist consultants should be engaged to provide technical support and advice, including, in due course, project management services, if appropriate.

15. Legislation

15.1 Waste management facilities in Guernsey are governed by the Environmental Pollution (Guernsey) Law, 2004. Parts III and V of the Law deal with licensing of waste operations. These Parts were fully implemented, in relation to waste operations, with effect from 1 June 2010 by the Environmental Pollution (Waste Control & Disposal) Ordinance, 2010.

15.2 This Law requires the Public Services Department, as designated Waste Disposal Authority, to make recommendations to the Environment Department in connection with the preparation of a Waste Disposal Plan (Appendix 9).

15.3 As required under this legislation, the Department has consulted with:

- The Environment Department;
- Guernsey Water;
- The Commerce and Employment Department;
- The Parish Douzaines;
- The Health and Social Services Department; and
- The Director of Environmental Health and Pollution Regulation.

Their responses can be found in Appendix 10. The draft Waste Disposal Plan together with the statutory consultation responses will be handed over to the Environment Department. The Environmental Pollution (Guernsey) Law 2004 then requires the Environment Department to return to the States for the approval of this Plan.

15.4 It is generally accepted that for the target of 70% recycling to be met, there is a need for some legislative measures in order to achieve this objective. Market research carried out in the summer of 2011 indicated that there is public support for a degree of enforcement in this area.

15.5 There are some legislative powers which could be introduced to enforce higher rates of recycling from householders and commercial organisations. All of these will be researched by the Department and reported on in the future.

15.6 In addition, currently the collection of waste within the Island is governed by the Parishes, under The Parochial Collection of Refuse (Guernsey) Law, 2001, as amended. Not only are refuse rates decided by the Parish (and therefore differ), but there is little co-ordination with regards to days and times of collections.

15.7 Therefore, as kerbside recycling features in all options, this legislation may need to be amended to take into consideration the co-ordination required to collect both black bag waste and recyclables.

15.8 It is the Department's aim to provide an effective regulatory framework for waste and resources management in Guernsey, ensuring high standards, environmental protection and the prevention of waste offences such as fly-tipping.

15.9 However, it is also recognised that amendments to legislation are not likely to be enough on their own and that there should also be encouragement to minimise waste. To this end, the Department will endeavour to make provision for incentive schemes and will continue to encourage the separation of waste by householders. Funding for incentive schemes has not been included in the

current costings, as it is not yet possible to say what such schemes might cost, if indeed they were to be introduced.

16. Compliance with Principles of Good Governance

16.1 In accordance with Resolution VI of 2011 (Billet d'État IV, 2011 refers) the Public Services Department is required to explain the extent to which it considers that this Report complies with the six principles of good governance as detailed in the aforementioned Billet d'Etat.

16.2 **Core Principle 1** – *Good governance means focusing on the organisation's purpose and on outcomes for citizens and service users.* This Principle is closely linked to the States Strategic Plan (SSP). The issues covered in this States Report are key to delivering the Environmental Policy Objective: "Manage our solid and liquid waste". The proposals set out in this Report are also key to delivering a number of the desired outcomes under the Environmental Plan, most notably; "The amount of waste generated will be minimised" and "Solid and liquid waste disposal will accord with environmentally acceptable methods".

16.3 **Core Principle 4** – *Good governance means taking informed, transparent decisions and managing risk.* The supporting principles include the following:

- Being rigorous and transparent about how decisions are taken; and
- Having and using good quality information, advice and support.

16.4 The Department considers it has gone to great lengths to ensure that decision makers and the community in general have been kept informed about the decision making and policy formulation process. By engaging external consultants as well as relying on in-house expertise it is confident that it has obtained and used good quality information, advice and support throughout the strategy development. Consequently the Department considers that it meets this criterion to a high degree.

16.5 **Core Principle 6** – *Good governance means engaging stakeholders and making accountability real.* Given the extensive stakeholder engagement conducted by the Department in the formulation of a revised waste strategy, the Department considers that it has met this criterion to a high degree.

17. Conclusions

17.1 There can be no doubt that Guernsey needs a new system of solid waste management and it has been demonstrated, both in previous States debates and through the extensive programme of consultation that has been implemented, that there is real appetite to ensure that waste prevention and minimisation should be at the heart of any new Waste Strategy.

17.2 It can also be seen that all options presented in this report combine some of the same measures for prevention, re-use and recycling. This includes food waste collections, In-Vessel Composting (IVC), kerbside collections, and Civic Amenity Site(s) facilities. Options A and B also include a Materials Recovery Facility (MRF) in order to extract recyclables.

17.3 In-depth analysis of each option can be found in the 'Assessment of Options' in section 11 of this report. Although all options are technically feasible, each has its strengths and weaknesses as outlined in this report and it is therefore a challenge to determine which will prove to be the best option for Guernsey in the long term.

17.4 It also has to be recognised that adopting an ambitious recycling target, coupled with a programme of waste prevention and minimisation measures, will result in increased costs, which will be reflected in the amount that is paid by the community for waste management. However, it is the intention to set up a system whereby the highest charges are targeted at the biggest generators of waste.

17.5 Important factors for Guernsey are that any technology used is robust and reliable and capable of delivering a long-term solution at an affordable cost.

17.6 Having carefully examined the three shortlisted options, the Department considers that each one meets the criteria set out above, albeit that each has different pros and cons. On balance, however, the Department considers that option B, export of pre-treated waste, represents the best solution at this time.

17.7 It does, however, acknowledge that this is the best option only if a contract of a suitable length can be secured and if a deal can be negotiated at an acceptable price. If these criteria cannot be satisfied, then the Department considers the next best option to be option A and that this should then be pursued as a fall-back position.

17.8 The Department believes that there is benefit to progressing measures in order to prevent, re-use and recycle waste, as these are common to preferred options. Therefore a resolution is sought for consideration and approval of appropriate business cases from the Department for the implementation of these schemes, to be funded from the existing surcharge revenues generated from waste charges.

17.9 Deputy A Spruce does not support all the proposals contained in this Report and will be speaking accordingly during the course of the debate in the States of Deliberation.

18. Recommendations

18.1 The Public Services Department recommends the States:

1. To approve recycling targets as follows:
   - 50% by the end of 2013;
   - 60% by the end of 2018; and
   - 70% by the end of 2025.

2. To approve the Waste Minimisation Plan as set out in Appendix 8 to this report and to direct the Public Services Department to take forward the measures identified therein without delay, with the revenue costs funded by a transfer from the Waste Strategy Fund to the revenue budget of the Department.

3. To direct the Treasury and Resources Department to consider and approve appropriate business cases from the Public Services Department to implement prevention, re-use and recycling initiatives (namely kerbside collections; in-vessel composting of food waste and refurbishment of bring bank sites) at the earliest opportunity, with reference to indicative costs detailed in Appendix 15 of this report and for the capital costs of these schemes to be funded by a loan from States Treasury.

4. To direct the Public Services Department to report back to the States no later than December 2013 with the results of its investigations into any legislative and policy changes necessary, together with full costings to give maximum effect to waste prevention and minimisation measures;

5. To direct the Public Services Department to pursue the option of export of waste, including the possibility of buying into the Jersey plant, and to report back to the Policy Council no later than September 2013 with full costings to lay before the States;

6. To rescind Resolutions 6 and 7 concerning Billet d'État IX, 2009.

Yours faithfully

B M Flouquet, Minister

Other Department Members:

S J Ogier, Deputy Minister *T M Le Pelley* *A Spruce* *J Kuttelwascher*

Appendix 1

GLOSSARY OF TERMS

Advanced Thermal Treatment (ATT)	Waste management processes involving medium and high temperatures to recover energy from the waste. Primarily pyrolysis and gasification based processes. For further information see Appendix 11.
Alternate Weekly Collections (AWC)	The collection of residual waste for treatment or disposal on a fortnightly basis, alternating with dry recycling collections on the intervening weeks. This is usually combined with weekly collections for food/organic waste.
Anaerobic Digestion (AD)	Anaerobic digestion (AD) is a biochemical process in which particular kinds of bacteria digest organic matter in an oxygen-free environment. This produces a "biogas" which can be used to create heat and electrical energy. It is generally used for the treatment of segregated organics like food waste, farm slurries, or sewage sludge. For further information see Appendix 11.
Autoclave	Autoclaving involves the high-pressure sterilisation of waste by steam to destroys any bacteria in it. This process is widely used to treat clinical waste, but is increasingly being proposed as a treatment for municipal waste. For further information see Appendix 11.
Best Practicable Environmental Option (BPEO)	The outcome of a systematic and consultative decision-making process which emphasises the protection and conservation of the environment across land, air and water. The BPEO procedure establishes, for a given set of objectives, the option that provides the most benefits or the least damage to the environment as a whole, at acceptable cost, in the long-term as well as the short-term. (As defined in the RCEP 12th Report, *Best Practicable Environmental Option*, Cm 310, HMSO, February 1988.)
Bring Banks/Bring Systems	Bring Bank systems require the waste producer to carry recyclates (bottles, plastic, cardboard etc) to either an installed or mobile collection station or the reprocessing plant itself. They are the easiest type of collection to establish, but can suffer from low and unpredictable participation and throughput.

Civic Amenity (CA) Site	A civic amenity site (CA site) or household waste recycling centre (HWRC) is a facility where the public can deposit household waste and recyclables. Civic amenity sites are run by the local Government in a given area. Collection points for recyclable waste such as green waste, metals, glass and other waste types are available.
Clinical Waste	(a) any waste which consists wholly or partly of human or animal tissue, blood or other body fluids, excretions, drugs or other pharmaceutical products, swabs or dressings, or syringes, needles or other sharp instruments, being waste which unless rendered safe may prove hazardous to any person coming into contact with it, and (b) any other waste arising from medical, nursing, dental, veterinary, pharmaceutical or similar practice, investigation, treatment, care, teaching or research, or the collection of blood for transfusion, being waste which may cause infection to any person coming into contact with it,
Commercial/ Industrial Waste (C&I Waste)	For the purposes of this report commercial and industrial (C&I) waste is controlled waste arising from the business sector. Industrial waste is waste generated by factories and industrial plants. Commercial waste is waste arising from the activities of wholesalers, catering establishments, shops and offices. Further categories of waste arising from industrial and commercial activities include hazardous waste (small in quantity but requiring special treatment) and commercial and demolition waste.
Controlled Waste	Controlled waste falls under a 'Duty of Care' in which the owner of the waste must make sure that it is produced, imported, carried, kept, treated and disposed of safely. Duty of care recognises that waste if not properly managed poses a threat to the environment and human health. Companies and individuals dealing with controlled waste must keep specific records to satisfy the regulations. Householders are included and must also make sure that their waste is only passed to authorised people such as the local council or licensed waste operators. Controlled waste includes household, industrial and commercial waste.
Disposal	The management of solid waste to prevent harm to the environment, injury or long term progressive damage to health. Disposal of waste is where the intention is to permanently store or treat the solid waste for the duration of its biological and chemical activity, such that it is rendered harmless.

Dry Recycling	Dry Recycling includes materials sent to processors for recycling and reuse; these materials include paper, cans, plastic, cardboard, green waste, and textiles.
Energy from Waste (EfW)	In an EfW facility, household and commercial waste is subjected to heat treatment and energy is recovered. A typical EfW facility consists of a waste reception and feeding system, a furnace (incinerator), a boiler, an energy recovery system, flue gas treatment system and a stack. Alternatively waste is thermally treated to extract gas which can then be used in engines to generate electricity (e.g. Gasification and/or Pyrolysis). The outputs from an EfW facility are electricity, bottom ash/residues, metals for recycling, and air pollution control residues. EfW plants are commonplace and are being built throughout the world.
Fragmentiser Waste	The process of metal recycling, no matter how effective, results in a residue from the shredder process called fragmentiser waste or automotive shredder residue (ASR). Fragmentiser waste has traditionally been disposed of to landfill.
Green Waste	Waste vegetation and plant matter from household gardens, local authority parks and gardens, horticulture, and commercial landscaped gardens.
Hazardous/Special Waste	For the purposes of this report hazardous/special waste is defined as waste which has properties that may make it harmful to human health and/or the environment, or has properties requiring specific disposal methods and cannot therefore be considered alongside other residual waste. This includes specially controlled wastes as defined by the 2004 Law as follows: ***37.*** *(1) The States may by Ordinance identify any description of waste as so dangerous or difficult to dispose of that special measures need to be taken in respect of it ("**specially controlled waste**").* Regulation 2 of the Waste Control and Disposal (Specially Controlled Waste) Regulations, 2010 sets out which waste are specially controlled wastes.

Inert Waste	Inert Waste means waste which: a) does not undergo any significant physical, chemical or biological transformations, b) does not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution, and c) has insignificant total leachability and pollutant content and ecotoxicity of its leachate are insignificant and, in particular, does not endanger the quality of any water.
In-Vessel Composting (IVC)	Method in which organic material is composted aerobically in a controlled environment in a contained area. For further information see Appendix 11.
Kerbside Recycling	Where people sort out their recyclable waste at home, either into a box, bag or separate bin, and this is then collected in a similar way to an ordinary waste collection.
Landfill	A waste disposal site used for the deposit of waste into of under land.
Life Cycle Analysis	A life-cycle analysis assesses environmental impacts associated with all the stages of a product's life from-cradle-to-grave (i.e., from raw material extraction through materials processing, manufacture, distribution, use, repair and maintenance, and disposal or recycling).
Materials Recovery Facility (MRF)	Dedicated facility for the sorting waste and recovering recyclable materials. A 'Wet MRF' will accept 'black bag waste' and mechanically sort the contents, whilst a 'Dry MRF' will accept mixed waste with organic waste excluded, which is typically delivered in skips/lorries. For further information see Appendix 11.
Mechanical Biological Treatment (MBT)	A generic term for mechanical sorting / separation technologies used in conjunction with biological treatment processes, such as composting. For further information see Appendix 11.
Mechanical Heat Treatment (MHT)	Mechanical Heat Treatment facilities typically employ an 'Autoclave' type of treatment system (see above). The output from an MHT plant will be metal and sanitised waste split into a biodegradable fraction and a high calorific fraction for thermal treatment. For further information see Appendix 11.

Municipal Solid Waste (MSW)	Household waste and any other wastes collected by the Waste Collection Authority, or its agents, such as municipal parks and gardens waste, beach cleansing waste, commercial or industrial waste, and waste resulting from the clearance of fly-tipped materials.
Normalised Scoring	Normalisation is a relatively simple mathematical process whereby a set of numbers are scaled so that the lowest becomes zero and the highest becomes one, with the rest falling proportionally between these two extremes.
Organic Waste	Waste containing carbon compounds; derived from animal and plant materials.
PAS100	The British Composting Association worked to establish an industry standard for composts, the BSI PAS 100 certified by the British Standards Institution. The specification covers the entire process; from raw materials and production methods, through quality control and lab testing ensuring certified composts are quality assured, traceable, safe, and reliable. A similar standard, PAS110, is applied to outputs from Anaerobic Digestion processes.
Putrescible Waste	The component of the waste stream liable to become putrid. For example: organic matter that has the potential to decompose with the formation of malodorous substances. It usually refers to vegetative, food and animal waste products.
R1 Efficiency Rating	The RI energy efficiency formula is calculated in accordance with the EU Waste Framework Directive to determine whether or not a thermal treatment system can be classified as a 'recovery' operation, as opposed to disposal. In this context 'recovery' covers any operation where the principal result is waste serving a useful purpose by replacing other materials or fuels.
Refuse Derived Fuel (RDF)	A fuel produced from combustible waste that can be stored and transported, or used directly on site to produce heat and/or power.
Residual Waste	Residual waste refers to the material that remains after the process of waste treatment has taken place. It can also be applied in a more domestic sense, referring to the household rubbish not able to be recycled, re-used or composted.

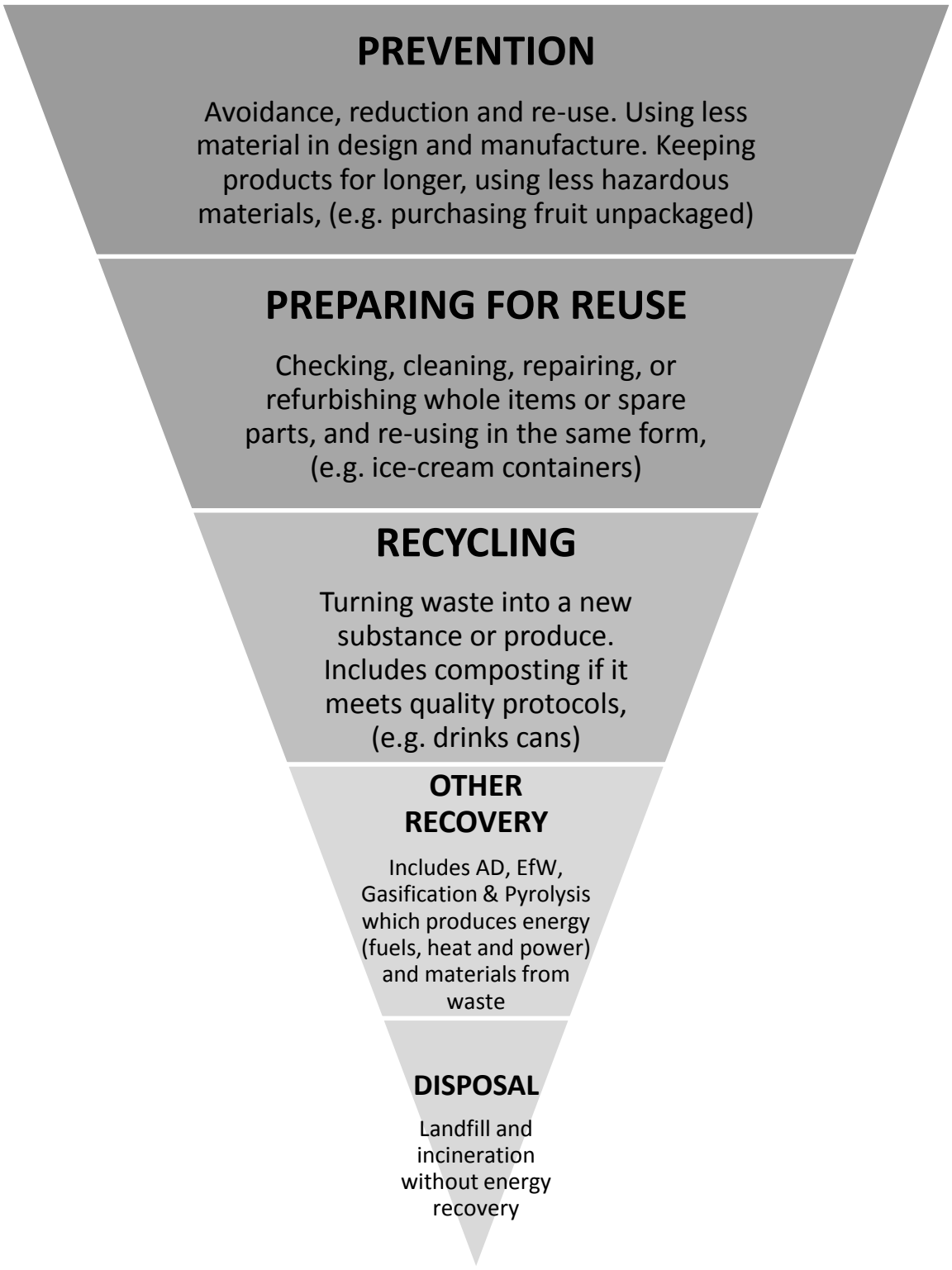
Recycling Rates	Recycling Rates are calculated to express the percentage of waste material that is reused, recycled or recovered prior to treatment and/or disposal. Household recycling rates are calculated in line with UK Local Government National Indicator guidance note NI192. Maximised Recycling refers to the introduction of all reasonable and practical measures to ensure the majority of reusable and recyclable materials are removed from the waste stream prior to treatment. A recycling rate of approximately 70% is assumed to be achievable. High Recycling refers to the introduction of some but not all practical measures to ensure an increase in participation and capture of recyclable materials. This would typically involve kerbside collections of dry recyclables, but not food waste. A recycling rate of approximately 60% is assumed to be achievable. Enhanced (or Medium) Recycling refers to achieving higher than current recycling rates through improvements in the current system combined with awareness raising and promotional activities to increase capture and participation. A recycling rate of approximately 50% is assumed to be achievable.
Sensitivity Analysis	A technique used to determine how different values of an independent variable will impact a particular dependent variable under a given set of assumptions. This technique is used within specific boundaries that will depend on one or more input variables.
Sustainable Waste Management	The contribution to promoting sustainable management of waste, taking into consideration prevention, reuse, recycling, recovery, and minimising the disposal of any residual waste.
Waste Arisings	Waste arisings refers to the sum of all waste produced by the community as measured at the earliest point of generation, i.e. the total quantity that will then be subject to separation, recycling, treatment and disposal.
Waste Composition	Information relating to the different types of materials within waste that can be used to determine appropriate techniques for managing that waste. Composition data is gathered by a number of techniques, ranging from visual inspection to detailed laboratory analysis.

Waste Disposal Authority (WDA)	The Department of the States designated as such. The Public Services Department is currently designated as the WDA. The WDA has various duties in relation operation and management of the public waste management system in Guernsey.
Waste Hierarchy	The Waste Hierarchy is an internationally accepted principle. The aim is to extract maximum practical benefit from the products we buy and use. Waste prevention is top of the list, and disposal the least preferred option. See Appendix 2.
Waste Minimisation	Measures and/or techniques that reduce the amount of wastes generated during any domestic, commercial and industrial process. Waste minimisation encompasses measures for the prevention, reduction and reuse of waste, the uppermost activities of the Waste Hierarchy
Waste Prevention	'Waste Prevention' means measures taken before a substance, material or product has become waste that reduces: a) The quantity of waste, including through the reuse of products or the extension of the lifespan of products b) The adverse impacts of the generated waste on the environment and human health, or c) The content of harmful substances in materials and products (qualitative waste prevention).
Waste Electrical and Electronic Equipment (WEEE)	The WEEE (Waste Electronic and Electrical Equipment) Directive is an EU-wide legislation that obliges electronic and electrical product manufacturers to assume responsibility for their e-waste. The UK adopted it in July 2007.
Windrow Composting	Windrowing is the production of compost by piling organic matter in long rows (windrows), which are turned regularly to improve porosity and oxygen content once the required temperature is achieved (typically 65˚C). This method is currently used to process both household and commercial green waste, producing a soil conditioner which can be applied to the land. It is not suitable for food waste.

WRATE	WRATE (Waste and Resources Assessment Tool for the Environment) software compares the environmental impacts of different municipal waste management systems. WRATE uses life cycle assessment to evaluate the resources used, waste transportation, and the operation of a whole range of waste management processes to calculate their environmental costs and benefits. WRATE is the recommended life cycle tool for informing decisions on the carbon footprint of waste options and for estimating the global warming emissions associated with local waste strategies.

Appendix 2

THE WASTE HIERARCHY



Appendix 3

GUERNSEY WASTE STRATEGY PUBLIC CONSULTATION PROCESS

GUERNSEY BPEO PROCESS 13-STEP PROCESS
1. Define Objectives Workshop 1
2. Identify Evaluation Criteria Workshop 1
3. Develop Initial Scenarios Workshop 2
4. Identify Constraints Workshop 2
5. Test Initial Scenarios Project Team Work
6. Share Intial Test Results Workshop 3a
7. Identify Evaluation Criteria Weighting Workshop 3b
8. Apply Constraints Project Team Work
9. Test Final Scenarios Project Team Work
10. Developing Final Scenarios Project Team Work
11. Apply Sensitivity Analysis Project Team Work
12. Create Shortlisted Scenarios Project Team Work
13. Idenfity Best Scenario(s) Workshop 4

ORIGINAL BPEO PROCESS 10-STEP PROCESS
1. Define Objectives Project Team Work
2. Identify Decision Criteria Workshop 1
3. Develop Options Workshop 2
4. Apply Constraints Workshop 2
5. Evaluate Options Workshop 3
6. Weight Decision Criteria Workshop 4
7. Generate Final Option Scores Project Team Work
8. Sensitivity Analysis Project Team Work
9. Create Shortlist/Iterate Project Team Work
10. Identify BPEO Workshop 5

Appendix 4

CRITERIA USED IN ASSESSING DIFFERENT OPTIONS AND THE ASSOCIATED WEIGHTINGS

EVALUATION CRITERIA	WEIGHTING
Air, Land and Aquatic Environment *Consideration for the effects on the environment as a result of waste management activities, including pollution to air, soil, and water (including coastal waters).*	**5.8**
Global Climate Change *The broader impacts on the wider environment, and in particular the net increase or reduction of greenhouse gases such as Carbon Dioxide and Methane.*	**2.3**
Natural Environment *Impacts on the natural heritage of the Island, and any visual impacts on the Island's landscape.*	**3.8**
Human Environment *Impacts on the enjoyment of our Island and cultural heritage from noise, dust, odour, etc. and on the urban and rural character, including consideration for building design (bin space, gardens for composting, street collection spaces, etc.)*	**4.3**
Transport *The local impact of transport, resulting from the movement of waste and recyclates, from collection to delivery at the treatment facility, or port in the case of export.*	**1.3**
Sustainable Waste Management *The contribution to promoting sustainable management of waste, taking into consideration prevention, reuse, recycling, recovery, and minimising the disposal of any residual waste.*	**9.9**
Water Resources *Consideration for any impacts on water resources and supply.*	**3.1**
Costs and Finance/Affordability *What will be the overall cost of a waste management facility, and how will this affect islanders and businesses? What are the funding options available to implement and operate it and is this affordable?*	**7.7**
Making Producers Responsible *Encouraging waste producers (householders, businesses, and government) to take responsibility for their own waste, including imports into the Island.*	**5.6**
Securing Public Acceptability and Commitment *Which option or options best meets with the approval of the public, with commitment to act on both a personal and corporate level.*	**4.1**
Practical Deliverability *Would an option or options work in practice under identifiable constraints, and with the flexibility to deal with variations in waste. Does it make the best use of existing facilities and expertise?*	**6.8**
Technical Feasibility *Are the elements of the waste strategy appropriately tried, tested, and reliable. Is the treatment technology appropriate for the volume of residual waste? Are there established markets for the outputs (e.g. recyclates, residues, energy, digestate, etc?)*	**5.5**

Appendix 5

INDEPENDENT CONSULTATION REVIEW PANEL MEMBERS

Chair: **Andrew Ozanne**

Other Members:

Representative	Organisation	Sector
Deputy Peter Gillson	States of Deliberation	Political Representative
Andrew Courtney	Guernsey Douzaine Council	Parish Representative
Alex Fuller	G-CAN	Environmental
Louise Hall	Chamber of Commerce Council	Business and Industry
Jeremy Rihoy	Construction Industry Forum	Construction
Russ Fossey	Chamber of Commerce (retail)	Retail

Appendix 6

INDEPENDENT CONSULTATION REVIEW – FINAL REPORT

C/O
Sir Charles Frossard House
La Charroterie
St Peter Port
Guernsey
GY1 1FH

Consultation Review Panel

Deputy S Ogier
Deputy Minister - Public Services Department
Sir Charles Frossard House
La Charroterie
St Peter Port
GY1 1FH

13th September 2011

Dear Deputy Ogier

Waste Strategy Consultation Process: Report of the Review Panel

The Consultation Review Panel (the Panel), on whose behalf I am writing, was established to oversee the Public Services Department's (PSD) public consultation process on the waste strategy.

The Panel is composed of representatives of several organisations and a copy of its mandate and membership is attached as an appendix to this letter.

The Panel's inaugural meeting took place on 2nd September 2010 and the Panel has continued to meet throughout the consultation process. Formal feedback has been submitted to the Board after each of stages 1-3. The last meeting was held on 19th July 2011, when the Panel met to consider both the final workshop (Workshop 4) and the consultation process as a whole. A final query identified was communicated to the Department and I thank you for your prompt response in this regard, which has enabled the Panel to complete its deliberations.

The following represents the consensus view of the Panel:

Workshop 4

The Panel considers that:

- This workshop functioned satisfactorily both as a workshop in its own right and as the culmination of the consultation process.
- The workshop addressed a number of key issues that had been raised at Workshop 3.
- The format and facilitation was consistent with earlier events.
- The Workshop yielded an output that could inform the Department's waste strategy development process.

The Consultation Process Overall

The Panel considers that:

- Undertaking such an innovative, widespread and inclusive consultation exercise has been a challenge and required there to be a balance between the need to move quickly and effectively whilst ensuring that stakeholders and the public could engage adequately with the process.

- We can report that those delivering the workshops and drop-ins have acted in a professional and courteous manner throughout.

- The PSD Waste Team responded to comments, observations and criticisms in an appropriate manner and the Panel was satisfied that both response time and content were appropriate.

- It is clear from the results of the Workshops (and a survey undertaken by Island Analysis, on the instructions of the PSD, and reported at Workshop 4) that high recycling was favoured highly by the participants in the consultation process (and the respondents to the survey). Given that the Panel's mandate requires it (inter alia) to consider outputs from all communication activities, to provide feedback to the PSD on the effectiveness of communications and to report any potential pitfalls identified within the consultation process, the Panel members consider it appropriate to note that costs involved in the recycling process were not explicitly explained to participants at the workshops. The Panel does not know whether such costs were explained to participants in the Island Analysis survey.

- The process:
    - Has achieved engagement with the public (both stakeholders representing a wide range of community organisations, and the general public at drop-ins).
    - Has achieved an increase in public understanding of the waste topic and the broad range of complicated issues involved.
    - Has produced a considered output and has, throughout, enabled the community's views to be reflected in the development of a revised waste strategy.
    - Reached the intended 'end destination'.

In summary, the Panel considers that the consultation process has been effective and its objectives have been met.

It should be appreciated that the views set out above have been formed and provided in advance of the publication of the Department's Billet on the waste strategy and thus the Panel reserves the right to re-convene/comment at a later date should anything that is considered to be material arise, up until such time as the matter is debated by the States.

Yours sincerely

Andrew Ozanne (Chair)
On behalf of the Consultation Review Panel

Encs.

Consultation Review Panel

Mandate

To act as a Review Panel to work with the Public Services Department in scrutinising the consultation process for developing a revised waste strategy for Guernsey. In so doing, the Review Panel will:

1. Consider outputs from all communication activities and provide feedback to the Public Services Department on the effectiveness of the communications;
2. Identify where necessary short-term initiatives that will improve the consultation process;
3. Report to the Public Services Department any potential pitfalls or conflicts identified within the consultation process.

The role of the Review Panel is not to comment on or formulate a waste strategy and all comment and feedback must be related to the consultation process rather than the waste strategy itself.

If consensus cannot be achieved on any issue each member will have one vote, with the chairman holding the casting vote.

Membership

Chair: Andrew Ozanne

Other Members:

Sector	Organisation	Representative
Political Representative	States of Deliberation	Deputy Peter Gillson
Parish Representative	Guernsey Douzaine Council	Andrew Courtney
Environmental	G-CAN	Alex Fuller
Business and Industry	Chamber of Commerce Council	Louise Hall
Construction	Construction Industry Forum	Jeremy Rihoy
Retail	Chamber of Commerce (Retail)	Russ Fossey

Appendix 7

Revised Waste Strategy

WASTE ARISINGS, COMPOSITION, AND GROWTH – SUMMARY

Contents:

1.0 Introduction

2.0 Review of Waste Arisings

2.1 Guernsey's Principal Waste Streams

2.2 Waste Generation Trends

3.0 Waste Composition Data

4.0 Waste Growth Trends

1. Introduction

This summary provides information on waste arisings, recycling tonnages, and the composition of residual waste, based on information provided in a report by SLR Consulting Ltd (SLR) titled 'Technical Appraisal of Options'. This report was commissioned by the Public Services Department as part of a technical review of options for future waste management, and covers a number of subject areas essential to the identification of a suitable and sustainable waste strategy for the Island.

This summary focuses on the following areas:

- Review of Waste Arisings
- Waste Composition Data
- Waste Growth Trends

This information has subsequently been used in the development of various options for the future management of the Island's waste.

Copies of the full technical reports are available through the Public Services Department's website (**www.gov.gg/waste-strategy**) and have been lodged with the Greffe. Please note all tables within this summary are subject to roundings.

2. Review of Waste Arisings

2.1 Guernsey's Principal Waste Streams

Guernsey produces in the region of 200,000 tonnes of waste per year. Excluding construction and demolition, clinical, and animal wastes - which are dealt with separately – the total 'controlled waste' from household and commercial & industrial sources is approximately 74,000 tonnes a year, based on 2010 figures.

Table 2.1 Summary of 2010 Waste Arising Figures

	Household	Commercial/ Industrial	Total
Inert Waste		127,202	127,202
Inert Recycling		25,427	25,427
Inert Sub-Total			**152,629**
Residual Waste	14,329	27,874	42,203
Recycling	12,122	19,829	31,951
Sub-Total			**74,154**
Total Waste	**26,451**	**200,332**	**226,783**

Approximately 64% of controlled waste arisings are classed as 'commercial & industrial' and the remaining 36% comprises household waste. Figures 2.1 and 2.2 below show a breakdown of the residual and recycled components of both waste streams. The 17% of waste in Figure 2.2 shown as 'residual waste (other)' relates predominantly to wood waste that was until recently being openly burnt.

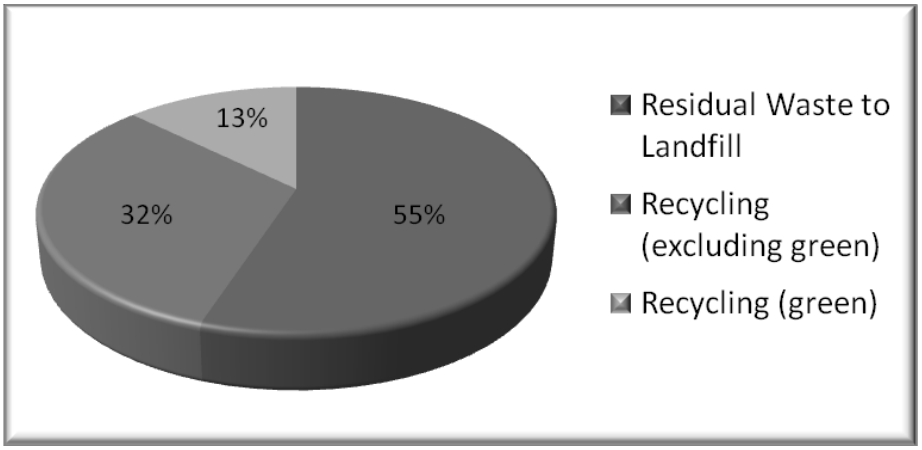


Figure 2.1: Household Waste Arisings by Destination (2010)

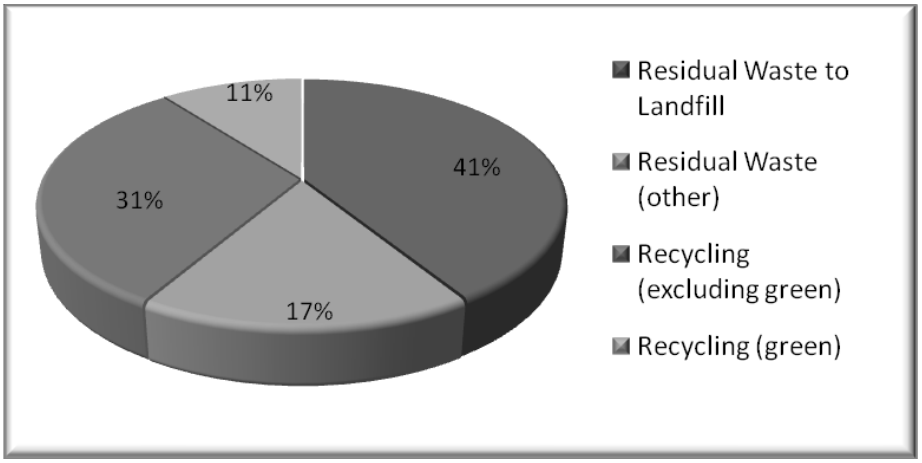


Figure 2.2: Commercial and Industrial Waste Arisings by Destination (2010)

2.2 Waste Generation Trends

Table 2.2 shows the last five years' household waste arisings and the last three years' commercial & industrial waste arisings.

Household and commercial residual waste is currently disposed of via landfill. Household waste includes parish waste, litter, Civic Amenity (CA) site waste, etc. Total commercial/industrial residual waste includes gross clinical and abattoir waste, wood waste, which has in recent years been diverted from landfill, and a small amount of hazardous waste.

Landfilled waste for 2010 is recorded as 35,028 tonnes, including Alderney waste (775.92 tonnes), incinerator ash (119 tonnes) and other minor quantities of special/hazardous waste.

Table 2.2 Guernsey Waste Arisings Data 2006-2010

	2006	2007	2008	2009	2010
Household Waste Arisings					
Residual Waste to Landfill	17,315	16,346	15,455	15,264	14,329
Recycling (excluding green waste)	6,295	7,405	7,237	7,337	8,411
Recycling (green waste)			1,259	1,437	3,711
Total Household Waste Arisings	23,609	23,751	23,951	24,038	26,451
Commercial & Industrial Waste Arisings					
Residual Waste to Landfill			20,196	19,414	19,642
Residual Waste (other)			8,583	8,710	8,232
Recycling (excluding green waste)			15,266	12,794	14,335
Recycling (green)			5,141	5,298	5,494
Total Commercial Waste Arisings			49,186	46,216	47,703
Total Waste Arisings			**73,137**	**70,254**	**74,154**

Note: Residual Waste (other) refers to clinical and abattoir waste, and wood that has previously been segregated. Alderney waste has been excluded from household waste totals.

While the overall waste figures do not show a consistent decrease in total waste arisings there has been a noticeable decrease in the household waste arisings to landfill, and a corresponding increase in household waste recycled. There has also been a considerable increase in the household green waste recorded following improvements in its collection and processing, and the increase in total waste arisings experienced in 2010 can largely be attributed to this.

Comprehensive commercial waste and recycling statistics for Guernsey have only been available since 2008, and are reliant on confidential data being supplied by local businesses involved in waste disposal and recycling.

Figures released by Defra in the UK in November 2010 indicate a decline in the amount of household waste generated across the UK, with a 2.7% decrease from 2008/09 to 2009/10. The average annual change in total household waste over the last five years is a decrease of 1.6%[6]. The generation of household waste continued to decrease between the 2009/10 financial year and the year January 2010 to December 2010, with a 2.1% reduction[7].

In addition to the above waste figures there is an estimated 17,000 tonnes of animal waste which is dealt with by the agricultural industry. It is anticipated that the current

[6] Municipal Waste Management Statistics for England 2009/10, Defra, November 2010.

[7] Local Authority collected waste for England - Quarterly Statistics, Defra, August 2011.

methods for dealing with animal waste will continue in the future, and this waste stream is not considered further within this waste strategy.

3. Waste Composition Data

It is important to understand the composition of waste to evaluate the most appropriate method for managing it. A detailed analysis of household waste in Guernsey was carried out in 2008. A summary of the composition of residual household waste by primary category is shown in Table 3.1.

Table 3.1 Summary Residual Household Waste Composition

Category	Composition
Paper/Cardboard	17%
Non-Recyclable Paper	1%
Dense Plastic	7%
Plastic Film	6%
Textiles	3%
Misc. Combustible	12%
Misc. Non-Combustible	1%
Glass	4%
Ferrous Metal*	3%
Non-Ferrous Metal	1%
Kitchen Organics	36%
Garden Organics	1%
WEEE	1%
Potentially Hazardous	0%
Fines	5%
Total	**100%**

Note: This is based on parish waste composition, excluding other household waste (Bulk Refuse, CA Site waste, etc.).

Compositional analysis of municipal commercial waste was carried out early in 2011. The results of this analysis were combined with data derived from the visual waste audit carried out at Mont Cuet in 2008, which assessed skip waste, residual builders' waste and other direct deliveries to Mont Cuet. This provides an overall composition of residual commercial and industrial waste, as shown in Table 3.2.

Table 3.2 Summary Residual Commercial and Industrial Waste Composition

Category	Composition
Paper/Cardboard	14%
Non-Recyclable Paper	8%
Dense Plastic	10%
Plastic Film	5%
Textiles	4%
Misc. Combustible	23%
Misc. Non-Combustible	11%
Glass	2%
Ferrous Metal*	4%
Non-Ferrous Metal	2%
Kitchen Organics	13%
Garden Organics	1%
WEEE	1%
Potentially Hazardous	0%
Fines	1%
Total	**100%**

Categorising the tonnages of household and commercial waste gives an indication of where there are further opportunities for reuse and recycling. Table 3.3 provides an estimated breakdown of the composition of household waste into various material types, based on household waste composition analysis carried out in 2008.

Table 3.3 2010 Household Waste Composition including Recycling Tonnages

Household Waste Category	Residual (Tonnes)	Recycling (Tonnes)	Total (Tonnes)
Paper/Cardboard	2,208	4,233	6,441
Non-Recyclable Paper	151	0	151
Dense Plastic	1,117	245	1,361
Plastic Film	827	0	827
Textiles	607	485	1,091
Misc. Combustible	2,136	0	2,136
Misc. Non-Combustible	193	0	193
Glass	596	1,850	2,446
Ferrous Metal	412	1,593*	2,005
Non-Ferrous Metal	184	0	184
Kitchen Organics	4,850	0	4,850
Garden Organics	184	3,711	3,895
WEEE	123	6	129
Potentially Hazardous	40	0	40
Fines	701	0	701
Total (Tonnes)	**14,329**	**12,122**	**26,451**
Percentage (%)	**54.2**	**45.8**	

* Recycling Total for Ferrous Metals includes Non-Ferrous Metals, and some WEEE

Commercial and industrial (C&I) residual waste tonnages are summarised in Table 3.4, based on weighbridge figures for 2010. This table excludes inert waste which is used to reclaim land at Longue Hougue. Based on current filling rates, this site is calculated to have a further 10 years' capacity.

Future inert waste disposal will be reliant on further land reclamation projects; however that is outside the scope of this report.

From the table below, Special/Hazardous waste will continue to be dealt with in the current manner via landfill unless otherwise indicated. Bottom ash from the incineration of clinical wastes and abattoir waste will also be landfilled, as is current practice.

Based on the figures provided in Table 3.4, the amount of commercial residual waste that is available for further reduction through waste minimisation, recycling, and treatment is restricted to mixed commercial and industrial waste, builders waste, and fragmentiser waste (shredder residues resulting from scrap metal processing), totalling 18,315 tonnes. In addition to this there is wood waste which is currently segregated within the commercial sector.

Table 3.4 Summary of Commercial Waste Arisings, excluding Inert Waste.

Commercial Waste Category	Sub-Category	Tonnage
Mixed C&I Waste		15,606
Builders Waste		1,288
Fragmentiser Waste		1,420
Sub-Total		**18,315**
Wood (diverted from landfill)		7,237
Special/Hazardous Waste	Sewage & gully sludges	918
	Asbestos	405
	Chemicals	6
	Healthcare waste (incineration)	644
	Animals	0
	Abattoir waste (incineration)	348
	Contaminated soil	0.2
	Chemicals (non-landfill)	3
Dry Recyclables		14,335
Green Waste		5,494
Total		**47,703**

Commercial waste can be categorised in a similar way to household waste to provide an indication of where further opportunities for reuse and recycling can be identified.

Table 3.5 Commercial waste composition, excluding fragmentiser waste and segregated wood (2010)

Commercial Waste Category	Commercial Municipal (Tonnes)	Commercial Residual (Tonnes)	Builders Waste (Tonnes)	Recycling (Tonnes)	Total (Tonnes)
Paper/Cardboard	1749	490	87	4,153	6479
Non-Recyclable Paper	1129	0	1	0	1130
Dense Plastic	883	1160	205	441	2689
Plastic Film	496	248	44	0[8]	788
Textiles	46	630	111	0	787
Misc. Combustible	747	2525	418	1,905	5595
Misc. Non-Combustible	139	710	126	0	975
Glass	232	128	23	121	504
Ferrous Metal*	205	669	118	7,072	8064
Non-Ferrous Metal	98	0	0	9[9]	107
Kitchen Organics	1986	0	0	0	1986
Garden Organics	112	0	0	5,494	5606
WEEE	142	0	0	627	769
Potentially Hazardous	18	0	0	0	18
Fines	184	880	156	0	1220
Total	**8166**	**7440**	**1288**	**19,827**	**36717**

Until recently the majority of wood waste was segregated by commercial operators and openly burnt. Following the introduction of environmental pollution legislation this practice has largely ceased; however there has not been a significant increase in the volume of wood being landfilled. The management of wood waste in an economic and environmentally sustainable manner presents a major challenge. Assumed tonnages for segregated waste wood are calculated at approximately, 7000[10] tonnes.

Table 3.6 provides a combined summary of the composition of both household and commercial waste, based on waste composition analysis carried out in 2008 and 2011, and using weighbridge figures for 2010.

[8] Included in Dense Plastic total
[9] Some non-ferrous metal is included in the ferrous metal total, as figures are not supplied separately for some sources.
[10] Total wood waste is estimated at 9,000 tonnes including 7,237 tonnes segregated by commercial operations, with the remaining landfilled in mixed loads from household and commercial sources.

Table 3.6 Composition of both Household and Commercial Waste in 2010*

Waste Category	Household Residual Waste (Tonnes)	Household Recycling (Tonnes)	Commercial / Industrial Residual Waste (Tonnes)	Commercial Recycling (Tonnes)	Total (Tonnes)
Paper/ Cardboard[1]	2,208	4,233	2,326	4,153	12,920
Non-Recyclable Paper	151	0	1,130	0	1,281
Dense Plastic	1,117	245	2,248	441	4,051
Plastic Film[2]	827	0	788	0	1,615
Textiles	607	485	787	0	1,879
Misc. Combustible	2,136	0	3,690	1,906	7,732
Misc. Non-Combustible	193	0	975	0	1,168
Glass	596	1,850	383	121	2,950
Ferrous Metal[3]	412	1,593	992	7,072	10,069
Non-Ferrous Metal	184	0	98	9	291
Kitchen Organics	4,850	0	1,986	0	6,836
Garden Organics	184	3,711	112	5,494	9,501
WEEE[4]	123	6	142	627	898
Potentially Hazardous	40	0	18	6	64
Fines (particles less than 10mm)	701	0	1,220	0	1,921
Fragmentiser Waste			1,420		1,420
Sub-Total	**14,329**	**12,123**	**18,315**	**19,829**	**64,596**
Wood (diverted from landfill)			7,237		7,237
Special/Hazardous Waste	Sewage & gully sludges		918		918
	Asbestos		405		405
	Chemicals		6		6
	Clinical waste (incineration)		644		644
	Animals		0		0
	Abattoir waste (incineration)		348		348
	Contaminated soil		0.2		0.2
Total	**14,329**	**12,123**	**27,873**	**19,829**	**74,154**

1 Includes Paper, Cardboard and Beverage Cartons, as a combined tonnage
2 Recycled Plastic Film Included in Dense Plastic Total
3 Recycling Total for Ferrous Metals includes Non-Ferrous Metals, and some WEEE
4 WEEE – The Waste Electrical and Electronic Equipment Directive
* Please note roundings have been applied which may affect some totals in the above table.

From Table 3.6, Special/Hazardous waste will continue to be dealt with in the current manner via landfill unless otherwise indicated. Bottom ash from the incineration of clinical wastes and abattoir waste will also be landfilled, as is current practice. This amounts to a continued input to Mont Cuet of approximately 1,500 tonnes per annum in total.

The figures on waste arisings and composition provided above are based on the best information available to the Department at the time of writing. Despite a high level of confidence in these figures they should only be viewed as a guide when being applied to future recycling and waste management initiatives.

4. Waste Growth Trends

In recent years waste projections using forecasted growth rates have constantly been modified on the basis of more up to date information. Historically, annual waste growth rates in the UK have typically been assumed to range between 1% and 3%. However, recent trends in the UK show that household waste arisings have been declining in recent years, as indicated above. Residual commercial waste has however remained relatively constant. Similar trends have been experienced in Guernsey.

In the absence of a clear waste growth (or decline) trend in Guernsey, and to avoid over inflating the predicted waste arisings, constant waste production per person is assumed (i.e. zero growth).

The waste growth model prepared as part of this options assessment process uses the existing waste data as a baseline and any growth (or decline) is then projected in direct correlation to population forecasts provided by the States of Guernsey.

The expected residual waste capacity requirement over the next 25 years is estimated at 42,550 tonnes (including wood waste which is currently segregated), if the Island remains at current recycling and composting rates.

Appendix 8

WASTE MINIMISATION PLAN

PUBLIC SERVICES
A STATES OF GUERNSEY GOVERNMENT DEPARTMENT

Revised Waste Strategy

Waste Minimisation Plan

Waste Minimisation Plan

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Waste Minimisation Plan

1.0 Introduction

The objectives of the revised waste strategy proposed by the Waste Disposal Authority following stakeholder consultation are:

- To endorse and implement the principles of the Waste Hierarchy, which focuses on waste minimisation;
- To develop an environmentally, economically and socially sustainable waste strategy that is practicable and adaptable to meet Guernsey's needs currently and in the foreseeable future;
- To consider all waste streams and identify and adopt the most appropriate methods to manage them in accordance with the Waste Hierarchy.

Waste minimisation encompasses measures for the prevention, reduction and reuse of waste, the uppermost activities of the Waste Hierarchy, and is therefore at the forefront of the waste strategy with the aim of reducing the amount of materials requiring recycling and the residual waste requiring treatment and/or disposal.

With the appropriate allocation of resources, some waste minimisation initiatives can be implemented in advance of the recycling, treatment and disposal measures that will also form part of the Island's waste strategy. Several waste minimisation measures have already been introduced in Guernsey; however there is potential to significantly improve on existing services and to introduce new initiatives.

There are a number of measures that can be used for targeting household waste which are explained in detail below; however many of these principles can also be applied to the commercial sector. Towards the end of this report further opportunities for reducing commercial waste are explored, particularly within the construction industry.

Many of the measures that can be employed to minimise waste require changes in an individual or business's behaviour. As a result communication through promotions and education is key to the successful implementation of the initiatives detailed in this report.

Incentives such as cost savings may be required to encourage householders and businesses to change their behaviour, and changes to legislation may also be considered to enable targets to be met.

This report provides information on waste minimisation measures to be introduced as part of the waste strategy. It also highlights measures that could be implemented whilst work is continuing on implementing other aspects of the waste strategy, assuming appropriate funding and additional staff resources.

2.0 Definitions

The European Environment Agency defines 'Waste Minimisation' as:

> *'Measures and/or techniques that reduce the amount of wastes generated during any domestic, commercial and industrial process.'*

Waste minimisation encompasses measures for the prevention, reduction and reuse of waste, the uppermost activities of the Waste Hierarchy, which is defined in Article 4 of the European Waste Framework Directive[11].

This Directive does not apply in Guernsey but the Public Services Department has considered it in determining which waste disposal options are best practical options in a Guernsey context. The following are extracts from the Directive.

Article 4
Waste hierarchy

1. The following waste hierarchy shall apply as a priority order in waste prevention and management legislation and policy:

   (a) prevention;

   (b) preparing for re-use;

   (c) recycling;

   (d) other recovery, e.g. energy recovery; and

   (e) disposal.

2. When applying the waste hierarchy referred to in paragraph 1, Member States shall take measures to encourage the options that deliver the best overall environmental outcome. This may require specific waste streams departing from the hierarchy where this is justified by life-cycle thinking on the overall impacts of the generation and management of such waste.

   Member States shall ensure that the development of waste legislation and policy is a fully transparent process, observing existing national rules about the consultation and involvement of citizens and stakeholders. Member States shall take into account the general environmental protection principles of precaution and sustainability, technical feasibility and economic viability, protection of resources as well as the overall environmental, human health, economic and social impacts, in accordance with Articles 1 and 13.

[11] DIRECTIVE 2008/98/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 November 2008, on waste and repealing certain Directives (commonly referred to as the 'Waste Framework Directive') L 312/10 EN Official Journal of the European Union 22.11.2008

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‘Prevention’ means measures taken before a substance, material or product has become waste that reduces:

a) The quantity of waste, including through the reuse of products or the extension of the lifespan of products
b) The adverse impacts of the generated waste on the environment and human health, or
c) The content of harmful substances in materials and products (qualitative waste prevention).

‘Re-use’ is defined as using an object or material again, either for its original purpose or for a similar purpose, without significantly altering the physical form of the object or material. This differs from recycling where changes in form occur.

Re-use is generally preferred to recycling because it consumes less energy and resources.

Waste is defined as material for which no use or re-use is intended. Thus, re-use prevents objects and materials from becoming waste. Therefore, re-use is considered to be a form of waste prevention.

3.0 Legislation

Waste management operations in Guernsey are regulated under the Environmental Pollution (Guernsey) Law, 2004. Parts III and V of the Law deal with licensing of waste operations. These Parts were fully implemented, in relation to waste operations, with effect from 1 June 2010 by the Environmental Pollution (Waste Control & Disposal) Ordinance, 2010 and related regulations. This law requires the Public Services Department, as designated Waste Disposal Authority, to make recommendations in connection with the preparation by the Environment Department of Waste Disposal Plans.

The 2004 Law also requires the Public Services Department, as WDA, to identify the best practical environmental options for the disposal of waste. The remainder of the legislation under the 2004 Law relates more to disposal operations rather than strategy principles. Further high level policy is included in the States Strategic Plan: Environmental Policy Plan (Billet d'État XVIII, 2009), approved by the States. Chapter 6 deals with resource and energy use, and in Section 6.1 – Waste it is stated that 'Businesses and the community will be encouraged, supported and incentivised to adopt a waste minimisation approach'. Outcome 11 of the Environmental Policy Plan is 'The amount of waste generated is minimised'.

There are a number of EU Directives which although not applicable to Guernsey are taken into account as providing guidance on best practice in relation to waste management. These include:

- Waste Framework Directive (2008/98/EC)
- Batteries and Accumulators Directive (2006/66/EC)
- Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC)
- End of Life Vehicles (ELV's) Directive (2000/53/EC)
- The Landfill Directive (1999/31/EC)
- The Packaging and Packaging Waste Directive (1994/62/EC)

The Waste Framework Directive requires member states to draw up Waste Prevention Plans (Article 29), and take measures, as appropriate, to promote the reuse of products and preparing for reuse activities, notably by encouraging the establishment and support of reuse and repair networks, the use of economic instruments, procurement criteria, quantitative objectives and other measures (Article 11).

Further research is required to investigate the practicalities of introducing relevant aspects of EU Directives in terms of waste minimisation. This work will impact waste arisings and is relevant to the waste strategy.

4.0 Waste Minimisation Measures

There are a number of initiatives for both businesses and communities to minimise their waste.

Businesses should prevent or reduce waste through product and packaging design and the way materials are used. The selection of materials is also important to ensure hazardous materials are avoided, and recyclable materials are used effectively. Producers need to take on responsibility for their waste and recycling.

Communities need to reduce waste wherever possible and should consider residual waste as a resource. Clean recyclates should be separated and recycled appropriately. People need to be able to recycle at work, rest and play. Services and behaviour will need to change to ensure targets are met.

Waste minimisation can be broken down into three components:

1. Strict avoidance. This involves the complete prevention of waste generation by elimination of hazardous substances, or by reducing material or energy intensity in production, consumption, and distribution.
2. Reduction at source – involves minimising the use of hazardous substances and/or minimising material or energy consumption at source.
3. Product re-use – involves the multiple use of a product in its original form, for its original or alternative purpose, with or without reconditioning. This includes refurbishment and repair.

WRAP (Waste & Resources Action Programme) is a UK Government funded organisation which works in England, Scotland, Wales and Northern Ireland to help businesses and individuals reap the benefits of reducing waste, developing sustainable products and using resources in an efficient way.

Although outside the UK, Guernsey does have free access to resources produced by WRAP. Technical guidance is provided for effective waste minimisation for the construction industry, as well as advice on home composting, re-usable nappies, and other initiatives for householders. Promotion of waste minimisation also comes through campaigns such as the 'Love Food, Hate Waste' campaign aimed at household kitchen wastage.

4.1 Financial Implications

The majority of the waste minimisation measures detailed below will not incur significant capital costs or ongoing revenue allocation, with the main resources required being staff time and costs involved in advertising and promoting waste minimisation measures. The impact on resources is included in the States Report on the Revised

Waste Strategy, and it is anticipated that an additional member of staff will be required to progress waste minimisation measures.

There is potential for voluntary groups such as the Guernsey Recycling Advisory Forum (GRAF) to assist in certain waste minimisation measures which would reduce staff costs.

Where specific costs have been identified for a waste minimisation initiative, these have been included in the report below. The costs of waste minimisation measures are included in figures presented in section 10 of the States Report on the Revised Waste Strategy.

4.2 What Can Guernsey do to minimise its Waste?

There are a number of waste minimisation measures that can be used in Guernsey and many of these have already been adopted. WRAP provides advice on the different measures that local authorities can implement. Many of these are aimed at household waste, but can be applied to commercial waste. Additional advice is provided for the construction industry.

Key to waste minimisation is changing behaviour and habits both in the commercial and household sectors. Individual circumstances can also affect one's ability to introduce waste minimisation measures. Some measures will have a significantly greater impact than others.

Waste Minimisation measures are described in detail below, including a summary of measures already implemented, consideration for additional work that could be implemented to enhance existing services or introduce new waste minimisation measures, and an estimate of the staff resources required for this additional work. In 2010 WRAP launched an online 'Waste Prevention Toolkit' for use by local authorities.

4.3 Household Waste

From a household point of view, there are a number of potential measures that can be introduced to minimise waste, and typically the principles can also be applied to commercial waste streams too. These include:

4.3.1 Home Composting

Home composting is beneficial as householders can put organic value back into their soil. Community composting can complement home composting or replace it where home composting is not viable (i.e. where garden space is limited).

The most popular home composting method is using the traditional compost heap or an open bottomed container. Other methods include wormeries,

digesters (e.g. Green Cone), and pro-biotic pre-treatment using micro-organisms (e.g. Bokashi Bran). Home compost bins can deal with softer garden waste, some paper/card, and some kitchen waste such as fruit and vegetable peelings.

Community composting is where organic materials are collected by a group or the local authority, or delivered by residents to be composted locally. This is generally carried out on common land with those participating reaping the rewards from the compost produced.

Grass Cycling is another measure that can be encouraged, where lawns are cut frequently and the grass is left on the lawn to break down naturally returning valuable nutrients to the soil. This requires a special type of 'mulching' or 'recycling' mower, or using a cylindrical mower but this requires frequent mowing as the clippings must be short to allow faster decomposition.

Barriers to home composting include insufficient space, cost, lack of information and support, past failures, perceived poor usability or design of compost bins, vermin, and 'coolness'.

WRAP suggests the following measures for enabling home composting:

- Raise awareness of the benefits of home composting
- Encouraging people to compost at home
- Support for those already composting

Application in Guernsey

Guernsey introduced a subsidised home composting scheme in 2005, with composting kits being sold through participating garden centres. The composting kit includes a 265 litre plastic compost bin, a kitchen caddy, and information leaflets about how to compost and what to do with the compost produced. The following compost kits have been distributed through this method:

Year	2005	2006	2007	2008	2009	2010	Total
No. of Bins	1200	730	0	960	960	480	4330

As can be seen from above, the States has distributed a significant number of subsidised compost bins, with many people opting for more than one bin. This has contributed significantly in minimising waste from parish collections and Mont Cuet Landfill Site. Home composting is estimated to divert 161 kg/household/year from roadside collections.

The subsidised home composting scheme has been promoted through the local media, and at recycling stands at Shows, particularly on Liberation Day, which conveniently falls during national composting week. Competitions have been run regularly to win compost bins. Analysis of sales of compost bins in 2010

suggest that the market is nearing saturation point, with most garden centres not experiencing the demand of previous years.

The home composting scheme has been complemented by the Chouet Green Waste Site, and the green waste delivery points at Martel's Garden World (2006 – 2009) and Le Friquet Garden Centre (2010 and 2011).

Composition analysis of household waste carried out in 2009 shows very low levels of garden waste in the household waste stream at 1.4%, but relatively high levels of kitchen waste at 35.6%. Approximately half of the kitchen waste was meat, fish or cooked food waste, with 17.3% suitable for home composting (raw fruit and vegetable matter).

As part of the Keep Guernsey Green Award scheme operated by the Environment Department, many businesses, including offices have introduced composting measures using either the subsidised composting bins or wormeries to dispose of organic canteen waste.

Additional Work

- Research into the distribution of home composting bins and other home composting taking place to gauge the success of the existing scheme and potential expansion,
- Continue to highlight the benefits of home composting through the promotion of home composting kits,
- Investigate the potential for community composting schemes (Clos, States Houses, e.g. Les Genats, Guernsey Housing Association, allotments, etc.),
- Promotion of 'Grass Cycling' through local garden centres and lawn mower suppliers

Cost Implications

A budget for the research phase has already been approved as part of the market research project for recycling. It is anticipated that community compost schemes would be set up and run by community groups with no financial support from the States.

4.3.2 Real Nappies

Real Nappies are either the traditional terry towels or the modern equivalent requiring no safety pins/folding, and can be readily washed as normal laundry. Nappy laundry schemes can also be implemented for participating households, crèches, and hospitals.

Barriers to using real nappies include up-front costs, lack of information on different types, more messy than disposables, perceived negative impact on resource use through cleaning, and difficulties in promotion.

Local authorities can counter these barriers by promoting the benefits, offering free samples, working with health professionals, implementing and promoting schemes, and offering financial support (e.g. subsidies).

Application in Guernsey

It is estimated that over 9,000 disposable nappies are used a day in Guernsey – equivalent to 3.25 million a year, the majority of which are currently landfilled. Guernsey introduced a real nappy voucher scheme in 2006 and currently offers £35.00 to parents of babies and toddlers to purchase a starter pack of reusable nappies and ancillaries. Since its introduction nearly 400 vouchers have been issued. A survey carried out in 2008 showed that 38% of people issued with the vouchers continued to solely use reusable nappies, 37% were part-time or occasional users, and 23% either did not redeem the voucher or did not continue to use them.

Promotion of the scheme has been achieved through working with Health & Social Services Department midwives, posters in doctors' surgeries and retail stores, and through working with local suppliers. Coffee mornings organised by local suppliers have also been supported, often in conjunction with the national real nappy week in April each year.

Additional Work

- Review and update 2008 survey,
- Continue to highlight the benefits of real nappies through the promotion of the voucher scheme, possibly with support from the NCT,
- Identify barriers, dispel myths and motivate parents,
- Consider introduction of a nappy laundry scheme.

4.3.3 Carrier Bags

In 2007 it was estimated that Guernsey used 10 million disposable plastic bags each year. Despite this huge figure they represent less than 1% of household waste. They are considered indicative of our 'throwaway society' and have a number of negative impacts.

The majority of large grocery retailers are now engaged in measures to curb the usage of single use carrier bags by promoting reusable bags, training staff to ask if customers need a bag, charging for single-use bags, providing collection points for bags at stores, and using alternative materials (biodegradable, paper, etc.)

Individuals who reduce the number of bags they use are contributing to saving resources and minimising waste. Consumers should look for reusable bags that are fit for purpose and durable. Small foldaway bags should also be promoted for impulse purchases.

Change in behaviour is essential, as well as educating the public and shop workers. Checkout staff and shop assistants should not to offer single use bags, or have them on display, and only supply when asked.

Application in Guernsey

In 2007, following meetings between local retailers, the Public Services Department's Board, and the Guernsey Recycling Advisory Forum, the Guernsey Community Bag Partnership (GCBP) was established by representatives of the Island's main food retailers and Guernsey Climate Action Network (G-CAN), with support from the Chamber of Commerce and the Public Services' Recycling Officer.

The GCBP's aims were to reduce the overuse of disposable bags in Guernsey and encourage more sustainable alternatives.

Guernsey's main food retailers had already launched their own 'Bag-for-Life' schemes, and through coordination of these individual initiatives into an Island wide programme, the Partnership was able to promote the scheme and positively influence consumer behaviour.

A baseline survey was carried out to compare island-wide usage with retailers submitting data on a quarterly basis. As a result of the GCBP's initiative a Channel Island wide scheme was introduced, charging five pence for single-use carrier bags at local supermarkets from May 2008 onwards. Profits from this initiative are being diverted to local environmental charities.

The scheme has proved a massive success with significant reduction in single use bags after when this initiative was launched; however data has not been received on a regular basis from retailers and there is anecdotal evidence that plastic bag use has increased in recent months.

There has been reluctance from other retail outlets (e.g. high street shops) to follow suit, but there has been an increase in the use of recyclable paper bags and reusable bags.

Additional Work

- A full review of the scheme should be implemented, including data collection and management,
- Publicity on the success of scheme and further promotion, and
- Consultation with retailers/suppliers as a whole about bag materials.

Cost Implications

Given their involvement in introducing the original agreement with retailers to reduce carrier bag usage, it would be appropriate to carry out the review of this initiative in consultation with the GCBP, which may result in some time savings for Public Services Department staff.

4.3.4 Unwanted Mail

Unwanted mail can include addressed and unaddressed items, flyers, free newspapers, etc. Householders can select a number of options to prevent different types of mail being delivered, and some people are happy to receive some types of unsolicited mail, but not others.

It was estimated that approximately 3% of household waste in the UK in 2008 resulted from unwanted mail, with free newspapers accounting for over 40% of this, 30% coming from organisations already known to the householder, and less than 30% from unsolicited marketing and promotions.

There are a number of barriers to reducing unwanted mail. These predominantly result from a lack of knowledge of how to deal with the problem and services available, or concerns that it may restrict the mail they do actually want to receive. To assist with this the Royal Mail has set up the Mail Preference Service (MPS) in the UK. This is a free service and is accessible to Guernsey residents.

Application in Guernsey

MPS is Guernsey Post's recommended method for dealing with unwanted mail and can be accessed through the Guernsey Post website. MPS also offers flexible options to register previous owners at a particular address, specific family members, previous addresses, etc. However, MPS does not stop all unwanted mail as it targets mail addressed specifically to the householder. The 'Your Choice Preference Scheme' (YCPS) can also be used to eliminate unaddressed mail (i.e. addressed to the owner/occupier), however this may impact on how the States and service industries distribute information.

Public Services could offer practical support by promoting what the different options available are, writing template letters, and designing and providing door stickers. Consultation with Guernsey Post would be appropriate to identify methods of engaging with the public and the development of a strategy for dealing with unwanted mail.

In terms of other measures that could be taken by the householder, these include informing their newsagent not to delivery free newspapers and magazines.

Additional Work

- Consultation with Guernsey Post regarding the implementation of an unwanted mail scheme,
- Develop and publicise the scheme, and
- Review to assess the scheme's impact.

4.3.5 Sharing Resources and Time

Activities for sharing time and resources include events where items are donated and either sold or taken away for free, exchange systems, and loan and hire services such as libraries, toy libraries, and tool hire.

Events:

- Car boot sales enable residents to pass on unwanted items to a new home in return for money either for personal benefit or for charity. These are generally well established in most communities.
- Jumble Sales are usually one off events designed to raise money for a good cause. Larger events such as school fetes may incorporate second hand good stalls similar to jumble sales.
- 'Give and Take Days' are community or council organised projects and can lead to more permanent 'Swap Shops', where residents bring unwanted items to a central location and swap them with others without exchanging money.

Exchange systems are either internet driven for people to offer unwanted goods for free (Freecycle), or through local trading publications (LETS). Freecycle is a global online network offering individuals the opportunity to exchange unwanted goods within their community. LETS trading schemes involved the exchange of goods and services without exchanging money, with participants having an account which is used to 'earn and spend'. LETS schemes tend to be self sufficient although local authority involvement may be required to instigate them and promote them.

Loan and hire schemes are generally well established and are encouraged to maximise the use of items without the user having to pay the full amount for a particular item that may not be needed regularly. Loan systems tend to be free although fines are applied in the case of late or none return of goods, whereas hire schemes require payment to cover the initial cost and maintenance of the items. Libraries for books, videos, computer games etc. are well known and generally supported by the local authorities. Some communities also have toy libraries for younger children. Community book share schemes can also provide a good reuse opportunity, and may be easily set up in a work environment.

Barriers to developing initiatives for sharing and reusing include entrenched disposal habits, lack of promotion, lack of guarantees on used items, image of buying/using second hand goods or exchange items.

Application in Guernsey

The sale of second hand goods seems to be part of the culture of Guernsey. Car Boot Sales and Jumble Sales are popular and well organised in Guernsey, often combining the reuse of unwanted goods with raising funds for charitable organisations. BBC Guernsey's 'Ring and Buy' service also provides a useful

opportunity for the exchange of unwanted goods, as does the classified pages of the Guernsey Press and The Globe. The Longue Hougue Waste Recycling Facility offers a form of permanent 'Swap Shop' with Islander's able to bring and take items at the site for free.

Although there is not a local Freecycle group, the Guernsey Press does offer the 'ecycle' service both online and in the Guernsey Press. This has been highly successful with over 16,000 items exchanging hands through this service since its launch in 2006.

In terms of loan and hire schemes, these are also well established locally, with well supported libraries and hire services for everything from construction and building equipment to bouncy castles. More recently a borrowing service has also been set up through the internet. Ecomodo offers people the opportunity to borrow things they may have limited need for from those that wish to maximise use of things they own, either for free, for charity or to make a little extra money. This may be a bike, lawnmower, drill, sewing machine, or services. The website now has over 500 items to borrow and the network is continuing to grow.

Additional Work

- Collation of information on details of events and services to produce an information leaflet and website page, and
- Promotion of the above and the benefits of selling/exchanging unwanted goods, loan and hire systems, and borrowing schemes.

4.3.6 Donation

Many charities operate shops which already deal with various goods that would otherwise be viewed as waste (e.g. Red Cross, Oxfam). Other community schemes include reuse initiatives for bulky items and repair schemes. These schemes rely on the donation of items for redistribution to the benefit of either charities or the community.

Other than the obvious donation of clothes, books, toys and media goods to charity shops, there are a number of other potential initiatives that could minimise waste disposal, and training opportunities. These include:

- Community Re>Paint. This is a national scheme involving the co-ordination of unused paint to community projects and includes donations from householders as well as DIY stores.
- Tools for Self Reliance (TFSR) is another national scheme which collects, repairs and redistributes tools to Africa. Other similar schemes are in place for bicycles.

- Bulky items reuse schemes are another opportunity for local authorities to encourage the reuse of items that may otherwise be disposed of.
- 'Scrap Stores' for community projects.

A major drawback to some of these schemes is finding the appropriate warehouse, workshop, and storage space. Separate advice is provided for schemes for bulky items, electrical goods, and repair and refurbishment schemes, which can also have the benefit of creating jobs.

Benefits of such schemes include carbon savings for materials reused, positive impacts on communities, fundraising activities, cheap/free items accessible to low income families, increased awareness of the positive effects of reusing materials, and potential to create new training and job opportunities.

Application in Guernsey

There are many well established charity shops locally, though these predominantly deal with clothing, books, media and bric-a-brac. Charity shops often rely on no/low rent properties, and whilst there appears to be a number of these at present, particularly at The Bridge, the redevelopment of Leale's Yard could impact on these. The current circumstances at The Bridge have meant that several larger premises have also enabled bulky items (furniture) to be sold within charity shops (Communicate, Citizens Advice, etc.).

Community Re>Paint has previously been investigated, and although paint has been collected and some reused through the Longue Hougue Recycling Facility, much of this paint still ends up being landfilled. The development of a scheme to benefit the whole community requires co-ordination and has yet to be implemented.

TFSR could be investigated and is potentially a community project the Community & Environment Projects Scheme (CEPS) or the local Prison service could get involved in.

'Bikes for Africa' has previously been considered with a stockpile of bicycles developing prior to the opening of Longue Hougue Waste Recycling Facility. However these have now been redistributed locally. A major barrier for such schemes is the costs of shipping to UK before then being distributed to Africa or other third world countries.

Bulky items are collected through a public scheme and where applicable are recycled through Fontaine Vinery, rather than being reused. Bulky items excluding soft furnishings can also be deposited at Longue Hougue Waste Recycling Facility. A dedicated civic amenity site with covered areas would provide an opportunity for dealing with all bulky wastes. This could be combined with the Bulk Refuse scheme with collections coordinated for separate reusable and non-reusable items.

Similar to many of the above schemes, the main barrier to 'Scrap Stores' is finding the appropriate land and storage facility. However, Longue Hougue Waste Recycling Facility does provide a similar service and some community projects have utilised materials separated at Longue Hougue. Such a facility could be affiliated to any future civic amenity site(s).

Additional Work

- Collation of information on existing donation schemes and the production of an information leaflet and website page,
- Promotion of the above and the benefits of donating unwanted goods,
- Investigation into donation schemes that could compliment a future civic amenity site(s) and/or a reuse and repair centre,
- Research and implement a local Community Re>Paint Scheme, ideally operated from the Longue Hougue Waste Recycling Facility by States Works with support from CEPS.

Cost Implications

The implementation of a Community Re>Paint scheme would require coordination, and this could be operated from Longue Hougue by States Works, at an estimated annual cost of £10,000 - £15,000 per annum.

4.3.7 Waste Aware Shopping

Waste Aware Shopping (WAS) is all about encouraging people to think about the products they are purchasing, and the associated packaging. The reuse, recycling or disposal of a product at the end of its useful life should be considered.

This involves careful planning of purchases before shopping and taking into consideration what is needed, how many times the product will be used, what the item(s) are packaged in, how it will be transported home, how it will finally be disposed of, and whether or not it is actually needed in the first place.

Many householders comment on excess packaging but research shows that not choosing over-packaged goods is one of the least practised waste prevention measures, and presents a major challenge.

There are a number of barriers to WAS including a lack of alternatives with less packaging, cost of more durable alternatives, limited space for bulk purchases, a lack of information on alternatives, shopping habits, and time. Purchasing refills rather than products in their original primary packaging is also minimises waste (e.g. fabric conditioner), but there is a perception that the refill is of a lower quality, lesser quantity, and an expectation that they should be much cheaper. Availability of self-dispensing systems at retail outlets is also limited.

Local authorities can help through providing information through websites, providing WAS lists and frequently asked questions, and an interactive WAS web page. The reduced cost benefits of more durable alternatives such as rechargeable batteries, and cloths rather than disposable kitchen towels can also be promoted.

Information on bulk buying outlets and opportunities, and listing suppliers of organic 'fruit and veg' box suppliers should also be provided.

Local Authorities should take the lead in purchasing durable products through a sustainable purchasing policy and encourage householders and businesses to do the same.

Application in Guernsey

Our consumer society does not encourage WAS, although many householders do make conscious decisions to purchase items which reduce waste, although this is generally economically rather than environmentally driven. Encouraging changes in behaviour is key to making householders more aware of the waste generated as a result of shopping habits, and providing accessible information on this is essential to increasing the awareness of the waste impacts of shopping habits.

Discussions with retailers and suppliers needs to take place to encourage the marketing of goods with reduced waste impacts, through special offers, vouchers, etc.

Additional Work

- Collation of information on WAS opportunities locally,
- Promotion of the benefits of WAS and the development of an interactive WAS web page.
- Working with retailers on promoting WAS.

Cost Implications

As this initiative involves consultation with the retail sector, it may be something GRAF may be able to assist with, reducing pressure on staff costs to the Department.

4.3.8 Re-Use in the Home

Small changes in the home can be encouraged to increase the re-use of products that may otherwise be viewed as a waste. These include re-using containers for packed lunches and food storage, re-using bottled water bottles, and using containers for plant pots and seed trays.

Other measures include re-using old newspapers, envelopes and scrap paper, donating books, magazines, etc. to community services, and repair and craft activities (junk modelling, Christmas cards and labels, etc.).

Barriers to implementing home re-use initiatives include time to carry out repairs, embarrassment at having an old re-used container, effort required to change behaviour, and negative perceptions of 'green' lifestyles.

Waste Free lunches are another opportunity to promote re-use in the home environment, and coordination of donations of magazines through a service directory for the donation of magazines to hairdressers, doctors surgeries and similar waiting rooms.

Application in Guernsey

The promotion of the benefits of extending the useful life of certain products is essential to changing habits and perceptions. Waste Free lunch days are already being promoted in schools.

Additional Work

- Investigation of opportunities for re-use within the home,
- Promotion of the benefits of re-use in the home and overcoming the negative image associated with this.

Resources Required

20 hours to investigate local opportunities, 20 hours to promote the benefits of re-use, and 40 hours to implement Waste Free lunch days at schools and work places. An ongoing commitment of 0.5 hours per week to review and continue to support re-use initiatives is also estimated.

4.3.9 Reducing Food Waste

Household food waste is the greatest single contributor to total food waste. The UK estimates nearly 6 million tonnes per annum is collected in the UK. Food waste sent to landfill generates methane, and the production and transportation of food waste also generates significant amounts of carbon dioxide. Food waste is discarded for two main reasons: cooking or preparing too much, or not using food in time before it goes off or exceeds its 'use by date'. 25% of food waste is fruit or vegetables which could have been used before disposal.

One of the main reasons for food waste is a lack of understanding of food storage, food condition and shelf life. Other reasons include a lack of meal planning, a lack of understanding of 'best before', 'use by', and 'display until' dates. Some food waste is unavoidable such as banana skins and tea bags, but home composting can reduce their impact.

Local Authorities can assist in overcoming these barriers through support and promotion. WRAP's 'Love Food Hate Waste' campaign can provide a basis for reducing the volume of food waste, and identified nine behaviours that could be influenced:

- Planning – check stocks before shopping and plan meals
- Storage – keep fruit in the fridge
- Portioning – use measures to prevent cooking too much
- Freezing excess food and using frozen foods
- Date labels – better understanding of 'Use By', 'Sell By', and 'Best Before' dates
- Free-lunching – take food to work with you to use it up
- Learn to love your leftovers
- Shopping – mix fresh & frozen, buy the right size packs, make the most of offers but avoid excess purchases
- Inspiration – build a repertoire of recipes

It is also useful to help householders recognise how much food they are wasting through case studies and food diaries. Most people are totally unaware of how much food waste they dispose of.

Incentives to reducing food waste include cost savings, time savings in using leftovers or cooking extra portions for the freezer, a sense of doing something positive for the environment. Promotions to reduce food waste should involve the retailers rather than working against them.

There are a number of stakeholders who could be involved in a campaign to reduce food waste. Establishing good relationships with local retailers is a starting point, encouraging a culture where people love the food they buy, not necessarily buying less. Others to involve include farmers markets, community groups, and local businesses in promotions.

Changing behaviour requires education and there are a number of positive messages that can be promoted - save money, feel better, save time, help the environment, and healthier eating.

Resources are available from the WRAP 'Love Food Hate Waste' campaign.

Application in Guernsey

Waste composition analysis carried out in 2008 indicates that food waste accounts for a quarter of the waste in the typical household's bin. No specific campaign has been introduced locally, but could be implemented using the framework provided by the WRAP 'Love Food Hate Waste' campaign. The

involvement of the retail sector in a 'Love Food Hate Waste' campaign would be essential.

Additional Work

- Development of a 'Love Food Hate Waste' campaign, involving stakeholders identified above.
- Promotion of the benefits of reducing food waste.

Cost Implications

As this initiative involves consultation with the retail sector, it may be something GRAF may be able to assist with, reducing pressure on staff costs to the Department.

4.4 Commercial Waste

Many of the principles of household waste minimisation can be applied to commercial waste, particularly within the hospitality sector and office environment. However given the specific nature of certain businesses other measures may be employed. This is particularly the case for the construction industry.

Whilst the States can introduce legislation, provide infrastructure and promote recycling through campaigns, these measures require individuals and businesses to take action and play their part.

There are a number of reasons for reducing the amount of waste a business produces:

- Economic. Waste management costs money and managing it unsustainably costs even more. Savings can be made in terms of reducing waste disposal costs, but can also be made as the cost of raw materials is reduced by decreasing the amount of waste produced and reusing as much as possible, leading to a more efficient work place, saving valuable staff time.
- Polluter pays principle. Businesses should know and be able to document what happens to their waste, be it recycled, composted, disposed of or exported. Compliance with this should form part of an organisations waste management policy.
- Public Relations. Good waste management is good for business, and an organisation that is doing as much as it can for the environment, can promote itself to good effect.
- Improved Employee Moral. Meeting targets and contributing to a worthwhile cause may provide a moral boost to employees and allows all staff to contribute to a common goal.

The most important step a business needs to take in reducing its waste is to carry out an audit of the waste it produces. This enables a business to identify the amount and type of waste it produces, and what activities within the business produce waste, and

therefore what measures can be employed to reduce its waste. This process also enables costs to be assessed and calculated.

There are three steps organisations should employ to enable it to minimise its waste:

a) Data Collection – establish what waste is generated, and how much it costs.

b) Developing an Action Plan. Identify where and hope waste can be minimised.

c) Implementing an Action Plan. Prioritise options and allocate resources.

4.4.1 Office Environment

In the office environment a number of measures to reduce waste can be implemented including double-sided printing, canteen composting, reusing scrap paper, electronic filing, etc. Purchasing of supplies should be managed to prevent over-stocking, and durability of consumables should be assessed – there may be cost savings in purchasing a higher quality product which needs to be replaced or serviced less often.

The environmental cause often gets taken up by one person or a 'green team' within a particular office, depending on size and commitment. It is essential to have senior management buy-in to have a successful outcome. Procurement will also have a role to play in the implementation of waste minimisation measures, and the development of a company 'Waste Management Policy' provides a focus.

Application in Guernsey

The Keep Guernsey Green Award (KGGA) scheme administered by the Environment Department has proved successful in encouraging a number of businesses to implement measures to reduce their waste, particularly within the office sector and has now extended to energy savings as well.

Additional Work

- Development of a best practice guide and check lists for businesses.
- Updating information on waste minimisation and recycling for KGGA Assessors.
- Continued ad-hoc support to the Environment Department the KGGA scheme.

4.4.2 Construction Industry

Waste minimisation in the construction industry involves measures to design out waste prior to construction as well as limiting waste arisings during the construction phase of a project. This requires a change in attitude and

commitment from design and construction professionals involved in a project. Site Waste Management Plans (SWMP) are now required in the UK on all projects in excess of £300,000. To enable waste minimisation the SWMP should be developed from the pre-design stage of a project. The SWMP plan should set targets for waste reduction in both the design phase and construction phase, with the primary aim of reducing the total quantity of waste produced throughout the project. Similar principles should be considered for Guernsey.

WRAP guidance for the construction industry is available through a series of publications providing guidance to construction clients, design teams and contractors.

The principle benefits of waste minimisation and management in the construction industry are:

- A reduction in the amount of material entering the waste stream
- Cost savings

Additional benefits include minimising environmental damage, conserving natural resources, increased competitiveness, sustainability, and lower CO_2 emissions.

The main contributors to waste in the construction industry include:

- Over-ordering
- Damage
- Off-cuts
- Design changes
- Temporary works materials
- Packaging

The majority of opportunities for waste minimisation exist at some the design phase of a project, however some can be introduced early on in a project. Effective waste minimisation requires a team approach with all members contributing. The agenda for a project is set by the client and their involvement as part of the team is crucial to its success. Subcontractors should also play their part in this team.

The importance of introducing waste minimisation at an early stage in a project is indicated in Figure 1 below:

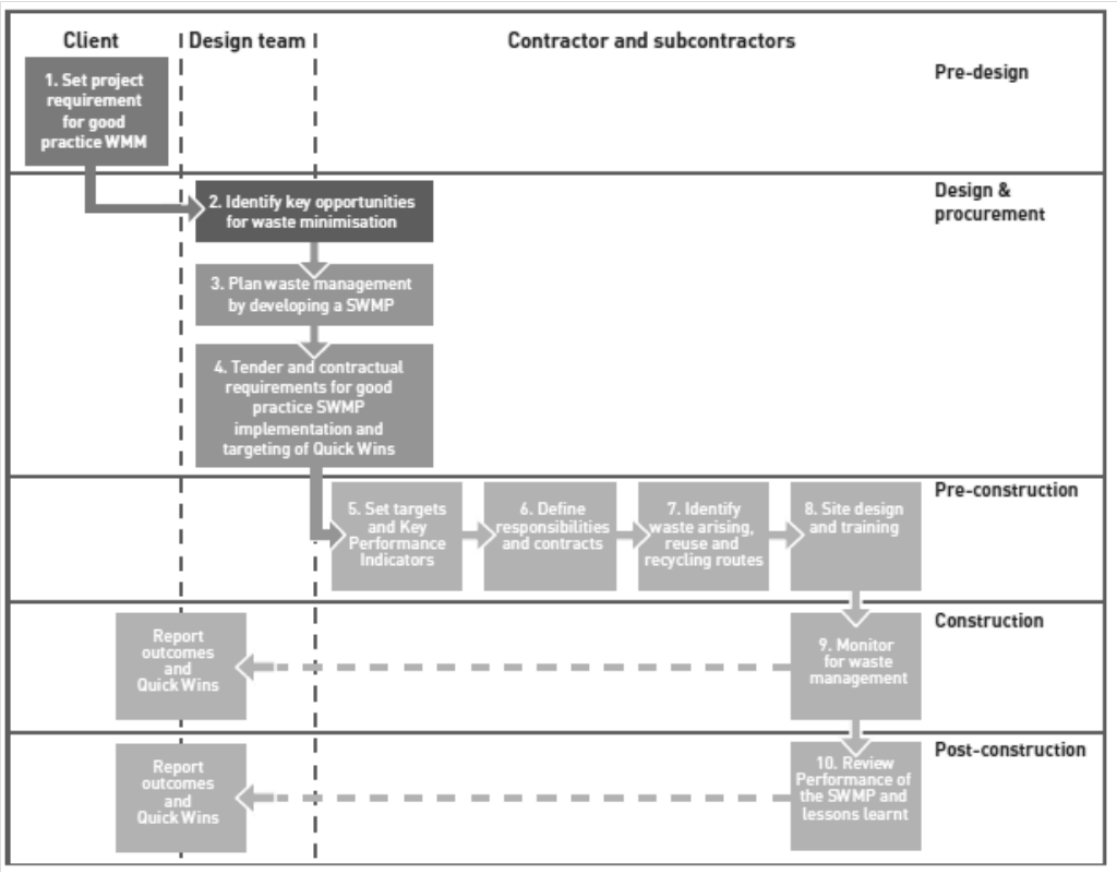

Figure 1. WRAP waste minimisation and management process.

Key to waste minimisation in construction is the effective use of materials to minimise the consumption of finite natural resources and the quantity of waste requiring treatment or disposal. General design principles in accordance with the waste hierarchy should seek to follow where economically viable:

- Effective design and stock control
- Reuse and refurbishment of existing infrastructure
- Use of reclaimed materials and products
- Use of renewable materials
- Recycling of construction, demolition and excavation waste
- Procurement of products and materials with good practice levels of recycled materials.

Architectural salvage through a reuse and repair centre to enable commercial reuse opportunities, would provide greater options for incorporating reclaimed products and materials into a project.

Implementing waste minimisation in the construction industry requires training and education to raise awareness of the relationship between design and waste, the allocation of responsibility for waste reduction, and incentives.

Application in Guernsey

The high cost of landfill in Guernsey has already provided an incentive for the construction industry to consider ways of minimising waste, and this has resulted in a significant drop in 'Builders Waste' being delivered to Mont Cuet. Through the provision of specific guidance further progress could be made. This could be developed through consultation with the Environment Department Building Control, the construction industry, and suppliers of construction materials.

Additional Work

- Creation of a working party to investigate waste minimisation measures that could be applied to the construction industry.
- Consideration of a commercial reuse and repair centre as part of the waste strategy options, potentially operated on a commercial basis.

4.4.3 Retail Sector

Much of the waste resulting from retail comes from packaging. There are limited opportunities to influence the packaging of products imported into Guernsey; however local suppliers can play their part in minimising waste.

Consideration for introducing elements of the EU Packaging and Packaging Waste Directive should be considered, with particular emphasis on preventing the creation of packaging in the first place and consideration for the reuse of packaging locally. All those involved in the production, use, importation, and distribution of packaging and packaging products should become more aware of the extent to which packaging becomes waste.

Additional Work

- Continuation of discussions with retail representatives and GRAF
- Investigations into the application of certain of the aspects of the EU Packaging Directive in Guernsey.

5.0 Summary

There are a number of waste minimisation initiatives that could be implemented in Guernsey for both household and commercial waste streams as detailed in section 4. A significant amount of research into these is required, with some work streams requiring policy decisions and/or new legislation and enforcement of the same.

To achieve the aims of the waste strategy, the measures detailed are an essential element of the future waste strategy for the Island, in order to minimise the amount of waste requiring further treatment.

The impact on resources is included in the States Report on the Revised Waste Strategy, and it is anticipated that an additional member of staff will be required to progress waste minimisation measures. Resources may also be drawn from the voluntary sector through GRAF (retail initiatives) and GCBP (carrier bags).

6.0 References

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Delivering Effective Waste Minimisation – Technical guidance for construction clients, design teams and contractors. WRAP, 2009.

Household Waste Prevention – Action Plan (Scotland). SEPA, February 2007.

APPENDIX 9

DRAFT
WASTE DISPOSAL PLAN[12]

Draft Waste Disposal Plan

November 2011

[12] This draft comprises the Public Services Department's recommendations to the Environment Department in connection with the preparation by the Environment Department of a Waste Disposal Plan.

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1. Summary

We have seen significant discussion regarding Guernsey's waste disposal and management in the past few years.

However, although considerable progress has been made regarding recycling rates and re-use initiatives, a new Plan is required if we are to cease our reliance on landfill as a solution to island waste management problems.

The Plan now focuses on the Waste Hierarchy as defined in Article 4 of the European Waste Framework Directive 2008, which identifies waste prevention as the most preferred option, followed by re-use, recycling, recovery and finally treatment and disposal. It is designed to address the objectives of the Waste Strategy, which are:

- **To endorse and implement the principles of the Waste Hierarchy;**
- **To develop an environmentally, economically and social sustainable waste strategy that is practicable and adaptable to meet Guernsey's needs currently and in the foreseeable future;**
- **To consider all waste streams, and identify and adopt the most appropriate methods to manage them in accordance with the Waste Hierarchy.**

In addition, the Plan has been written to take into account the following waste management principles:

Sustainability: *dealing with waste should not negatively impact upon future generations of islanders;*

The proximity principle: *waste should be dealt with as near as possible to its source;*

Best Practical Environmental Option (BPEO): *the option which provides the least damage to the environment as a whole at an acceptable cost, whilst considering social and practical implications;*

Polluter Pays (or alternatively 'User Pays'): *those who generate waste and/or make use of waste management facilities should pay for the service.*

The Plan prioritises waste prevention, reuse, recycling and composting. However, it is recognised that an amount of residual waste (waste materials that have not been separated out for recycling or composting) will still need to be managed. A key part of the Plan is therefore to secure a solution for the treatment of residual waste.

The Island's only remaining putrescible landfill site at Mont Cuet has a limited life span and, based on estimates, is predicted to be full in 2022. In addition, landfill of such waste causes damage to the environment and it is necessary to find a method of dealing with our waste in a more sustainable and less harmful way.

Implementation of the actions in this Plan, together with the co-operation of the local community, will help us move towards meeting future targets for

recycling, composting and diversion of waste from landfill.

1.1 Background

In February 2010, the States directed the Public Services Department (PSD) to develop proposals for a revised strategy for solid waste disposal. The States debate and final vote on this resolution provided the Public Services Department with a clear indication that the States as a whole supported a rethink on waste, with waste minimisation measures at its core.

The Department developed a consultation process regarding this strategy, involving extensive consultation at each key stage. Stakeholder workshops were held to consider the objectives of the waste strategy; identify and weight evaluation criteria for assessing options; and develop options available to Guernsey for dealing with its waste. Shortlisted options were considered, leading the Department to bring recommendations to the States.

The Environmental Pollution (Guernsey) Law, 2004 (2004 Law), requires the Waste Disposal Authority (WDA) from time to time to make recommendations to the Environment Department in connection with the preparation of a 'Waste Disposal Plan' describing quantities of waste; identifying appropriate disposal sites and methods together with financial implications (including cost recovery). The PSD is the designated WDA for Guernsey.

In accordance with Guernsey Law, this Waste Disposal and Management Plan has been prepared by the PSD, in consultation with the Environment Department. The Environment Department is then responsible for presenting this Waste Disposal Plan to the States for approval. This Plan has been developed following an extensive stakeholder consultation process undertaken between September 2010 and June 2011, together with the subsequent preparation of the Revised Waste Strategy States Report.

1.2 Why do we need a Plan?

The Draft Waste Disposal Plan provides a clear strategic direction for waste management in Guernsey and takes into account the revised Waste Strategy, the primary objectives of which are:

- **To endorse and implement the principles of the Waste Hierarchy;**
- **To develop an environmentally, economically and social sustainable waste strategy that is practicable and adaptable to meet Guernsey's needs currently and in the foreseeable future;**
- **To consider all waste streams, and identify and adopt the most appropriate methods to manage them in accordance with the Waste Hierarchy.**

In order to achieve these objectives, the Plan is needed to:

- Identify and quantify current waste arisings, future trends and waste projections;

- Categorise waste arisings into specified waste streams;
- Identify options to prevent and minimise waste, in accordance with the Waste Hierarchy;
- Identify the appropriate methods for waste disposal;
- Identify and quantify the resource requirements (land, labour and capital costs);
- Identify procurement options;
- Consider the setting of targets;
- Clarify the role of Government in the process;
- Identify charging structure and legislative requirements;
- Create an implementation programme

1.3 The Waste Challenge

Guernsey's Waste Strategy sets the following challenging targets for household and commercial waste[13]:

- **50%** recycling by 2013;
- **60%** recycling by 2018;
- **70%** recycling by 2025.

To achieve the above targets there will need to be a significant change to the way waste is managed in Guernsey and waste will need to be viewed far more as a resource. The States faces the challenge of delivering this change within difficult times, whilst at the same time continuing to provide high quality services across the Island.

[13] Commercial Hazardous/Special waste treated at other facilities and outside the scope of the waste strategy is excluded from this total (e.g. clinical waste, abbatoir waste, etc.)

In addition the following aims have been adopted by this Waste Management and Disposal Plan:

- To divert waste from landfill so Mont Cuet continues to be able to accept waste which cannot be treated as residual waste for the foreseeable future, and remains available for continued green waste processing;
- To comply with appropriate standards as determined by the Director of Environmental Health and Pollution Regulation;
- To achieve full implementation of the new strategy by 2015.

1.4 Meeting this Challenge

The Department already supports many local waste prevention and recycling projects/initiatives. We will continue to support these projects and encourage the development of new ones. The role of the community sector and social enterprises in developing waste prevention projects is recognised in the Plan.

Other projects to be investigated in order to fulfil the Waste Strategy will include:

- A review of current legislation;
- A review of the current Bring Bank and Bulk Refuse Schemes;
- The investigation and introduction of kerbside recycling (including food waste);

- The evaluation of permanent Civic Amenity (CA) sites;
- The introduction of a Materials Recovery Facility (MRF);
- The investigation and possible introduction of In-Vessel Composting Facilities;
- Evaluation of Disposal of Specially Controlled Waste;
- Evaluation of Residual Waste Treatment, and Inert Waste Disposal;

1.5 Recycling

The Public Services Department as WDA will look to investigate and implement the following key actions to further increase the proportion of waste that it collects for recycling and composting:

- Complete the investigation for a kerbside recycling service by the end of 2012, with a view to introducing separate kerbside collection for dry recyclables and food waste in a phased approach by the end of 2014;
- Explore the opportunities for expanding the range of materials collected for recycling via the kerbside recycling service;
- Monitor this kerbside recycling service once started by carrying out waste composition analysis to improve participation and capture rates;
- Communication campaigns to target areas of low/poor recycling performance;
- Investigation of Multiple-Occupancy Property Recycling Schemes (i.e. provision of 'near entrance' communal recycling facilities at properties unable to receive the kerbside recycling service);
- Continue to provide advice, information and support for businesses in Guernsey on ways to reduce and recycle their waste;
- Investigate the development of Household Waste Recycling Centres;
- Where opportunities arise, work with industry in introducing producer responsibility that covers a greater range of materials, which industry would take responsibility for reducing/recycling.

It is projected (based on the latest information) that the implementation of the actions outlined above will help to increase recycling rates as detailed in Appendix 1.

1.6 Residual Waste Management

The Department has investigated various options for residual waste treatment. Included in all options is the introduction of mechanical recovery of recyclable materials in order to achieve higher levels of separation of waste than currently achieved, thereby reducing the volume of waste requiring further treatment.

The residual waste treatment option recommended to the States is the export of residual waste to an off-island heat treatment facility.

Tenders for a facility to bulk waste ready for transport off-island will be sought. Export routes will be identified with contract documents developed.

2. Glossary

Below are some common acronyms used in the Guernsey waste management industry. Many of these are referred to in this plan

AD	Anaerobic Digestion
APC	Air Pollution Control ('Fly Ash')
ATT	Advanced Thermal Treatment
BPEO	Best Practicable Environmental Option
CA	Civic Amenity (Site)
DEFRA	Department for Environment, Food and Rural Affairs
EFW	Energy from Waste
EIA	Environmental Impact Assessment
ELV	End of Life Vehicle
IVC	In-Vessel Composting
MBT	Mechanical Biological Treatment (systems)
MRF	Materials Recovery Facility
OPB	Outline Planning Brief
PAS (100)	Publicly Available Composting Standard
PPP	Public Private Partnership
PSD	Public Services Department
RDF	Refuse Derived Fuel
SSP	States Strategic Plan
WDA	Waste Disposal Authority (currently the Public Services Department)
WEEE	Waste Electrical and Electronic Equipment Directive (2002/96/EC)

3. Introduction

The purpose of this plan is to set out the vision, values and policies of the Department regarding waste, as well as the implementation options for addressing the key issues surrounding the management of waste on the Island over the next 10-15 years.

Implementation of the Plan will be monitored and annual progress reports produced. The Plan will be used to guide future decision-making by the Department.

This Plan highlights current arrangements for waste management within the Island and sets out the integrated actions required for the reduction, reuse, recycling, recovery and disposal of waste, which will be required for Guernsey to move towards a target of 70% recycling in 2025.

The Plan aims to map out a way forward to Guernsey in terms of:

- Achieving recycling targets;
- Achieving a significant reduction in the reliance on landfill for waste disposal;
- Initiatives to control waste arisings and waste growth;
- Potential partnership arrangements;
- Determining the way forward for the procurement of residual waste treatment;
- Determining future resource implication for waste management on the Island of Guernsey.

Both the Environment Department and the Public Services Department have responsibility for the delivery of this Plan; and in particular the Waste Services section of the Public Services Department and its operational contractors. However the successful delivery of the Plan will require the involvement and support of services across the Island, the community sector, businesses and householders.

The Plan will ensure services for waste management are developed that will encourage efficient use of resources and minimise the environmental impact of waste, at an acceptable cost.

Actions to deliver the Waste Management and Disposal Plan are highlighted throughout the Plan. These actions form an Action Plan which is presented in Appendix 2 of this Plan.

4. Background

It has been acknowledged for many years that Guernsey's current method of waste disposal (landfill) cannot continue in the long term. The Island's only remaining putrescible landfill site at Mont Cuet has a limited life span and, based on a rolling 5-year average at current tipping rates, is predicted to be full by July 2022.

In addition, landfill of putrescible waste causes an unacceptable level of damage to the environment and it is necessary to find a method of dealing with the Island's waste in a more sustainable and less environmentally harmful way.

However, until now, it has not proved possible to agree on what alternative solution would be most suitable for treating the Island's waste.

In 2004 proposals to construct an Energy from Waste (EfW) plant on Longue Hougue were rejected. In July 2009 the States agreed to proposals to construct an integrated waste management facility, which incorporated an EfW plant, on Longue Hougue.

Negotiations with the preferred bidder were at an advanced stage when, in February 2010, the States overturned the decision of July 2009 and resolved as follows:

"3. To direct the Public Services Department to give written notice to Suez Environnement of the States' decision to withdraw its status as Preferred Bidder and to withdraw from the procurement process.

4. To direct the Public Services Department to return to the States as soon as practicable with a Report setting out proposals for a revised strategy for disposing of solid waste.

5. To direct the Policy Council, with assistance from the Public Services Department, to ascertain from the States of Jersey the most beneficial contractual terms on which the States of Jersey will agree to import and dispose of waste exported from Guernsey and to report to the States thereon as soon as practicable."

Although not specifically covered in the Resolution, the debate centred on a desire to minimise the amount of waste produced in Guernsey in order to ensure that as little as possible remained for treatment or disposal. Therefore, the revised strategy, and indeed this Plan, focuses on the Waste Hierarchy, which is essentially a guide to sustainable waste management.

5. Strategic & Legislative Framework and Drivers for Change

5.1 Legislative Framework

Existing Guernsey legislation relating to waste management comprises of:

- The Loi Relative à la Santé Publique, 1934 and its 1936 Ordinance;
- The Refuse Disposal Ordinance, 1959 and its Amendments and Orders of 1963 and 1964 respectively; and;
- The Parochial Collection of refuse (Guernsey) Law 1958, as amended;
- The Trans-frontier Shipment of Waste Ordinance, 2002;
- The Land Planning and Development (Guernsey) Law, 2003;
- The Environmental Pollution (Guernsey) Law, 2004;
- The Environmental Pollution (Guernsey) Law, 2004 (Commencement and Designation of Waste Disposal Authority) Ordinance, 2006
- The Environmental Pollution (Waste Control and Disposal) Ordinance, 2010.

The Plan fulfils the legal requirement in accordance with section 31 of the Environmental Pollution (Guernsey) Law 2004, where the Environment Department is required to produce a Plan describing the quantities of various wastes and their means for disposal.

The Environmental Pollution (Guernsey) Law, 2004 is an enabling law which allows the States to introduce environmental protection measures by Ordinance, as and when it considers appropriate.

The Environmental Pollution (Waste Control and Disposal) Ordinance, 2010 was introduced in Billet d'État IX of April 2010, providing specific legislation required to regulate the management of waste. For example, the Waste Ordinance requires persons carrying out 'prescribed operations' (i.e. those operations which, in the opinion of the States, may involve a risk of environmental pollution) to obtain a licence and to carry out that operation in accordance with conditions to which that licence is subject.

The Law states the following operations may be prescribed by an Ordinance, irrespective of the nature or composition of the waste concerned:

- The collection, removal, transportation or handling of waste when carried out by way of business or as a public service;
- The sorting, processing, treating, storage or disposal of waste in any circumstances; and;

- The provision or operation of any activity, plant or equipment for the sorting, treatment, processing or disposal of waste.

The Environmental Pollution (Guernsey) Law requires the Waste Disposal Authority (WDA) to be responsible for carrying out functions conferred on it by or under the Environmental Pollution (Guernsey) Law or any other enactment. These functions include:

- To make arrangements for and ensure the operation of Guernsey's public waste management system;
- To monitor the creation of waste in Guernsey;
- To keep under review the systems for collection, transportation, sorting and recycling of waste;
- To identify the best practical environmental options for the disposal of waste;
- To comply with the current Waste Disposal Plan;
- The Public Services Department to act as Guernsey's Waste Disposal Authority.

Due regard is also given to the States Strategic Plan (SSP), and in particular the Environmental Policy Plan (Billet d'État XVIII 2009). Sections 2.3, 6.1, and 9.1 of the Environmental Policy Plan deal specifically with solid waste disposal.

Whilst Guernsey is not obliged to comply with European Directives on waste management; in accordance with the principles listed in the Summary of the Plan, these Directives are taken into account as best practice.

ACTION 1
To review legislation required for the revised Waste Strategy

ACTION 2
To introduce new legislation for the revised Waste Strategy where necessary

5.2 Waste Regulator

The Waste Regulator, under The Environmental Pollution (Guernsey) Law 2004, is the Director of Environmental Health and Pollution Regulation, who has responsibility for licensing new and existing waste management and other waste operations.

5.3 Environment Department

Under the Environmental Pollution (Guernsey) Law, 2004, the Environment Department has responsibility for strategic planning and policy formulation in relation to solid waste.

The Environment Department also reviews planning applications and sets land use policy.

5.4 Waste Disposal Authority

The Waste Disposal Authority (WDA) is the States of Guernsey Public

Services Department. The WDA has responsibility for:

- Landfill site management at Mont Cuet, including engineering and environmental monitoring;
- Land reclamation at Longue Hougue;
- Commercial waste segregation at Fontaine Vinery;
- Green Waste management;
- Bulk Refuse service management;
- Household recycling services, including development of new initiatives.

5.5 Waste Operators (Public)

Waste Operators providing services in the public sector are:

- The Parish Douzaines are responsible for collecting rates to fund the collection and disposal of household ("dustbin" or "black bag") waste. The Douzaines also issue tenders and appoint refuse collection contractors.
- Household Waste Collection Operators (under 10 separate Parish contracts)
- States Works Department (under Service Level Agreements for the Public Services Department) are responsible for landfill operations, operation of Fontaine Vinery Waste Segregation Facility; Longue Hougue, Bulk Refuse collection service, recycling services (bring banks, polystyrene, and Longue Hougue Waste Recycling Facility), street cleansing, sewer cleansing (through Guernsey Waste Water), and coastal detritus collection.
- The Public Services Department currently has managerial responsibility for the bulk refuse collection service and the bring bank scheme, and will have responsibility for procuring the facilities and services described in this plan. They also set gate fees in accordance with existing legislation and policies.
- Commerce and Employment Department undertakes collection and disposal of specially controlled waste, either on-island or by export to specialist facilities in the UK. The Commerce and Employment Department also administers operation of the animal carcass incinerator at Longue Hougue.
- Health and Social Services Department operates clinical waste collection from private and public sector healthcare premises and disposal at the Princess Elizabeth Hospital Incinerator.

5.6 Drivers for Change

Landfill capacity is of vital importance to the Island because, irrespective of the choice of waste treatment technology or the extent of recycling, some hazardous/special wastes and residues

will always require disposal. For example asbestos, chemicals, and hospital incinerator ash. Prolonging the life of Mont Cuet Landfill Site for the longer term management of special wastes remains a key objective of the Plan.

The previous Plan identified that existing policy and practices are unsustainable, being reliant upon limited landfill capacity. The only remaining major quarry on the Island which may be suitable is at Les Vardes. In September 2006 (Billet d'État XV of 2006), the States considered the findings of the Waste, Water and Stone working party and resolved that Les Vardes quarry should be reserved for water storage after stone extraction has ceased at the site. Following a Planning Inquiry, permission was granted in 2010 to extend quarrying activities at the site until 2030.

Landfilling untreated waste is also contrary to present day waste management practices, with some form of pre-treatment required prior to disposal.

In addition, the continued use of Mont Cuet for the processing of green waste is preferable to the development of a facility elsewhere on the Island, which would require an engineered surface, including leachate management.

The previous Plan centred on the treatment of residual waste through a dedicated Energy from Waste facility, accompanied by a 50% recycling target. The February 2010 States debate made it clear that a strategy based on these principles was no longer acceptable, and a revised waste strategy should therefore be developed.

6. Current Situation

6.1 Current Waste Arisings

Table 6.1 shows estimated residual waste and recycling tonnages from both household and commercial sources for 2010:

Table 6.1 – Summary of 2010 Waste Arising Figures

	Household	**Commercial/Industrial**	**Total**
Inert Waste		127,202	127,202
Inert Recycling		25,427	25,427
Inert Sub-Total			**152,629**
Residual Waste	14,329	27,874	42,203
Recycling	12,122	19,829	31,951
Sub-Total			**74,154**
Total Waste	**26,451**	**200,332**	**226,783**

Within the limitations of recorded information the following indicative waste arisings (Table 6.2) are used as the basis for projecting future quantities and trends, and evaluating various waste management options.

Table 6.2 – Composition of Waste Arisings in 2010*

Waste Category	Household Residual Waste (Tonnes)	Household Recycling (Tonnes)	Commercial /Industrial Residual Waste (Tonnes)	Commercial Recycling (Tonnes)	Total (Tonnes)
Paper/Cardboard[14]	2,208	4,233	2,326	4,153	12,920
Non-Recyclable Paper	151	0	1,130	0	1,281
Dense Plastic	1,117	245	2,248	441	4,050
Plastic Film[15]	827	0	788	0	1,615
Textiles	607	485	787	0	1,878
Misc. Combustible	2,136	0	3,690	1,905	7,731
Misc. Non-Combustible	193	0	975	0	1,168
Glass	596	1,850	383	121	2,950
Ferrous Metal[16]	412	1,593	992	7,072	10,069
Non-Ferrous Metal	184	0	98	9	291
Kitchen Organics	4,850	0	1,986	0	6,836
Garden Organics	184	3,711	112	5,494	9,501
WEEE	123	6	142	627	898
Potentially Hazardous	40	0	18	0	58
Fines	701	0	1,220	0	1,921
Wood (diverted from landfill)			7,237		7,237
Fragmentiser Waste			1,420		1,420
Special/Hazardous Waste	Sewage & gully sludges		918		918
	Asbestos		405		405
	Chemicals		6		6
	Clinical waste (incineration)		644		644
	Animals		0		0
	Abattoir waste (incineration)		348		348
	Contaminated soil		0.2		0.2
	Chemicals (non-landfill)		3		3
Total	**14,329**	**12,123**	**27,874**	**19,829**	**74,154**

[14] Combined Paper, Cardboard and Beverage Carton Tonnages

[15] Recycled Plastic Film included in Dense Plastic Total

[16] Recycling Total for Ferrous Metals includes Non-Ferrous Metals, and some WEEE

* Please note roundings have been applied which may affect some totals in the above table.

Detailed analyses of the composition of domestic and commercial waste have been undertaken, enabling the scope for separating recyclable material to be determined as shown in table 6.2.

6.2 Existing Waste Management Facilities

Waste management facilities currently existing in Guernsey can be found in Table 6.3. In addition there are a number of facilities and services involved in the collection, processing and export of recyclable materials.

Table 6.3 – Waste Management Facilities in Guernsey

DESCRIPTION	LOCATION	OPERATOR
Inert landfill	Longue Hougue	Public Services Dept
Putrescible landfill	Mont Cuet	Public Services Dept
Green waste composting	Chouet/Mont Cuet	Public Services Dept
Animal Carcass Incinerator	Longue Hougue	Commerce & Employment Dept
Healthcare Waste Incinerator	Princess Elizabeth Hospital	Dept of Health & Social Services
Collection and disposal of specially controlled waste	Various	Commerce & Employment Dept
Waste Segregation Facility	Fontaine Vinery	Public Services Dept
Materials Recovery Facility (MRF)	Pointes Lane	Island Waste Ltd

Mont Cuet

Mont Cuet is an engineered landfill site at the site of a former quarry designated for the disposal of putrescible refuse and residual waste. It is administered and operated by the Public Services Department. The site is operated under the terms of a licence which regulated by the Office of Environmental Health and Pollution Regulation.

The actual capacity of the site will be dependent upon the final contours agreed with the licensing authority. However, a domed profile has been used to gauge void remaining, based on a capacity of 1,173,733m^3.

Surveys are conducted on a quarterly basis to monitor the volume of fill material. According to the most recent survey in July 2011, the site is approximately 66% full. Based on the filling rates for the previous 5 years it is estimated the site will be full in 2022.

A grout curtain is installed on the northern and western edges of the site to restrict sea water entering the site. Basal drainage allows for the collection of

leachate which is transferred to a treatment plant for aeration and settlement prior to marine discharge. Performance of the leachate treatment plant is routinely checked to ensure compliance with the licensing requirements.

Landfill gas is currently extracted and flared off. The monitoring of landfill gas collected is currently being carried out to identify the potential for power generation.

Longue Hougue

Longue Hougue is a marine reclamation scheme located to the south of St Sampson's Harbour. A stone bund has been constructed to enclose an area of sea into which inert waste is tipped. The site is administered and operated by the Public Services Department under the terms of a licence which regulated by the Office of Environmental Health and Pollution Regulation.

Only inert waste is accepted at this site as the material has direct contact with the marine environment, and sea water can move freely through the bund. Construction and demolition wastes suitable for tipping include hardcore, stone, concrete, gravel, sand, and sub- and top soils (if free of vegetation).

Vehicles are weighed into the site and directed to the tipping area. If, after emptying the vehicle, putrescible material is found in the load, this material is reloaded.

The original capacity of the site when it opened in August 1996 was 1,300,000m^3. There is currently a commitment to allow the lagoon area of the site to continue to be used for pleasure craft moorings while reclamation continues. The timescale for completion of Longue Hougue is heavily dependent on activity levels in the construction industry.

Strict control to ensure the acceptance of solely inert waste is essential to restrict any adverse environmental impact from this site on the marine environment.

In November 2005 (Billet d'État XX, 2005) the States resolved to continue depositing inert waste at Longue Hougue for land reclamation.

Waste Segregation Facilities

A temporary waste segregation facility is situated at Fontaine Vinery, managed by the Public Services Department. Recyclable and inert materials are separated from mixed loads before the residue is sent for disposal at Mont Cuet.

Island Waste Ltd operates a Materials Recovery Facility (MRF) at its premises in Pointes Lane. Other skip operators undertake some sorting at their own yards, whilst source segregation occurs at many construction and demolition sites.

Recycling Facilities

Current recycling relies on bring schemes for the public, with eight 'Super' Bring Bank sites and numerous smaller bring banks for dry recyclables. Chouet Green waste site and Le Friquet Garden Centre for household green waste and Longue Hougue Waste Recycling Facility for many different types of waste, including metals, Waste

Electrical and Electronic Equipment (WEEE), batteries, paint, inert materials, etc.

Dry recyclables are processed and prepared for export at Fontaine Vinery and through Mayside Recycling's facility at La Hure Mare.

Commercial recycling is achieved through collections by Island Waste and Mayside Recycling, as well as deliveries to a number of other operators. Oil Recycling is carried out by St Peter Port Services at North Side Oil Yard, and commercial green waste is accepted for composting at Mont Cuet.

6.3 Existing Private Waste Operators

Specialist private sector and charitable operators providing recycling services include:

- Island Aggregates – Crushing of construction waste to produce aggregate substitute;
- Paul Rouget – Crushing of construction waste to produce aggregate substitute;
- Guernsey Recycling (1996) Ltd – Metals (including End of Life Vehicles - ELVs), batteries, WEEE;
- Mayside Recycling Ltd – Paper, cardboard, and some plastics;
- Island Waste – Commercial waste sorting at Pointes Lane, recycling collections, cardboard, plastics etc.
- St Peter Port Services Ltd/WasteNot – soils, lead acid batteries;
- Fuel Supplies (CI) Ltd – Petrol;
- Sarnia Autos Ltd – Tyres;
- Sarnia Recycling – Lead acid batteries, uPVC windows, WEEE, non-ferrous metals;
- Guernsey Pallet Co – Pallets;
- Scrap-it – WEEE, non-ferrous metals;
- Galaxy Computers – Computers;
- Vaudin Stonemasons – Granite;
- Total Waste – Oil filters;
- Portinfer Timber Yard – Timber;
- A1 Recycling – Textiles;
- Salvation Army – Textiles;
- Wecycle – Kerbside Collections.

In addition, there are numerous waste hauliers who collect industrial, commercial and bulky household wastes, and businesses that use waste facilities direct.

6.4 Future Waste Arisings

In recent years waste projections using forecasted growth rates have constantly been modified on the basis of more up to date information. Historically, annual waste growth rates in the UK have typically been assumed to range between 1% and 3%. However, recent trends in the UK and Europe show that household waste arisings have been declining in recent years. Residual commercial waste has however remained relatively constant. Similar

trends have been experienced in Guernsey.

In the absence of a clear waste growth (or decline) trend in Guernsey, and to avoid over inflating the predicted waste arisings, constant waste production per person is assumed (i.e. zero growth).

The waste growth model prepared as part of the technical review of options in developing the revised waste strategy uses the existing waste data as a baseline, and any growth (or decline) is then projected in direct correlation to population forecasts provided by the States of Guernsey.

The expected residual waste capacity requirement over the next 25 years is estimated at 40,000 tonnes, if the Island remains at current recycling and composting rates. This estimate includes wood waste currently diverted from landfill.

7. Waste Prevention and Minimisation – the way forward

The first objective listed for the revised Waste Strategy is:

"To endorse and implement the principles of the Waste Hierarchy, which focuses on waste minimisation"

It is recognised that waste prevention and resource efficiency must play a vital part in the long-term strategy for waste management. As highlighted in the Waste Hierarchy (see Figure 7.1), waste prevention is the most preferable waste management option.

Figure 7.1

Waste prevention means taking steps to reduce the amount of waste we create.

The implementation of the Waste Minimisation Plan (dated October 2011), is the first step required to achieve this objective. This highlights measures to reduce the volume of waste requiring recycling, treatment or disposal. A summary of the proposed waste prevention actions to be delivered within the Island is shown in Table 7.1.

Social/community enterprises and the not-for-profit sector have a key role in developing waste prevention projects, particularly in taking forward reuse and refurbishment projects.

The Department will also look to provide information and advice to commercial businesses on waste minimisation and resource efficiency, and will support projects that demonstrate locally the financial and environmental benefits of waste minimisation and resource efficiency to local businesses.

ACTION 3
To implement and monitor the Waste Minimisation Plan (as per actions in Table 7.1)

ACTION 4
To identify additional opportunities for implementing waste prevention initiatives

Table 7.1 – A summary of the proposed waste minimisation actions

Summary of Island Waste Minimisation Actions Proposed by PSD
Home Composting • Research into the distribution of home composting bins and other home composting taking place to gauge the success of the existing scheme and potential expansion; • Continue to highlight the benefits of home composting through the promotion of home composting kits; • Investigate the potential for community composting schemes (Clos, States Houses, e.g. Les Genats, Guernsey Housing Association, Allotments etc); • Promotion of 'Grass Cycling' through local garden centres and lawn mower suppliers.
Real Nappies • Review and update 2008 usage survey; • Continue to highlight the benefits of real nappies through the promotion of the voucher scheme, possibly with support from the National Childbirth Trust; • Identify barriers, dispel myths and motivate parents; • Consider introduction of a nappy laundry scheme.
Carrier Bags • Implementation of a full review of the scheme, including data collection and management; • Publicity on the success of the scheme and further promotion; • Consultation with retailers/suppliers regarding bag materials.
Unwanted Mail • Consultation with Guernsey Post regarding the implementation of an unwanted mail scheme; • Develop, implement, publicise and review the scheme to assess its impact.
Sharing Resources and Time • Collation of information on details of events (e.g. car boot sales) and services (repair and re-use of goods) to produce an information leaflet and website page; • Promotion of the above and the benefits of selling/exchanging unwanted goods, loan and and hire systems, and borrowing schemes.
Donation • Collation of information on existing donation schemes and the production of an information leaflet and website page; • Promotion of the above and the benefits of donating unwanted goods; • Investigation into donation schemes that could compliment a future civic amenity site(s) and/or a reuse and repair centre; • Research and implement a local Community Re>Paint Scheme, ideally operated from the Longue Hougue Waste Recycling Facility by States Works with support from CEPS.
Waste Aware Shopping (WAS) • Collation of information on WAS opportunities locally; • Promotion of the benefits of WAS and the development of an interactive WAS web page; • Work with retailers on promoting WAS, including Hedge Veg, Farmers Markets etc
Reuse in the Home • Investigation of opportunities for reuse within the home; • Promotion of the benefits of reuse in the home and overcoming the negative image associated with this.
Reducing Food Waste • Development of a 'Love Food Hate Waste' Campaign, involving stakeholders; • Promotion of the benefits of reducing food waste.
Office Environment • Development of a best practice guide and check lists for businesses; • Update information on waste minimisation and recycling for Keep Guernsey Green Award (KGGA) Assessors • Continued ad-hoc support to the Environment Department for the KGGA scheme
Construction Industry • Creation of a working party to investigate waste minimisation measures that could be applied to the construction industry; • Consideration of a commercial reuse and repair centre as part of the waste strategy options, potentially operated on a commercial basis.
Retail Sector • Continuation of discussions with retail representatives and Guernsey Recycling Advisory Forum; • Investigations into the application of certain aspects of the EU Packaging and Packaging Waste Directive in Guernsey.

8. Recycling and Composting – the way forward

A second objective of the Waste Strategy is:

"To consider all waste streams and identify and adopt the most appropriate methods to manage them in accordance with the Waste Hierarchy"

Analysis of the composition of waste provides information on where progress can be made in terms of reducing and recycling waste. A commitment to maximising recycling has been endorsed through the consultation process.

The management of waste streams will be assessed against Defra guidance on applying the Waste Hierarchy, published in June 2011.

As part of the Waste Strategy, PSD has set the following challenging targets for household and commercial waste[17]:

- **50%** recycling by 2013;
- **60%** recycling by 2018;
- **70%** recycling by 2025.

Maximising recycling requires employing best practice measures appropriate to Guernsey. To achieve this, a combination of methods and processes that typically involve the source separation of recyclable materials (e.g. food, metals, glass, plastic and paper) from household and commercial waste sources is necessary. This will be achieved through a combination of kerbside collection of recyclables, civic amenity sites, composting, and bring sites, supported by legislative and financial instruments.

ACTION 5
To produce (and keep updated) A-Z Reduce, Reuse, Recycle Guide. To be promoted to households and other stakeholders

Other complementary facilities include MRFs (materials recovery facilities), with associated bulking and baling facilities; together with facilities for the onward dispatch of materials for recycling. Therefore maximised recycling will require extensive infrastructure to achieve the required diversion from the waste stream.

Performance will be dependent upon the existence of appropriate markets for recyclable materials, either on Guernsey or overseas. It should be emphasised that the application of current best practice recycling rates to all Guernsey's waste represents a challenging step and behavioural change, and a significant improvement to recycling performance for the island.

The following sections are targeted to be implemented as part of the Waste Strategy.

[17] Commercial Hazardous/Special waste treated at other facilities and outside the scope of the waste strategy is excluded from this total (e.g. clinical waste, abbatoir waste, etc.)

8.1 Bring Schemes

Bring banks are currently provided across the island for the public to deposit recyclable waste. Materials collected are glass bottles, cans, paper, cardboard, textiles, beverage cartons, plastic bottles and other plastic packaging, and polystyrene.

The bring scheme will be reviewed when considering the introduction of kerbside recycling. It is envisaged that limited bring banks will be retained for the benefit of, for example, householders in flats and in remote locations that may not be serviced by kerbside collections.

ACTION 6
Rationalise the bring bank scheme to complement kerbside collection

ACTION 7
Develop long-term bring bank facilities

8.2 Bulk Refuse Collection

The Public Services Department operates a collection and disposal service for householders wishing to dispose of furniture, cars and other large items. Metal items collected by this service are separated for recycling. This service offers a convenient means for removal of items that are too large to be transported by householders.

Following the introduction of the Longue Hougue Waste Recycling Facility, the Bulk Refuse Scheme was reviewed, and collection charges introduced. Nonetheless, the value of the Bulk Refuse Scheme as a disincentive for fly-tipping and as a service for householders who do not have the means to transport bulky items of refuse should not be underestimated.

ACTION 8
Review the Bulk Refuse Scheme to complement the Civic Amenity Site

8.3 Civic Amenity Site

A Civic Amenity (CA) site is a facility for the public to deposit waste items. Various types of waste may be accepted at these facilities, for example, bulky refuse (such as old furniture), special wastes (such as engine oil or batteries) or large quantities of unmixed wastes (such as off-cuts of timber).

In 2008, the Public Services Department opened the temporary Longue Hougue Waste Recycling Facility primarily to accept metal waste and other bulky items that would not be acceptable for householders to put out with their normal waste collection service. Due to its temporary nature certain waste items cannot be accepted; however the number of materials that are accepted has been expanded to include smaller items that can easily be separated from the household waste stream, e.g. batteries. Scavenging of items deposited for reuse is encouraged from the site.

A basic Civic Amenity site is also provided at Mont Cuet accepting waste materials, cardboard, metals/WEEE, and wood.

In order to achieve maximum recycling and reduction of waste, it is envisaged that one or more civic amenity sites will be required to provide facilities for households to deposit waste unsuitable for household collections.

The commercial operation of civic amenity facilities under contract to the Public Services Department should be considered, potentially in combination with a repair and reuse centre offering employment and training facilities for the unemployed and/or those with learning difficulties.

ACTION 9
To evaluate the location and operation of permanent CA sites including repair and reuse facilities

ACTION 10
Implement and develop these CA sites for use by the local community

8.4 Kerbside Recycling

In order to maximise recycling and achieve set targets it will be necessary to increase public participation in recycling. Collection of recyclable materials from households, known as kerbside recycling, offers greater convenience than the current bring scheme and can therefore yield greater diversion of waste. It is commonplace throughout Europe. Local Authorities in the UK achieving the highest recycling rates all employ some form of kerbside collection.

To achieve an efficient and extensive service will require a review of existing collection services for waste, with a co-ordinated approach for the collection of different materials. The exact nature of collections has yet to be researched in depth; however modelling has identified a number of methods that could be employed, with indicative costs for collection and processing.

The adoption of kerbside recycling will require additional resources, accompanied by changes to existing legislation.

ACTION 11
To investigate appropriate kerbside collection service for dry recyclable and food waste

ACTION 12
To introduce kerbside collection for dry recyclables in a phased approach.

ACTION 13
Introduce kerbside collection for Food Waste

ACTION 14
Develop a Waste Awareness Communications Plan to accompany the introduction of the kerbside recycling scheme

ACTION 15
To monitor the new kerbside recycling scheme through waste composition analysis and gathering information on participation and capture rates

8.5 Multiple Occupancy Property and New Development Recycling Schemes

Multiple occupancy properties (typically flats and tenement housing types) are regarded as particularly challenging locations to introduce recycling services, primarily due to space constraints for bin storage. Some households within the Island are unlikely to be able to receive kerbside recycling for this reason. These properties will be assessed and bespoke solutions will be implemented where practicable.

In an effort to provide convenient access to recycling facilities for residents in multiple occupancy properties, the Department will be working with the Forward Planning section of the Environment Department to ensure adequate recycling facilities are provided in any new build. The same will apply to large commercial development where recycling facilities would be well used. Existing multiple occupancy properties and their opportunities and barriers to recycling will be investigated as part of the process investigating kerbside collections.

ACTION 16
Investigate amendments to the Planning Legislation to ensure adequate recycling facilities are included in any commercial property or domestic multiple occupancy new builds

8.6 Composting

The adoption of high diversion rates for green waste will require the continued provision of facilities for the recycling of green waste, including infrastructure for processing this material and encouragement for home composting.

Green Waste composting is currently achieved through windrowing at Mont Cuet. The implementation of the revised waste strategy will divert the majority of the residual waste stream from landfill. This should enable the capping of a large area of the site, creating a surface where windrow composting can be achieved efficiently and effectively for the foreseeable future, without the need for an additional engineered facility elsewhere on the Island.

Soil conditioner produced will continue to be applied to the land. Any surplus may be used in landscaping projects or for land reclamation. Commercial green waste will continue to be received at Mont Cuet.

The introduction of food waste collections will require processing facilities for this material, and the onward management of outputs from this process. Two options are available for this:

In-Vessel Composting (IVC)
The aerobic composting of food waste in an enclosed environment in order to control the composting process, reduce odour emissions, and maintain quality. Some green waste would be added to food waste to add fibrous structural material at a ratio of two parts food waste to one part green waste. Outputs from this process can be applied to land

as long as they conform with various quality control standards.

Anaerobic Digestion (AD)
Controlled digestion of organic wastes in an enclosed container in the absence of oxygen. The benefit of this process is the creation of methane which can be collected and used for energy generation. The output from anaerobic digestion processes is typically a nutrient rich liquid digestate. Owing to the limited farmland available locally and the risk of increasing nitrate levels in local drinking water supplies, it is generally accepted that this use of outputs is not feasible. Further treatment of the digestate could be employed and would result in a liquid effluent which could be discharged to the sewer, leaving a dry solid fibrous material which could be used on the land or potentially as a fuel source.

Following discussions with the local farming community, there is clearly no appetite to accept digestate direct from an anaerobic digester; however the compost produced from IVC would be acceptable, as long as it could be guaranteed to conform to certain quality standards. Farming contractors have already expressed an interest in acting as an agent for the Public Services Department for the distribution of compost to farmers.

ACTION 17
Investigate the recovery of waste from street sweeping for recycling/composting

ACTION 18
Investigate the tendering and procurement of food waste processing facilities in conjunction with kerbside collection of food waste.

ACTION 19
Procurement of food waste processing facilities in conjunction with the kerbside collection of food waste.

ACTION 20
To work and liaise with farmers on the use of outputs from food waste processing.

8.7 Materials Recovery Facility

A Materials Recovery Facility (MRF) houses operations that process incoming waste so that it may be recycled and/or directed to an appropriate treatment facility. Separation is achieved by a combination of manual and automated sorting. Bulking and baling machinery will also be present to prepare separated materials for onward transport.

For some residual waste treatment technologies, preparation of waste prior to treatment is an integral part of the process. For example, advanced thermal treatment technologies typically require the waste to be reduced into small fragments and homogenised.

The preferred option for treating residual waste requires a MRF at the front end to reduce the volume of waste requiring treatment. The exact specification will be dependent on the acceptance criteria at the treatment facility, as well as the need to achieve a maximised recycling rate.

The previous strategy identified the need for two MRF's – one for dry recyclables and one for mixed

commercial loads. Subsequently Mayside Recycling has developed new premises at the Coal Yard, La Hure Mare for processing paper, cardboard, plastic and tetrapaks, and this facility has spare capacity. Other recyclables collected through the bring scheme are currently processed at the temporary facilities at Fontaine Vinery. Whilst a dedicated dry recyclables facility such as proposed in the previous strategy is no longer required, a MRF to accompany a waste treatment facility should make provisions for the processing of tins/cans and glass bottles.

This facility will deal with commercial waste rather than household waste (although it will also deal with skips collected from householders). The MRF will reduce the quantity of residual waste requiring treatment by removal of inert and recyclable materials such as metal.

A dedicated commercial MRF has the potential to replace existing facilities at Fontaine Vinery and Pointes Lane, both of which are subject to several operational constraints. This would provide a dedicated and efficient facility to accompany further treatment of waste, with the non-recyclable output characteristics to be specified according to the waste acceptance criteria for the residual waste treatment facility.

The MRF should have a design capacity of approximately 25,000 tonnes.

ACTION 21
Investigate the tendering and procurement of a MRF in order to complement waste treatment

ACTION 22
Construction of a MRF in order to complement waste treatment.

ACTION 23
Commissioning of a MRF in order to complement waste treatment.

8.8 Producer Responsibility

Producer responsibility is based on the 'polluter pays' principle, and requires businesses which place products on the market to take responsibility for their products when they reach the end of their life. In essence, producer responsibility places obligations on the producers of the waste (regarded as those putting it on the market in the first place) to collect a proportion of the waste for recycling and recovery.

In Guernsey this is a difficult area to monitor and indeed have any influence over, as the products sold in the Island are largely imported. However, the Department strongly supports producer responsibility and will look to support the set-up of locally based producer compliance schemes.

ACTION 24
Where opportunities arise, to work with industry in introducing producer responsibility that covers a range of materials and products

9. Residual Waste Treatment

A final objective of the waste strategy is:

"To develop an environmentally, economically and socially sustainable waste strategy that is practicable and adaptable to meet Guernsey's needs currently and in the foreseeable future"

Consultation has been carried out to identify the most appropriate method for dealing with the island's residual waste after the upper tiers of the waste hierarchy have been addressed.

Based on the outputs of the consultation process, the Public Services Department has developed a revised waste strategy to minimise and recycle waste where possible, with recommendations for the treatment of residual waste.

9.1 Residual Waste Treatment

Of the waste deposited at Mont Cuet Landfill Site in 2010, 32,642 tonnes would be classified as residual waste suitable for diversion to a new waste treatment facility. However, much of the commercial waste undergoes some form of pre-sorting prior to disposal at Mont Cuet. In addition to this waste there is an estimated 7,237 tonnes of segregated wood waste which may also need to be taken into consideration.

As indicated above the preferred option for dealing with the Island's waste identified the requirement of a MRF to achieve higher levels of separation of waste than currently achieved at Fontaine Vinery and Pointes Lane, thereby reducing the volume of waste requiring further treatment.

Waste minimisation and increased recycling through kerbside collections of dry recyclables and food waste will further reduce the volume of waste requiring treatment. This means the maximum volume of residual waste requiring treatment will be approximately 25,000 tonnes.

A variety of options for processing the Island's future residual waste have been investigated and evaluated.

With the assistance of technical consultants and through stakeholder engagement, a short-list of options suitable for dealing with Guernsey's residual waste have been developed, with three options broadly supported as acceptable for Guernsey:

A On-island heat treatment with energy recovery. This could be achieved through a small energy from waste facility using incineration. Alternative methods under the banner of Advanced Thermal Treatment (ATT), such as gasification and pyrolysis, may be considered;

Waste acceptance criteria for such a treatment facility should ensure end products will be suitable for use in construction and/or land reclamation, rather than requiring disposal at landfill. Specially controlled waste from the Air Pollution

Control systems (APC residues, or 'Fly Ash') will require disposal at specialist off-island facilities;

B Export of Waste to a heat treatment facility. This can be achieved by simply baling waste in preparation for shipping from a transfer station; or

C Mechanical Biological Treatment (MBT) Plant producing a Refuse Derived Fuel (RDF). The RDF could be exported but would be dependent on sustainable markets. On-Island uses for this fuel product could also be considered with appropriate thermal treatment.

Option B has been identified as the preferred option for Guernsey. Tenders will be sought to procure the necessary facilities for reducing the volume of waste requiring treatment and baling residual waste in preparation for export.

Negotiations with operators of facilities for accepting residual waste for treatment are required to develop contract documents in support of this.

ACTION 25
To investigate and procure facilities associated with exporting residual waste

ACTION 26
Construction of facilities associated with the exporting of residual waste

ACTION 27
Commissioning of facilities associated with exporting of residual waste

9.2 Hazardous Waste Disposal

Around 1,500 tonnes per annum of hazardous waste are created. Approximately 400 tonnes of asbestos is landfilled on-island with small quantities of some other hazardous wastes (non-persistent chemicals, contaminated soil, etc.) with the remainder being exported to specialist facilities in the UK in accordance with Trans-frontier Shipment of Wastes Regulations. Of the hazardous wastes that are currently exported, waste oil accounts for approximately 1,000 tonnes per annum and is currently sent for recycling in the UK.

In addition to the 1,500 tonnes of hazardous waste there are approximately 1,000 tonnes of special waste which is currently disposed of at Mont Cuet. This is predominantly sewage and gully sludge and bottom ash from the hospital and carcass incinerators. These wastes would continue to be disposed of in an engineered cell at Mont Cuet, designed to accept approximately 1,500 tonnes per year.

Adequate provision for the acceptance of hazardous/special waste currently accepted at Mont Cuet should be made when considering future operations at the site.

ACTION 28
Co-ordinated filling of Mont Cuet to make provision for future use, including long-term acceptance of hazardous/special wastes.

Existing measures for dealing with other current Hazardous Waste should be maintained.

Heat treatment of residual waste will require emissions cleaning systems in order to comply with legislative standards. The pollutants removed from waste by these processes become concentrated and therefore have to be treated as hazardous waste.

Exporting waste for heat treatment will mean that the disposal of this material should not be required locally; however provision for dealing with this waste should be made in the Contract for export.

A review of hazardous waste should be undertaken as part of the revised waste strategy, taking into consideration hazardous waste generated through waste treatment.

Options for dealing with hazardous waste are:

- A specially engineered facility within an existing landfill;
- A dedicated on-island facility specifically for hazardous wastes;
- Export to off-island specialist facilities.

Guernsey does not have a dedicated hazardous waste facility and is constrained by the limited availability of land suitable for such a site, particularly due to the extent of the water catchment area on the island. Off-island disposal will be the most appropriate route for hazardous waste that cannot be accommodated locally.

ACTION 29
Review of hazardous waste and develop a Hazardous Waste Disposal Plan.

ACTION 30
Implementation of the recommended Hazardous Waste Disposal Plan

9.3 Landfill Capacity

As discussed earlier, approximately 34% of the calculated void space at Mont Cuet remains available for future landfilling; however, much of this space should be preserved to provide adequate disposal of waste that is unsuitable for treatment through heat treatment (i.e. asbestos, sewage and gully sludge, etc). A disposal cell will be specifically designed to accept this waste, estimated at approximately 1,500 tonnes per annum, with the remainder of the site being prepared for continued green waste windrow composting.

The remaining area of the site will be capped. This cap will be engineered to maximise the collection of landfill gas.

ACTION 31
Capping of filled areas at Mont Cuet to allow for future green waste processing

According to current calculations, Longue Hougue has an estimated 10 years' remaining capacity for the reclamation of land with inert waste; however, forecasting a closure date must be treated with caution as it is dependent on the nature of the construction industry. Therefore planning a follow-on site must be informed by an ongoing process of site surveys and forecasts of construction sector activity.

ACTION 32
Commence identification and preparation of follow-on site to Longue Hougue

10. Implementation

For the effective implementation of the Waste Disposal Plan, it is important to take into account the current situation on the Island, and in particular the issues and constraints when delivering this plan.

10.1 Strategic Issues and Constraints

The following factors specific to Guernsey, and mostly applicable to other small island communities, need to be taken into account when determining the way the Waste Strategy is to be delivered:

- Limited land availability and current ribbon development pattern;
- Isolated location therefore requiring proven self-sufficiency and reliable techniques;
- The importance of tourism and international reputation of the island;
- Limited labour resources available with under 1% unemployment of the working population;
- Lack of economies of scale making some processes unviable;
- Lack of local markets and open space for treated waste products;
- Existing and planned legislative processes;
- Affluent community tends towards waste production as opposed to waste minimisation;
- Limited scope for competitive procurement of services.

10.2 Strategically Essential Facilities

Waste management facilities exist to safeguard public health and protect the environment. Therefore, they must operate reliably; in compliance with performance requirements; and with an ability to cope with unexpected variations in needs. For various reasons, some facilities/services are considered to have a greater requirement for security than others and are known as ‘strategically essential’.

The Plan acknowledges that the private sector has a valuable role to play in the provision of waste management services. However, any arrangements for the provision and operation of these facilities should seek to avoid a monopoly power by a private sector service provider, to ensure the States is able to take operational control of such facilities at very short notice should the need arise.

Although it is possible to include conditions of contract provisions, providing the States the right to occupy and take over the running of facilities under certain circumstances, these are not a substitute for States ownership. This could represent a reactive, rather than a proactive form of control.

Therefore, it is the intention of the States to continue maintaining a close involvement in the provision and operation of public waste management facilities and services, in order to retain a high level of control over 'strategically essential' facilities and services.

The following criteria for the selection of these facilities/services will be examined in detail:

- Facilities where it is likely a monopoly could exist, owing to the fact that the market size is restricted by availability of land, capital or expertise and therefore likely to be unique to the island;
- Facilities having the potential to cause an environmental hazard for which the private sector would not or could not be held liable. For example, an existing landfill site would have pollution risks associated with waste deposited in the early part of its life that would interfere with attributing liability to any pollution arising from mismanagement after a change of ownership;
- Facilities where the need to have extreme reliability and/or security of service could put the community at risk of exploitation;
- Services managed under a long-term contract (e.g. 10 years) in order to attract private sector involvement, may have a restricted ability to respond to unforeseen changes in, for example, waste generation and quality criteria for separated recyclable materials.

At present, landfill sites, and any other planned waste facilities are regarded as strategically essential. Furthermore, given the scarcity of land in Guernsey, sites for strategically essential waste management facilities should remain in public ownership.

10.3 Timescales

All the scenarios assume a decision on the waste strategy will be concluded in 2012.

ACTION 33
States approval of the Waste Strategy, allowing progress on work streams during 2012.

It is anticipated that after a decision is taken on waste treatment, design and planning will require 1-2 years followed by 1-2 years for construction; however some facilities and services may be developed in advance of the final treatment plant.

In order to conserve void within Mont Cuet, it is intended to concentrate efforts on waste prevention and minimisation with increased recycling and reuse measures, in accordance with the Waste Hierarchy. An initial target of 60% recycling by 2018 will result in a decreased amount of waste being sent to landfill, therefore extending the life of Mont Cuet.

Please refer to the Action Plan in Appendix 2 for the anticipated timescales of each action listed in this Plan.

10.4 Achieving Recycling Targets

Appendix 2 indicates the anticipated implementation period of a number of measures designed to increase recycling towards a target of 70% by 2025, for both household and commercial waste.

The effect these measures are anticipated to have on recycling rates and residual waste tonnages are shown in Appendix 1. As well as specific facilities, achieving the proposed targets may require legislation to back-up measures to increase recycling and minimise waste, and significant effort through communication, awareness raising, education and promotional activity.

Recycling rates and targets will be reviewed on a five yearly basis at the same time as regular reviews of the Waste Strategy. A review of the calculation methods will be carried out in 2012.

ACTION 34
Review of Recycling Rate calculations, with particular focus on commercial recycling.

10.5 Location of any New Facilities

The planning policy framework for the consideration of waste management proposals has been developed and changed over the years in response to a series of States debates regarding the most appropriate waste disposal strategy for the Island.

Following States consideration of a Waste Strategy Assessment in 1998, an Outline Planning Brief (OPB) was adopted for an Integrated Waste Management Facility, to include the installation of a Waste to Energy plant, on the Longue Hougue Land Reclamation Site and Key Industrial Area (Billet d'État V 2002).

Longue Hougue had been identified as the most appropriate location for an Integrated Waste Management Facility and other waste related uses.

In developing proposals for a revised Waste Strategy, it became clear the OPB was too project specific, relating to previous models rejected by the States in 2004. A broader 'policy gateway' was therefore requested to allow for a full range of waste technologies, in line with the Waste Disposal Plan approved in January, 2007 (Billet d'État I 2007). In response to this, the Environment Department brought forward proposals to amend the Urban Area Plan, which were subsequently endorsed by the States following a public inquiry in February, 2009 (Billet d'État XII).

The plan amendments resulted in the original OPB being rescinded in favour of a Development Brief, which was subject to full public consultation. This provides supplementary planning guidance for determining a broad range of waste management proposals at the Longue Hougue South Industrial and Reclamation Area that might be brought forward by the Public Services Department and/or private waste operators.

The plan amendments adopted in May 2009 also provide a 'policy gateway'

for considering small-scale solid waste infrastructure elsewhere in the Urban Area such as a Civic Amenity Site or Materials Recovery Facility (MRF).

Any planning permission granted by the Environment Department for waste management infrastructure will be subject to meeting a range of criteria, such as achieving safe and convenient access and a unified architectural concept, possibly through the application of a Design Code.

ACTION 35
Consideration for baseline data required for an Environmental Impact Assessment in advance of the strategy implementation

The Development Brief outlines that in this respect, proposals should *'...create an innovative development in design and functional terms that enhances the local context and existing views from land and sea'*. This would be of particular relevance in the absence of a comprehensive scheme for Longue Hougue, where several operators deal with various elements of the waste stream.

Proposals for a waste management infrastructure will also be subject to the licensing requirements of the Environmental Pollution (Guernsey) Law, 2004. A formal application for operating licenses under the relevant legislation will need to be considered and no permits would be granted until the Director of Environmental Health and Pollution Regulation is satisfied that all regulatory criteria would be met.

A site plan of Longue Hougue can be found in Appendix 3.

10.6 Legal Impacts

Waste management facilities in Guernsey are governed by the Environmental Pollution (Guernsey) Law, 2004. Section V of the Law deals specifically with Waste, and this was fully implemented on 1 June 2010 by the Environmental Pollution (Waste Control & Disposal) Ordinance, 2010.

This law provides the means for:

- Government to determine strategic waste management objectives (by formulation and endorsement of this Plan);
- Appropriate environmental and public health protection standards to be applied (through the authority of the Director of Environmental Health and Pollution Regulation);
- Ensuring ongoing compliance of facilities with those standards (by issuing waste management licences to operators);
- Protecting the investment of service providers by prosecution of service providers that infringe licence conditions and those operating without a licence.

ACTION 36
Work in liaison with Environment on the implementation of Waste Licences and providing evidence if required for any prosecutions

10.7 Refuse Collections

Although black bags are generally appropriate for storing domestic waste for collection, problems occur when bags are broken by scavenging animals, either because the bags are too flimsy or because they have been left out for a number of days before collection.

Existing legislation is problematic because plastic refuse sacks ('black bags') are not specified as suitable containers for domestic refuse collection, nor is the law enforced.

The legislation will need to be reviewed in order to control by Order the method by which waste is presented for collection. Specific container requirements for kerbside collection may also need to be taken into consideration.

Legislation governing the collection of household waste will also be reviewed to complement kerbside collection to ensure efficient and effective collection of segregated waste and recyclables from the doorstep. The current charging system does not encourage recycling and this review will also take into consideration charging methods for the collection of waste and recycling.

Consideration of combined household and commercial refuse collections will also form part of this review.

ACTION 37
To review the current Parish Waste Collection system to ensure efficiency and effectiveness is being achieved

ACTION 38
Consideration for co-ordinated kerbside and refuse collections, including potential for combining household and commercial collections.

10.8 Charging Policies

Charges for waste management services will be set by the operator of any facility chosen, in order to achieve the objectives of this plan.

A range of instruments may be applied, for example:

- Pay-by-weight systems for domestic refuse, which incentivise separation of recyclable materials by householders;
- Cross-subsidisation of waste management facilities;
- Penalties for activities threatening achievement of the Plan's objectives, such as contaminating collections of recyclable materials with other wastes.

Charging policy must have the flexibility to apply such instruments, in order to achieve outcomes in accordance with the actions of this plan and with the principles of:

- Cost recovery; and
- Polluter pays

PSD will continue to develop policies that determine how the gate fees should be set.

ACTION 39
PSD to develop policies to help determine how gate fees should be set.

10.9 Other Supporting Policies

Waste management licensing and charging policies are powerful methods to reinforce the objectives of the Plan.

States Departments will adopt and promote green procurement policies to maximise the use of end-products from local waste facilities. Examples include:

- Amendment of construction specifications to incorporate the use of crushed glass;
- Amendment of building regulations to allocate appropriate space in new developments to complement the objectives of the revised waste strategy;
- Use of compost from green waste windrowing composting on States-owned land.

ACTION 40
To work with the Planning section of the Environment Department in amending construction specifications for new builds

ACTION 41
To devise supplementary planning guidance in association with the Environment Department, with regard to managing waste and improving recycling opportunities in new developments

ACTION 42
To work with States Works and other States Departments in formulating a plan to utilise green waste compost on States owned land

States Departments should make provision for the introduction of policies in accordance with the revised waste strategy for waste minimisation and recycling, leading by example.

10.10 Procurement

The transition from the current situation to the future strategy has been closely examined. The nature of waste management facilities means a significant commitment of resources to ensure these facilities are effective and reliably safeguard environmental and public health. It is necessary to procure facilities in order to satisfy the long term needs of the community and the contractor.

Procurement is concerned with the extent of services to be provided; duration of contracts; funding arrangements; provision and ownership of assets; and finally, contractual

arrangement. Choices made within these options will have consequences for user behaviour, risk allocation and operational performance.

The preferred approach to procurement for waste management facilities can be summarised as:

- Only services concerned with the minimising and treatment of residual waste will be included in the contract(s);
- The contract(s) will specify services to design, and build appropriate facilities;
- Funding is likely to be provided by a loan from the States of Guernsey (but see below);
- Land will be owned by the States and plant and buildings will be owned either by the States or by a Partnership;
- The Department will regulate gate fees, and the Environment Department will regulate and monitor legislative controls in order to control waste movements, thereby guaranteeing revenue for the facility operator(s);
- The contract(s) will specify performance criteria, rather than giving requirements for particular technologies. However, preferred generic technologies have been identified in order to exclude higher risk technologies.

Alternative funding options may also be considered. However, this will depend on expressions of interest received by the States. An example of this would be a Public Private Partnership (PPP) where the Department could use private sector expertise and resources in order to deliver public sector infrastructure according to a specification agreed by the States.

ACTION 43
To agree with Treasury and Resources the procurement and financing route for the export of residual waste

11. Plan Monitoring and Review

Waste generation and composition will be determined by population and economic trends over forthcoming years.

As the Plan is intended to remain valid over the next 25 years, projections made now will be checked and, if necessary, waste management infrastructure will have to respond.

Furthermore, emergence of new treatment technologies and legislative standards may supersede parts of the Plan.

ACTION 44
The Department to carry out regular waste composition analysis of waste arisings

ACTION 45
To monitor changes in waste growth based on kilogrammes of waste produced per household per year

To ensure that the plan remains appropriate to the Island's needs, a review will be undertaken every five years. This review will take into account the same factors used in compiling this Plan, and consider any insight gained from experience and performance monitored against targets specified in this Plan, and measurable policy objectives specified within the States Strategic Plan (SSP).

Progress on the implementation and delivery of the Plan and achieving targets will be reviewed and reported on an annual basis.

ACTION 46
To review and update the Plan every five years to ensure it remains valid.

ACTION 47
To review and report on the progress of the Plan on an annual basis in line with the re-evaluation of the SSP

Appendices

Appendix 1 Waste Tonnages and Recycling Rates from 2010 to 2025

Assumptions made in the table below:

1. Some dry recycling kerbside collections will be introduced in 2013, with full kerbside collection of dry recyclables and food waste implemented in 2014 to coincide with commissioning of processing facilities.
2. An on-Island waste treatment facility would be commissioned in 2015. Export off-island could potentially bring construction of the required facilities forward to 2014.
3. Alternate Week Collections of residual waste will commence in 2016
4. Five yearly reviews of the strategy will take place in 2016 and 2021.
5. Food waste collections are anticipated to capture a maximum of 50% from Household sources and 70% from Commercial sources.
6. Consideration should be given to the calculation methods for commercial waste, and to combining household and commercial rates.
7. 'Residual Suitable for Treatment' includes 50% of wood waste which has historically been segregated within the commercial sector and burnt.
8. 'Residual Waste Treated by other methods' assumes 50% of wood waste which has historically been segregated is anticipated to be burnt in biomass boilers and/or household burners.
9. All figures presented below are in tonnes.

Timeline	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
	Base Line Data	Additional Recycling	Implementation of Strategy. Review of Recycling Rate Calculations. Focus on commercial recycling.	Introduction of some Kerbside Collections (Household)	Introduction of full dry recyclable and food waste kerbside collections/IVC	Residual Waste Treatment Plant Commissioning.	Implement AWC with new legislation. Review of recycling rates and waste strategy.	Further promotion of new initiatives, education, and new legislation to back up policy.				Review of recycling rates and waste strategy	Further promotion of new initiatives, education, and new legislation to back up policy.			
Recycling Targets				50% Target					60% Target							70% Target
Total Household & Commercial Waste*	73,159	73,159	73,159	73,159	73,159	73,159	73,159	73,159	73,159	73,159	73,159	73,159	73,159	73,159	73,159	73,159
Increase in Household Recycling	0	372	794	1,104	3,123	3,496	4,155	4,527	4,829	5,093	5,357	5,621	5,814	6,006	6,199	6,392
Increase in Commercial Recycling	0	1,186	2,533	3,525	5,029	5,902	6,776	7,649	8,523	9,143	9,764	10,385	11,006	11,627	12,247	12,868
Total Recycled	31,951	33,508	35,278	36,580	40,103	41,349	42,881	44,127	45,302	46,187	47,072	47,957	48,770	49,584	50,397	51,211
Overall Percentage Recycling	**43.7%**	**45.8%**	**48.2%**	**50.0%**	**54.8%**	**56.5%**	**58.6%**	**60.3%**	**61.9%**	**63.1%**	**64.3%**	**65.6%**	**66.7%**	**67.8%**	**68.9%**	**70.0%**
Total Increase in Recycling	0	1,558	3,327	4,629	8,152	9,398	10,931	12,177	13,351	14,236	15,121	16,006	16,820	17,633	18,446	19,260
Food Waste Collected	0	0	0	0	2,441	2,606	2,771	2,935	3,100	3,202	3,304	3,406	3,509	3,611	3,713	3,815
Increase In recycling (excluding food waste)	0	1,558	3,327	4,629	5,710	6,792	8,160	9,241	10,251	11,034	11,817	12,600	13,311	14,022	14,733	15,445
Remaining Residual Waste	41,208	39,650	37,881	36,579	33,056	31,810	30,277	29,031	27,856	26,971	26,086	25,202	24,388	23,575	22,761	21,948
Residual Suitable for Treatment	0	0	0	0	0	28,911	27,464	26,016	24,569	23,535	22,501	21,468	20,434	19,400	18,366	17,332
Residual Waste To Landfill	38,160	36,602	34,833	33,531	32,068	1,694	1,678	1,662	1,646	1,635	1,624	1,612	1,601	1,590	1,578	1,567
Residual Waste Treated by other methods	3,048	3,048	3,048	3,048	3,048	3,048	3,048	3,048	3,048	3,048	3,048	3,048	3,048	3,048	3,048	3,048

* Commercial Hazardous/Special waste treated at other facilities and outside the scope of the waste strategy is excluded from this total (e.g. clinical waste, abattoir waste, etc.).

Appendix 2 – PSD Waste Management and Disposal Plan Action Plan

The table below outlines the Action Plan to support the delivery of PSD's Waste Management and Disposal Plan. This Action Plan is a list of key activities, but does not include recurring work activities.

In the table below:

- **Short-term** means within a year
- **Medium-term** means within three years
- **Long-term** means more than three years
- **On-going** means existing action set to continue

LOW = low priority
MED = medium priority
HIGH = high priority

The implementation of the Action Plan will be monitored and will be provided as an annual summary update to the Waste Disposal Authority.

Number	Action	Timescale	Priority
Strategic & Legislative Framework and Drivers for Change			
1.	To review legislation required for revised Waste Strategy	Short-term	**MED**
2.	To introduce new legislation for the revised Waste Strategy where necessary	Medium-term	**MED**
Waste Prevention and Minimisation – the Way Forward			
3.	To implement and monitor the Waste Minimisation Plan	Short-term	**HIGH**
4.	To identify additional opportunities for implementing waste prevention initiatives	On-going	**MED**

Number	Action	Timescale	Priority
Recycling and Composting – the Way Forward			
5.	To produce (and keep updated) A-Z Reduce, Reuse, Recycle Guide. To be promoted to households and other stakeholders	On-going	**MED**
6.	Rationalise the bring bank scheme to complement kerbside collection	Medium-term	**HIGH**
7.	Develop long-term bring bank facilities	Medium-term	**HIGH**
8.	Review the Bulk Refuse Scheme to complement the Civic Amenity Site	Medium-term	**MED**
9.	To evaluate the location and operation of permanent CA sites including repair and reuse facilities	Short-term	**MED**
10.	Implement and develop these CA sites for use by the local community	Medium-term	**MED**
11.	To investigate appropriate kerbside collection service for dry recyclable and food waste	Short-term	**HIGH**
12.	To introduce kerbside collection for dry recyclables in a phased approach	Medium-term	**HIGH**
13.	Introduce kerbside collection for food waste	Medium-term	**HIGH**
14.	Develop a Waste Awareness Communications Plan to accompany the introduction of the kerbside recycling scheme	Medium-term	**HIGH**
15.	To monitor new kerbside recycling scheme through waste composition analysis and gathering information on participation and capture rates	On-going	**LOW**
16.	Investigate amendments to the Planning Legislation to ensure adequate recycling facilities are included in any commercial property or domestic multiple occupancy new build	Medium Term	**LOW**
17.	Investigate the recovery of waste from street sweeping for recycling/composting	Short-term	**LOW**
18.	Investigate the tendering and procurement of food waste processing facilities in conjunction with kerbside collection of food waste	Short-term	**HIGH**
19.	Procurement of food waste processing facilities in conjunction with the kerbside collection of food waste	Medium-term	**HIGH**
20.	To work and liaise with farmers on the use of outputs from food waste processing	On-going	**HIGH**
21.	Investigate the tendering and procurement of a MRF in order to complement waste treatment	Short-term	**HIGH**
22.	Construction of a MRF in order to complement waste treatment	Medium-term	**HIGH**
23.	Commissioning of a MRF in order to complement waste treatment	Medium-term	**HIGH**
24.	Where opportunities arise, to work with industry in introducing producer responsibility that covers a range of materials and products	On-going	**LOW**

Number	Action	Timescale	Priority
Residual Waste Treatment			
25.	To investigate and procure waste disposal facilities associated with exporting residual waste	Short-term	**HIGH**
26.	Construction of facilities associated with the exporting of residual waste	Medium-term	**HIGH**
27.	Commissioning of facilities associated with exporting of residual waste	Long-term	**HIGH**
28.	Co-ordinated filling of Mont Cuet to make provision for future use, including long-term acceptance of hazardous/special wastes	Long-term	**HIGH**
29.	Review of hazardous waste and develop a Hazardous Waste Disposal Plan	Short-term	**MED**
30.	Implementation of the recommended Hazardous Waste Disposal Plan	Medium-term	**MED**
31.	Capping of filled areas at Mont Cuet to allow for future green waste processing	Long-term	**HIGH**
32.	Commence identification and preparation of follow-on site to Longue Hougue	Long-term	**LOW**
Implementation			
33.	States approval of the Waste Strategy allowing progress on work streams during 2012	Short-term	**HIGH**
34.	Review of Recycling Rate calculations, with particular focus on commercial recycling	Short-term	**MED**
35.	Consideration for baseline data required for an Environmental Impact Assessment in advance of the strategy implementation	Short-term	**HIGH**
36.	Work in liaison with Environment on the implementation of Waste Licences and providing evidence if required for any prosecutions	On-going	**MED**
37.	To review the current Parish Waste Collection system to ensure efficiency and effectiveness is being achieved	Short-term	**HIGH**
38.	Consideration for co-ordinated kerbside and refuse collections, including potential for combining household and commercial collections	Medium-term	**MED**
39.	PSD to develop policies to help determine how gate fees should be set	Short-term	**HIGH**
40.	To work with the Planning section of the Environment Department in amending construction specifications for new builds	Medium-term	**MED**
41.	To devise supplementary planning guidance in association with the Environment Department, with regard to managing waste and improving recycling opportunities in new developments	Medium-term	**LOW**
42.	To work with States Works and other States Departments in formulating a plan to utilise green waste windrowing composting on all States owned land	Medium-term	**LOW**

Number	Action	Timescale	Priority
43.	To agree with Treasury and Resources the procurement and financing route for the export of residual waste	Short-term	**HIGH**
Plan Monitoring and Review			
44.	The Department to carry out regular waste composition analysis of waste arisings	On-going	**LOW**
45.	To monitor changes in waste growth base on kilogrammes of waste produced per household per year	On-going	**LOW**
46.	To review and update the Plan every five years to ensure it remains valid	Long-term	**MED**
47.	To review and report on the progress of the Plan on an annual basis in line with the re-evaluation of the SSP	On-going	**MED**

Appendix 3 – Site Plan of Longue Hougue

The thick black line indicates the area proposed for the Waste Strategy

Appendix 10

STATUTORY CONSULTATION RESPONSES TO THE DRAFT WASTE DISPOSAL PLAN

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La Chambre de la Douzaine,
Les Beaucamps, Castel,
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Deputy B. M. Flouquet,
Minister,
Public Services,
Sir Charles Frossard House,
St. Peter Port.

29th November 2011.

Dear Sir,

WASTE DISPOSAL AND MANAGEMENT PLAN: STATUTORY CONSULTATION.

At its meeting on the 28th November 2011 the Castel Douzaine considered the draft Waste Disposal and Management Plan. Douzenier Deputy Mr. B. J. Paint withdrew from these proceedings to avoid any conflict of interest.

The Douzaine wishes to submit the following comments:

1. As a statutory consultees the Douzaine is concerned that insufficient time was given for the assimilation and consideration of such a significant document. Whilst acknowledging the time constraints of the submission of the relevant States Report the few days allowed to the Parish Douzaines for comment is scant consultation.

2. The Douzaine is unable to fully assess the proposals contained within the draft Plan without knowing the financial implications of each option. The full costs of all elements of the draft Plan should be provided.

3. The Douzaine notes and supports the focus on the Waste Hierarchy but has concerns that little emphasis seems to be given to the Proximity Principle which it is recognised throughout the EU and UK should be applied, whenever possible, to waste disposal in the Hierarchy. EU and UK waste management policies show concern for reducing waste movement to minimise the environmental impact and cost. Any proposals to export waste off-island for heat treatment should give consideration to this.

4. In defining sustainability it is stated that 'dealing with waste should not negatively impact upon future generations of islanders'. Is it not of equal importance that there should also be no international or global negative impacts? The island has a level of international responsibility regarding its impact upon all future generations, whether islanders or not, which we should recognise and consider in assessing sustainability.

5. In seeking the least damage to the environment the environmental impact of options such as kerbside recycling (actually kerbside collection for recycling which could include off-island export) is not fully assessed. There is, therefore, no evidence given that steps to collect more recyclable material will in fact have a positive environmental effect and could, indeed, have an overall adverse environmental impact. These impacts seem not to have been assessed.

6. It is imperative that any strategy adopted addresses both current needs and those of the foreseeable future. Therefore, any Plan implemented should not be based upon short term solutions or contracts but should establish a clear long-term policy.

7. The direct impacts upon the Parish and the waste services for which it has responsibility cannot be evaluated until firm waste policy proposals are formulated. The Plan advocates reviews and investigation but few firm policy proposals.

I trust that these comments will be given consideration.

Yours faithfully,

Rhiannon Cook

Rhiannon Cook (Mrs).
Senior Constable Castel.

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01 December 2011

Dear Sir,

Re: Waste Disposal and Management Plan

The Douzaine of St Martin has discussed the above named report and makes the following observations.

They strongly support the overall objective to implement the principles of the Waste Hierarchy which focuses on waste minimisation. The Douzaine, however, was not convinced that an export solution for the final treatment option is either wise, moral or sustainable and believe that it contradicts the principle that waste should be treated, so far as possible, where it arises.

They note that the report identifies a number of areas that require further investigation/consideration/reviews and without this further work it is difficult to comment on some of the areas.

In particular they found the paragraphs regarding kerbside recycling ambiguous and in places contradictory. Parts of the report refer to 'considering' the introduction of kerbside recycling, or 'investigating appropriate kerbside collection services' and rightly identifies that the adoption of kerbside recycling will require additional resources. The report appears to be silent on the cost of these resources and whether there is a strong enough business case for the introduction of this service.

Nevertheless the report in other areas refers to the introduction of an expanded kerbside collection service for dry recyclables and for food waste. It might be that you are seeking to try a number of pilot schemes as part of the investigations but the report does not say this.

In addition the report is silent on how the expanded kerbside service would be implemented and the impact on householders including the number and frequency of collections.

It is our opinion that a proper costed proposal needs to be produced, which should include the impact on householders, along with the benefits to the island, to enable a proper informed decision to be made.

They would also point out that Action 37 refers to reviewing the current Parish Waste Collection system to ensure efficiency and effectiveness is being achieved. The paragraphs preceding it are about bin bags and containers plus a section on charging methods. While important they are not a consequence of the rubbish being collected by the Parishes. If there are arguments for the rubbish not being collected through the Parish system these should be set out in the preceding paragraphs.

The view of the Douzaine is that the cost of rubbish collection in St Martin is extremely good value and that it is more likely that the cost of any additional kerbside collections can be minimised if the Parishes remain engaged in the process.

With regard to the current charging system the Douzaine agrees that there is no benefit to householders who are keen to prevent, reuse or recycle their waste, and that the current system is a actually a disincentive to the behaviour we should be encouraging. The Douzaine would support a system of charging for bags used, for example by getting householders to buy special refuse bags from the Parish office or retail outlets within the Parish. Indeed this was a system that the Douzaine was exploring before work started on this consultation exercise.

With regard to the concept of 'polluter pays' the Douzaine has a concern that if there is no exception made for people with 'one off' or small items to be disposed of there could well be an increase in the amount of fly tipping.

In addition the Douzaine is concerned that any general system requiring islanders to pay by weight and/or volume may also lead to an increase in fly tipping.

Fly tipping can be in places that may not be easily accessible and in some cases may be impossible to remove. This not only has a detrimental effect on the island but results in additional expense to the Parish.

The Douzaine suggests that this problem is recognised at the outset and effective countermeasures be developed.

The Douzaine supports the concept of Bring Banks and is pleased to be able to have such a facility within the Parish. Should these continue we feel that finance needs to be found to ensure that these areas are properly maintained and do not become an eyesore.

The Douzaine appreciates that this has been a difficult and contentious issue over the years and that a workable strategy needs to be agreed in a timely manner. The Douzaine is keen to work with you to assist in any way in the development and implementation of a waste strategy to meet Guernsey's needs both now and for the foreseeable future.

Yours Sincerely

Graham Smale
Junior Constable
St Martin

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29th November 2011

Deputy B. M. Flouquet,
Minister – Public Services Department,
Sir Charles Frossard House,
St. Peter Port,
Guernsey.
GY1 1FH

Dear Deputy Flouquet,

Waste Disposal and Management Plan: Statutory Consultation

Thank you for the opportunity to provide initial comments and observations on the draft Waste Disposal and Management Plan enclosed with your letter of 16 November. The matter was discussed at the Douzaine Meeting held on 28 November and the following observations were made–

1. Douzeniers were disappointed that more time was not provided for this consultation process given the importance of the subject matter.
2. When reviewing the document it was felt that it contained inadequate information upon which to base any meaningful comments and, in particular, no references to the respective costs associated with the options under consideration and the reasoning behind the selection of the preferred option.
3. Of particular interest to the Douzaine was Paragraph 10.7 Refuse Collections. The Douzaine desires this matter to be the subject of close consultation from the very outset as current arrangements fall within the mandate of all Parish Douzaines and any changes to existing arrangements will require careful consideration and sensitive implementation. There is potential for significant change to occur and the Douzaine, in common with all parishes we believe, will wish to be an integral part of developing the eventual solution.
4. Finally, we believe that the reference to The Parochial Collection of Refuse (Guernsey) Law 1958 is incorrect. The law was repealed and replaced by The Parochial Collection of Refuse (Guernsey) Law, 2001, as amended.

Yours sincerely,

M. G. A. DUNSTER
S. A. FELL
Constables of St. Pierre du Bois

Paroisse de Torteval

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For the Attention B.M. Flouquet Minister

1st December 2011

Dear Sir

I wish to advise you that your letter of 16 November, and draft Waste Disposal and Management Plan, was discussed at the recent Douzaine Meeting.

The specific details of the draft plan were not explored, as there has been insufficient time, however the overarching premise was debated.

It is the Torteval Douzaine's majority opinion that any waste strategy should concentrate on the Waste Hierarchy, as detailed in your draft plan. The Douzaine is also of the majority opinion that in order to achieve the best possible overall results, in the short to medium term, sending the residual waste to Jersey for incineration is the most viable option whilst all possible means of reducing the current waste stream are explored.

Yours faithfully

D. Inglis

David Inglis
Robert Lenfestey

Constables

CONSTABLES OF ST. PETER PORT

Your Ref:

Our Ref: 2/42

The Minister
Public Services Department
Sir Charles Frossard House
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2 December 2011

Dear Sir

WASTE DISPOSAL AND MANAGEMENT PLAN CONSULTATION

Thank you for your letter of the 16th November referring the above draft document for our consideration. Please find enclosed a report containing comments made by our Douzaine sub-committee that we hope will be both relevant and constructive.

We are disappointed that so little time has been allowed for consultation, given that this vitally important issue.

Yours faithfully,

B.J. CASH
D.H. LE MOIGNAN
Constables.

inc.

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Response from the Constables and Sub-committee of St Peter Port - 2 December 2011

Waste Disposal and Management Consultation

General Comments

1) The document does not address the other islands of the Bailiwick, there may be some economy of scale considerations.

2) The document does not consider sewage and gaseous waste streams. This should be reflected in its title.

3) The document does not deal with the financial impact to householders and commercial businesses, except the principal that the "polluter pays". Charges levied should be realistic and affordable. Excessive charges will increase incidences of fly-tipping around the island.

4) A common, island wide, approach to waste issues should be adopted and a fairer means of charging should be adopted which links volume of waste collected with charges, ie. "the polluter pays".

5) Would a single contract to operate an Island wide waste collection/ kerbside recycling be more financially viable than contracts with multiple contractors? An alternative would be for contractors for form a co-operative which would be subject to suitable regulation.

6) If kerbside recycling is not introduced island wide, the number of "super bring banks" should be markedly increased. This would increase recycling by making them more accessible to islanders.

7) If a decision is made to ship residual waste for incineration off island, would the contract to operate this go out to tender? Bearing in mind the high cost of establishing infrastructure to this effect, would the States offer any financial assistance in the form of preferential loans? The general public should be made aware of the likely cost of establishing this infrastructure.

8) How would the Health & safety aspect of exporting waste be managed?

Specific Comments

Page 3 Paragraph 3

The Waste Hierarchy is stated as "prevention, reuse, recycling, **treatment** and disposal". Elsewhere in the document the Waste Hierarchy is stated as "prevention, reuse, recycling, **recovery** and disposal." To avoid confusion, terms should be consistent.

Continued.....

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Page 2

Page 6 Section 1.6
Residual Waste Management – The residual waste treatment option recommended to the States is to export off island. This proposal contradicts the "Proximity Principle" which states that waste should be dealt with as near as possible to its source. The provision of the relatively simple solution of shipping waste out of the island will have a negative effect on many initiatives that still remain to be explored to reduce residual waste. However in the short term this solution would be of benefit to both islands as by filling the spare capacity in Jersey, the incinerator will be more efficient.

Page8
Glossary include CEPS, WAS,KGGA, GRAF etc.

Page 9 Pragraph 5
Add "Douzaines"

Page 25 Section 8.4
Kerbside Recycling – Guidance is required regarding the most effective engineering approach including specifications for the procurement of suitable vehicles. Also essential is how householders deliver their waste for collection. A practical solution is required here. We should be past the strategy stage and reviewing the various options available on the market.

Page 25 Action 11
"To investigate appropriate kerbside collection service for dry recyclables and food waste" – Much more emphasis should be made on the effect of mixing putrescible foodstuffs, "kitchen organics", with potentially dry recyclable household waste. **Waste food must not contaminate the other household waste items. This is key to increasing the level of household recycling.** Ideally waste foodstuffs should be composted, failing this they can be sent to the putrescible landfill site.

Page 31 Section 9.3
The amount of void space quoted is outdated and therefore not applicable.

Page 40 Actions 46 and 47
Because of the importance of getting an effective solution in place, in particular kerbside recycling and collection, the plan should be reviewed and updated on an annual basis.

Page 44 Action Plan
The Action Plan should be sorted in order of priority, the existing configuration (by Action Item)is confusing and difficult to assess. An Activity "time line" would be useful.

Diagrammatic waste streams would be useful. It would enable assessments of which action points need to be completed first and which may be included later.

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RJB/PRLeP/jmc.

Deputy B.M. Flouquet, Minister,
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Guernsey, GY1 1FH.

29th November 2011

Dear Deputy Flouquet,

Re: Waste Disposal and Management Plan: Statutory Consultation

Further to your letter dated 16th November 2011, which the Douzaine discussed at their meeting last evening.

The Douzaine noted the short time given for response to the lengthy document as being 2nd December 2011.

The Constables and Douzaine commented as follows: -

1. Concern that ultimately the States are planning to take over the collection of parish refuse rounds. The Douzaine do not believe that the States can match the job done by the parishes in the collection and disposal of household refuse.
2. No way round it – residual waste needs to be burnt.
3. £11m given away before commencement.
4. Recycling of cartons – this costs money. The States are spending vast amounts to make the figures look good.
5. No doubt tenders will be sought to cope with the waste if shipped to Jersey or elsewhere – the possibility of using Longue Hougue for this exercise looks very likely. In this light it would seem possible that Longue Hougue will never re-open to the mooring of boats, which is in direct contradiction of what you said at the consultation meeting with the Douzaine over the Airport Presentation.
6. P. 10 [5] When the Public Services Department [PSD] withdrew from the Suez negotiations the Policy Council were directed to commence negotiations with Jersey re the disposal of Guernsey's rubbish. As far as we are aware this never happened.
7. P. 13 As far as the parish is aware La Fontaine site was supposed to be temporary – how long is temporary?
8. We cannot envisage that even with more recycling that tip charges will ever be reduced.
9. We understand that an EU directive will eliminate any organic material being taken to the tip. Why, if we are not in the EU, do we have to follow these guidelines?
10. P.33 the Douzaine is aware that unemployment is currently about 6% not the 1% stated in the report.

11. We are fully aware that the 'black bag' is not a legal container for household refuse. The Law, despite repeated requests from the parishes, has not been updated for far too many years. In today's climate, loose household refuse in bins is not acceptable and is considered to be insanitary.
12. Parish representatives attended the recent set of meetings on the waste strategy and now feel, after reading the "Waste Disposal and Management Plan" that not much real progress has been made. It is commendable that PSD consulted with such a wide part of the community, but the feeling is that the end result hasn't moved the problem much further forward. The issue has not been resolved.
13. [9.3] -With reference to the disposal of hazardous waste, asbestos, sewage and gully sludge, it is proposed to build a disposal cell to accept this waste estimated at approx. 1,500 tons per annum. Are we not leaving this for future generations to sort out at a later date?
14. Those against an incinerator are all in favour of sending our waste to Jersey. We are just pushing the problem away. Stop the burning – send it to Jersey – out of sight out of mind!

The Constables and Douzaine of St. Sampson thank you for the opportunity to comment on the Waste Disposal and Management Plan and hope that you will find the comments helpful in your deliberations.

Yours sincerely,

R.J. Broome,
Constable of St. Sampson

Constables of the Vale

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The Minister
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St. Peter Port
GUERNSEY GY1 1FH

1 December 2011

Dear Deputy Flouquet (Minister PSD)

Ref: Response to Waste Disposal & Management Plan

Thank you for your request for feedback from the members of the Vale Douzaine on the Waste Disposal Management Plan which we received on the 16th November 2011.

Firstly despite your polite apology we feel that we must state our disapproval of the unacceptable amount of time (2 weeks) that the Vale Douzaine has been given to evaluate, form an opinion and draw up a cohesive response to the Waste Disposal & Management Plan.
However we all agree that we cannot miss this opportunity so must respond as best we can under the circumstances.

Our comments are listed below:-

TIME

- The Plan appears to delay any further decisions by another eighteen months why is this? Decisions are needed now.
- The timescales intimated in the report are in our opinion far too long, however the fact remains that Mont Cuet is filling rapidly and regardless of PSD's best efforts is likely to be above ground sooner than expected. This is of course a great concern to Vale Parishioners as severe problems are expected once rubbish is deposited above ground.
- If export to Jersey were accepted as the recommended solution, what length of contract is on offer from Jersey for handling our waste?
- If shipping of island were to be the approved method when would an operational waste management system and bailing plant actually be working? The plan makes no mention of this.

COSTS

- There is no cost detail, projected or otherwise, in the document we received that demonstrates the difference between local heat treatment, shipping off Island, and Mechanical Biological Treatment. It is impossible for us to decide or form an opinion on which method is preferred without seeing cost projections
- What is the forecast cost per tonne for bailing, shipment, and Jersey handling of our waste?
- Will Jersey retain our Residual Ash after processing?
- How much more would the proposed solutions cost per household in addition to existing costs?
- Will the current Parish system of Household rubbish collection have to change?
- What would be the real cost of kerbside recycling, presumably it would increase refuse rates considerably, again there are no costs shown in the report. We fear this would inevitably lead to fly tipping.
- Is a 70% recycling target actually achievable, where else has this been achieved? What level of legal measures will be required to get there?
- What measures are to be imposed on retailers to control their levels of waste?
- Why are PSD actively promoting an option that misleads the public into thinking that it will be more environmentally friendly to ship and heat treat waste elsewhere rather than heat treat it in Guernsey, in fact we believe the opposite is true.

Overall the Vale Douzaine's opinion on the Waste Disposal & Management Plan is that it doesn't provide the information required to make an informed decision on what would be the best option to take.
As the Douzaine's are at the front end of waste collection it obvious to all that accurate cost projections would be required for them to form opinions. Presumably PSD do have the crucial costing information but for political reasons have chosen not to release it to the Douzaine's.
We would appreciate an explanation for this and answers to all the above questions within the next 14 days.

However the majority opinion of the Vale Douzaine would be against the exportation of Guernsey's waste and to go for Option A.

Yours sincerely

The Vale Douzaine

GuernseyWater
A DIVISION OF THE PUBLIC SERVICES DEPARTMENT

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2 December 2011

Minister
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WASTE DISPOSAL AND MANAGEMENT PLAN: STATUTORY CONSULTATION

The protection of Guernsey's public water supply and private water supplies from possible pollution of the Island's raw water resource must be considered in the waste disposal and management plan.

The area of greatest possible influence on raw water quality and therefore of interest to Guernsey Water is where material will be applied to the land, such as compost, or through any process that may produce leachate.

Small scale home composting to date has not given Guernsey Water any cause for concern, however if larger 'community' composting was to occur control measures will be needed to ensure no leachate is released in an uncontrolled manner at the composting site which may contaminate surface, pore or ground waters.

IVC compost application to land will require strict quality assurance and quality control measures; these will need to consist of nitrate loading samples of the area to receive the compost pre and post application, farm land raw water monitoring of both surface and ground waters and record keeping of compost, slurry and fertiliser application rates on a field by field basis.

Although your plan cannot go into detail to address these issues, a greater awareness of these issues should be present in the report with reference to the relevant water pollution legislation The Prevention of Pollution (Guernsey) Law, 1989 and The States Water Supply (Prevention of Pollution) Ordinance, 1966.

The PSD Waste Services section has been in consultation with Guernsey Water and is fully aware of the issues relating to raw water pollution especially nitrate loadings. The inclusion in the plan of this collaboration would allay the fears that some may have who do not have the knowledge of our close working relationship.

Yours sincerely

pp NC

A A Redhead
Director of Water Services

ENVIRONMENT
A STATES OF GUERNSEY GOVERNMENT DEPARTMENT

Proposed amendments to the Waste Disposal and Management Plan

5. Strategic and Legislative Framework and Drivers for Change

5.3 Replace second paragraph:

Under the Land Planning and Development (Guernsey) Law, 2005 and its associated ordinances, the Environment Department is also responsible for the preparation of Development Plans, for the assessment of planning applications in accordance with the policies of those Plans and other material planning considerations and for securing compliance with the Land Planning and Development (Environmental Impact Assessment) Ordinance, 2007. All development requires the prior approval of the Environment Department under this legislation.

8.5 Multiple Occupancy property and New Development Recycling Schemes

Replace second paragraph and Action 16:

In order to provide convenient access to recycling facilities in new development, including new multiple occupancy properties and new commercial development where appropriate, the Department has approached the Environment Department to explore how adequate recycling facilities could be provided in new build development. This could be achieved by changes to planning policy and practice.

(The final sentence of this paragraph doesn't really belong here and could be inserted after the first paragraph).

Action 16: Investigate amendments to planning policy and practice to ensure adequate recycling facilities are included in new development, including commercial development and multiple occupancy housing.

10.5 Land planning and the location of new facilities (NB slightly altered title)

It is considered that this section should be the same for both the States Report and the Plan so as to avoid confusion. It makes sense that the previous text is shortened in the States Report, but this has resulted in some slight inaccuracies and, looking at it in relation to the greater detail that is now available about additional facilities to support the Plan, it could do with greater clarity about how the planning system will provide for them.

The first paragraph of 10.5 in the Plan, and 12.1 of the States Report will remain the same. The following incorporates large chunks of original text, but for clarity the text is provided as actually changed. (Also included are paragraph numbers for the States Report in brackets at the end of each paragraph.)

Longue Hougue was identified at an early stage as the most appropriate primary location for comprehensive development of waste management facilities, and adopted planning policy has reflected this throughout the process. (12.2)

The current planning policy framework is provided by Policy EMP8 (Development of the Land Reclamation Site) and Policy WWWM6 (Solid Waste Management) of the Urban area Plan, approved by the States as part of a package of amendments to that Plan in February 2009. This is supplemented by a Development Brief approved by the Environment Department in October 2009. The Brief provides supplementary planning guidance for determining a broad range of waste management proposals at the Longue Hougue South Industrial and Reclamation Area that might be brought forward by the Public Services Department and/or private waste operators. (12.3)

The Planning Brief requires that development should be planned on a comprehensive basis and meet a range of criteria such as achieving safe and convenient access and a unified architectural concept. (12.4)

The Plan amendments approved in 2009 also provide policies for considering essential development and small scale solid waste infrastructure elsewhere in the urban area such as a Civic Amenity Site or Materials Recovery Facility (MRF). (12.5)

Where the development envisaged as part of the Waste Disposal and Management Plan (for example Action 32) is outside the scope of current policies, and subject to the strategic Land Use Plan, it will be addressed by the Environment Department in the forthcoming review of the Urban Area Plan. (12.6)

Paras 13.1 and 2 of the States Report on Environmental Impact Assessment should be included in the Plan.

Action 40 It is difficult to see how the Planning Section could take a role in changing specifications for States development – Strategic Property Services would be more appropriate.

Action 41 There are ever increasing ideas about what should be included in new developments (designing out crime, lifetime homes, sustainable building materials, to name a few); these are all under consideration as part of the Plan review and the Department may well issue interim guidance in the meantime. The Department would be reluctant to single out this topic from others. This point is probably better covered in Action 16 in which case Action 41 could be dispensed with. If it is retained it should be made clear that it is for the Environment Department to produce such guidance and the term *supplementary planning guidance* should be avoided as this is a UK term which has no formal meaning in the Guernsey planning system – 'guidance' would suffice.

HEALTH AND SOCIAL SERVICES
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2 December 2011

Dear Deputy Flouquet

Waste Disposal and Management Plan : Statutory Consultation

The Health and Social Services Department (HSSD) welcomes the Waste Disposal and Management Plan and commends the Public Services Department for the extensive consultation that has been undertaken.

HSSD has considered the Waste Disposal and Management Plan and would make the following comments:-

HSSD is pleased to see that recognised methodologies and good practice have been used in the preparation of the Plan.

The concept of the 'polluter pays' ('user pays') is an important requirement of this Plan, although it is essential that equitable and affordable systems are developed for all aspects of waste disposal, including for parish collections so that those on lower incomes are not placed in financial hardship.

HSSD supports the need for a review of the existing legislation in relation to parish refuse collections.

The Plan considers the 'waste hierarchy' as fundamental to the development of a solution for Guernsey. However, the highest priority of waste minimisation is not fully explored in the Plan. It is essential that that every opportunity is taken to prevent the importation of unnecessary waste e.g. packaging of commodities, packing cases, pallets etc. Engagement with governments in other jurisdictions could be included in the Plan.

Table 7.1 mentions the proposed action for 'real nappies' and a reduction in the use of disposable nappies. Whilst this department supports this campaign, account must be taken of their use in clinical and nursing settings and the need for disposable products to maintain infection control.

The targets for recycling of waste are commendable, although the final milestone of 70% recycling by 2025 may be unrealistic when considering the composition of the local waste stream. It is essential that any schemes proposed do not increase health inequity and place a burden of disadvantaged members of the community who may not be able to contribute to such proposals.

Section 9 of the Plan highlights three options for the disposal/treatment of residual waste and identifies export to a suitable heat treatment facility as the preferred option, such as the Energy from Waste plant in Jersey. The HSSD Board is the 'competent authority' for the Trans-frontier Shipment of Waste Ordinance, 2002 and will need to consider a review of this legislation and amendment to allow the export of waste to Jersey and also in the context of the Environmental Pollution (Guernsey) Law, 2004.

In addition, it is difficult to assess the merits of the three options for residual waste without any information on the development, implementation and operating costs for comparison. Full details of the financial information for each option should be provided at the earliest opportunity and prior to any decision in relation to the preferred strategy.

The HSSD Incinerator is mentioned in the Plan. Currently, the handling of air pollution prevention and control residues and bottom ash takes place at the Fontaine Vinery prior to disposal i.e. within States control. It is assumed that activities at this site will be moved to the proposed new materials recovery facility (MRF) at Longue Hougue. If this proposed new facility is privatised, then HSSD seeks reassurance that existing arrangements will be maintained. HSSD wishes to be included in any discussions on the development of the MRF.

This department is concerned about the estimated life of the Mont Cuet landfill site and the possibility of extending the height above ground level. There is concern about the nuisance impacts from such a proposal on the health and well being of the local community.

It has been noted that Guernsey has been considered in the Plan but there is no mention of any proposals for Herm and Jethou. Whilst the quantity of waste produced there is small, it needs to be considered in this Plan. In addition, the trans-frontier shipment of waste from Alderney through Guernsey is not properly addressed.

HSSD looks forward to further consultation on the details of options for waste disposal and management in due course.

Yours sincerely

A H Adam
Health and Social Services Minister

Office of Environmental Health and Pollution Regulation
Longue Rue, St Martin's, Guernsey. GY4 6LD. Tel 01481 711161

Dear Deputy Flouquet,

Waste Disposal and Management Plan : Statutory Consultation

Thank you for the opportunity of consult on the Waste Disposal and Management Plan.

It is my understanding that the recommendations from the Waste Disposal Authority will be forwarded to the Environment Department, who will then prepare the final Plan which will be laid before the States for debate early next year.

I have read the document provided for consultation at this stage and have the following comments:-

I am pleased to see that the Plan has been developed following methods embedded in international good practice guidance for waste disposal, the principles of the 'best practical environmental option (BPEO) including extensive consultation with all sectors of the community.

The Plan is methodical and well laid out, mentioning waste arisings, waste minimisation, recycling, and includes your recommendations for three options for the treatment and disposal of residual waste.

The Plan considers the waste hierarchy as fundamental to the development of a solution for Guernsey. However, the highest priority of waste minimisation will need to be further explored.

It is essential that that every opportunity is taken to prevent the importation of unnecessary waste e.g. packaging. There is no mention of how this might be achieved, sanctions for importers of such waste or how this might be regulated to ensure a reduction in imported materials entering the waste stream.

I have assumed that the Environment Department will address this issue as this may be an environmental policy matter.

The targets for recycling of waste are commendable, although the final milestone of 70% recycling by 2025 may be unrealistic when considering the composition of the local waste stream. Unless imports of unnecessary waste are managed effectively, then this target will be difficult to achieve.

Whilst section 6.2 outlines waste management facilities in Guernsey, there are a number of other private waste operators on the island handling a significant volume of waste for sorting, recycling and disposal, and these need to be included when considering the waste stream for disposal.

Section 9 of the Plan highlights three options for the disposal/treatment of residual waste and identifies export to a suitable heat treatment facility as the preferred option e.g. the Energy from Waste plant in Jersey. The HSSD Board is the

competent authority for the Trans-frontier Shipment of Waste Ordinance, 2002 and an amendment will be required to allow export to Jersey. In addition, there are a number of legislative considerations in Jersey that will need to be resolved to ensure a secure bilateral agreement.

I am concerned about the implications of continued landfill at Mont Cuet and proposals for raising the height above ground level. This will require an amendment to the waste management licence, if a variation is granted.

It has been noted that Guernsey has been considered in the Plan but there is no mention of any proposals for waste disposal for Herm and Jethou. I am in detailed discussion with Herm Island about their waste disposal activity and this must be considered in these recommendations.

I trust these comments are helpful in finalising your recommendations to the Environment Department.

Yours sincerely

V. Cameron

Valerie Cameron

Director of Environmental Health and Pollution Regulation

COMMERCE AND EMPLOYMENT
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29 November 2011

Dear Deputy Flouquet

Waste Disposal and Management Plan

Thank you for providing this Department with a copy of your draft Plan as part of the statutory consultation requirements.

The Plan is quite detailed and its coverage is wide and, as a summary of the overall situation pertaining at present for the management of waste, it appears to be a useful document. However, and against that background, the consultation period is rather short and it is a concern that, as a result, the response may not be more than a set of cursory comments on an important policy proposal with long lasting consequences for the Island.

Notwithstanding these concerns, the Department has attempted to reflect views from a range of areas of interest and expertise covered by its mandate and offers the following comments.

The first comment to make is to point to the lack of any costing for the strategic options and the one that is identified in the document as "...the preferred option for Guernsey". Policy setting (and decision making) cannot be carried out in a vacuum and, whilst the Waste Disposal and Management Plan is well presented and proceeds in a rational way throughout, it lacks the basic requirement that decision making should be 'evidence' based.

As an illustration of the problems this creates, the Plan, significantly, proposes the reversal of a recent States decision on kerb-side collection for recycling. Success in achieving the Plan's targets will hinge on this and on the successful recycling of numerous materials including food waste. These will indeed be "challenging" as the plan suggests.

Experience also suggests that these could be costly to implement. No indication is given in the Plan of the increased cost of this aspect of the proposal to the overall financial implications of introducing the waste management strategy proposed. On the face of it, it seems highly likely that it will increase the annual cost of waste management for the Island. The Plan is silent on these matters.

So, and in that context, and quite apart from any environmental views, concerns, and objectives that might be driving the Plan's conclusions, we would seek assurance that adequate consultation has taken, and will take, place with all local businesses likely to be affected by future charges, as any scheme must be mindful of its impact on the cost of doing business in Guernsey.

The Plan addresses hazardous waste disposal at a high level and it is to be hoped that staff of this Department with appropriate expertise, such as the Health and Safety Executive and the Head of Plant Protection, will be provided with an early and adequate opportunity to give an input to the formulation of the Hazardous Waste Disposal Plan.

It is noted that the quality of the green waste compost being produced on the Island using the windrow system is currently very good and the Plan indicates that this will continue in its present form. However, the conversion/recycling of food waste could be a potential problem area.

It is to be hoped that following suitable further research, the In-Vessel Composting Technique will be adopted, as the end product is suitable for use on the land without further treatment. With adequate checks to confirm the absence of contaminants and pathogens, the end product of this process should present no risk to crops. Anaerobic Digestion, on the other hand, produces a nitrogen-rich end product, which needs further treatment and disposal and, quite apart from the lack of enthusiasm on the part of farmers for the use of digestate on the land they manage (as noted in the Plan), there must at this stage be some doubt as to whether the present use of agricultural land on the Island for dairy production will allow suitable areas for this to be done in a safe manner.

Appended to the Plan (Appendix 3) is an aerial photograph of the Longue Hougue site with the caption *"The Red line indicates the area proposed for the Waste Strategy"*. Unfortunately, there is no other reference to this matter in the Plan and thus it remains opaque as to who is proposing this area for this purpose and why; and even whether this is a recent or current proposal by a body unacknowledged. It is believed that this illustration may have been brought forward for general information from an earlier States Report on a subsequently rejected waste management plan. It may be that the diagram is included for illustrative purposes only and that may be appropriate, but if more is to be implied from its inclusion then this Department believes its status ought to be specified.

As is undoubtedly well known by your Department, as a result of extensive communications between our Departments and the Treasury and Resources Department, the red line encompasses the site of the existing cattle carcass incinerator and the widely agreed site for the replacement Slaughterhouse. A States Report that will seek approval to construct this facility will, it is hoped, be debated by the States in February or March 2012 following the full tendering exercise that is currently in progress. At the very least, we believe this should be properly acknowledged and, preferably, the red line redrawn in the light of these current realities, avoiding the area in question.

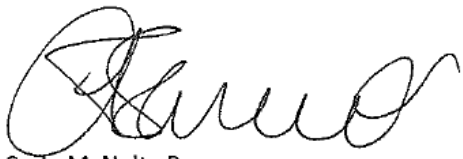
In the light of this, an early response on this matter is requested to ensure there is no lack of clarity regarding the future use of this part of the site.

The 'Waste Disposal and Management Plan' is likely to be welcomed by many who did not wish the island to develop a combination of waste recycling and on-island waste to energy incineration, as had been previously recommended, approved, but then rescinded. It is a moot point as to whether Island residents appreciate that the, now rejected, option also included waste minimisation and recycling. Patently the current proposal will still require that many volatile recycled materials will be

incinerated in the future although not on the Island. In itself this is an approach at odds with the "Proximity Principle" quoted as having been "taken into account" on page one of the document.

Overall, the Department, whilst welcoming the presentation of a new Plan, remains concerned that we have little to consider to assist in establishing what the financial impact of this will be on the Island and its commercial sector and whether from first principles this represents a sound financial model for this small jurisdiction to choose to deal with its waste.

Yours sincerely



Carla McNulty Bauer
Minister

Appendix 11

DEVELOPING AND SHORT LISTING OF OPTIONS

DEVELOPING AND SHORT-LISTING OF OPTIONS

Contents:

1.0 Introduction

2.0 Options for Recycling

3.0 Residual Waste Treatment Technologies

4.0 Development of Options

5.0 Testing Selected Scenarios

6.0 Scoring and Short-listing Options

- 6.1 Scoring Options
- 6.2 Short-listing Options

1.0 Introduction

In order to assess different options for dealing with the Island's waste, the various methods and technologies available for preventing, minimising, recycling, and treating waste have to be identified.

SLR Consulting Ltd (SLR) was commissioned by the Public Services Department to assist in the development and appraisal of options for dealing with the Island's waste. SLR has produced two reports which are titled 'Technical Appraisal of Options', and 'Anaerobic Digestion and its application to Guernsey'. The findings of both of these reports and details of further work carried out as part of the stakeholder consultation process are summarised in this report.

Various measures for preventing or minimising waste are detailed in the Waste Minimisation Plan (Appendix 8), but opportunities also exist to improve on recycling rates. Measures include the introduction of new collections systems for additional waste streams such as kitchen waste, and the improvement of existing recycling infrastructure. Information on options for recycling, including organic wastes, is provided below.

Information on the range of technologies available for managing residual waste is also covered by this report.

This information was taken forward to the consultation stage for developing the revised waste strategy, where the performance of different waste management options could be characterised and compared through an extensive consultation process to identify a combination of solutions that are suitable for the long-term management of Guernsey's waste. This includes the development of scenarios from options identified and how they were assessed, measured, weighted and scored. The results of this process are also provided.

Additional work was also commissioned by the Department for Life Cycle Analysis of the various scenarios, and this work was carried out by Environmental Resource Management Limited (ERM). The results of this work have been used in the evaluation of the various scenarios for identified as part of the process for developing the revised waste strategy for Guernsey.

Copies of the full technical reports are available through the Public Services Department's website (**www.gov.gg/waste-strategy**) and have been lodged with the Greffe.

2.0 Options for Recycling

The current bring bank scheme for household recycling has proved very successful and a household recycling rate of 46% has been calculated for 2010 (up from 37% in 2009). Green waste recycling in particular increased by more than half in 2010. A further increase in recycling rates is anticipated for 2011. Commercial recycling is reported to be 41%.

A breakdown of the recycling tonnages by material type is presented below in Table 2.1.

Table 2.1 Guernsey Household and Commercial Recycling 2010

Category	Household recycling (t)	Commercial recycling (t)[18]
Paper/Card	4,233	4,153
Dense plastic	245	441
Plastic film	0	0
Textiles	485	0
Misc. Combustible	51	1,905[19]
Misc. Non Combustible	51	0
Glass	1,850	121
Ferrous Metal	1,391	7,072
Non-ferrous metal	105	9[20]
Kitchen Organics	0	0
Garden Organics	3,711	5,494
Electrical / electronic	0[21]	627
Total	**12,122**	**19,827**

Through analysis of both residual waste composition data and recycling tonnages it is possible to indentify further diversion from landfill. This allows the States to target specific waste streams to improve on recycling performance in the Island.

2.1 Future Recycling Options

Previous work carried out by Integrated Skills Guernsey Ltd (ISL) in 2008 and updated in 2011 has established that a maximum of 78% of household waste is potentially recyclable through kerbside collection; however capture and participation rates would have an impact on the actual percentage achieved. Modelling of identified scenarios that

[18] Figures updated since the publishing of the report 'Technical Appraisal of Options – Updated Report', SLR, June 2011.
[19] Predominantly waste oil
[20] Some non-ferrous metal is included in the ferrous metal total, as figures are not supplied separately for some sources.
[21] Included in Ferrous Metal Total

are forecasted to deliver the highest household recycling rates indicate a maximum recycling rate of 71.1% is achievable (based on updated calculations in 2011).

ISL's analysis has also identified the potential costs of implementing kerbside collection schemes, ranging from £872,000 per annum (fortnightly collection of dry recyclables only), to £1,685,000 (weekly collections of dry recyclables and food and organic wastes) (based on updated calculations in 2011).

The options assessment process undertaken by SLR Consulting considers seven different recycling options and the impacts of these recycling rates on the residual treatment requirement.

The recycling options considered by SLR are as follows:

- current dry recycling rate (do nothing more option);
- maximise recycling for dry recyclables;
- maintain current recycling rate for dry recyclables and introduce food waste recycling;
- maximise recycling for dry recyclables and introduce food waste recycling;
- maintain current recycling rate for dry recyclables and maximise food waste recycling;
- maximise recycling for dry recyclables and food waste collection; and
- decline in recycling.

The "do nothing more" is unlikely to require any significant changes and would not include rolling out a kerbside collection scheme. It is also unlikely to result in any significant change in recycling rates. To maximise the separate collection of dry recyclables it is anticipated that the following measures will be required:

- dedicated kerbside collections
- additional investment in the bring sites to rationalise this service,
- expansion the materials accepted, and
- additional incentives/penalties.

Tonnages required to achieve the maximised recycling target of 70% for dry recycling and food waste collection options are defined further in Tables 2.2 and 2.3 respectively.

Table 2.2 Dry Recycling Options (Household and Commercial/Industrial Recycling Combined)

Recycling option	Material Recovery Rate (Household & Commercial)[22]	Tonnes per annum (tpa)
Current Recycling rate	46%/41%	31,606
Maximise Recycling	70%	36,963

Table 2.3 Organics Recycling Options for Guernsey

Food waste option	Material Recovery Rate (Household & Commercial)[23]	Tonnes per annum (tpa)
Introduce Food Waste Recycling		
Household waste	20%	2,557
Commercial waste	21%	1,360
Total Household and Commercial		3,917
Maximise Food Waste Recycling		
Household waste	30%	3,836
Commercial waste	38%	2,461
Total Household and Commercial		**5,297**

Technology options for the recycling of organic waste such as food waste, primarily anaerobic digestion and in-vessel composting, are discussed in the SLR report titled 'Anaerobic Digestion and its application to Guernsey'. Both these technologies can convert food waste into products that may be used as a compost and/or replacement fertiliser. Anaerobic Digestion also offers the ability to generate useful electricity and heat.

2.2 Organic Waste Recycling Technologies

There are three main methods for dealing with organic wastes, two of which are suitable for processing segregated food waste:

2.2.1 Anaerobic Digestion (AD)

Anaerobic digestion (AD) is a biochemical process in which particular kinds of bacteria digest organic matter in an oxygen-free environment. This produces a "biogas" which can be used to create heat and electrical energy.

[22] Defined as the amount of material segregated as a proportion of the total amount of material in the waste stream
[23] Figures are based on UK experience of the performance of food waste collection schemes as reported by WRAP

It is generally used for the treatment of segregated organics like food waste, farm slurries, or sewage sludge. It is more effective than incineration at converting wet organic wastes into useable energy.

Controlled anaerobic digestion requires an airtight chamber where temperatures of between 20°C and 60°C are maintained to promote bacterial activity. The main output is a nutrient rich "digestate", which can be applied to land to improve soil fertility or to replace other substrates such as peat based composts and fertilisers.

The viability of any AD system relies on there being a beneficial use for the digestate, and because agricultural land is limited locally, additional processing may be required. This would involve dewatering the digestate, with the resultant liquor being treated and discharged to the sewer, allowing the dry fibre to be applied to land.

Outputs
Digestate/Liquor/Dry Fibre

Advantages

- Proven technology throughout the UK and Europe
- Energy recovery
- Compliant with Animal By-Products legislation.
- Reduces organic wastes sent to landfill or thermal treatment systems.

Disadvantages

- Requires agricultural land for applying digestate, or further treatment
- Requires inputs to be collected separately.
- More capital intensive than composting.

2.2.2 In-Vessel Composting (IVC)

In-vessel composting is a process where composting takes place in a controlled, enclosed environment. Bacteria digest organic matter in an oxygen-rich (aerobic) environment with organic matter breaking down to produce carbon dioxide and a compost material.

In-vessel Composting is generally used for the treatment of source segregated organics such as green waste, but segregated food waste can also be processed through IVC. A bulking material such as shredded green waste will be required to provide structural material for in-vessel food waste composting.

The term 'In-Vessel Composting' is used to cover a wide range of composting systems all of which feature the enclosed composting of waste, thereby allowing a high degree of process control. This enables specified temperatures to be achieved to ensure bacteria destruction. In-Vessel systems can be categorised into five key types:

- Containers
- Silos
- Agitated Bays
- Tunnels
- Enclosed Halls

Similar processes are employed in some MBT technologies.

Outputs
Compost/Soil Conditioner

Advantages

- Proven technology throughout the UK and Europe
- Produces potentially useful outputs (compost)
- Compliant with Animal By-Products legislation.
- Reduces organic wastes sent to landfill or thermal treatment systems.

Disadvantages

- Only treats the organic fraction of the waste stream.
- Requires sustainable markets for compost produced.
- Requires inputs to be collected separately.
- Requires odour management.

2.2.3 Windrow Composting

Windrowing is the production of compost by piling organic matter in long rows (windrows). These are turned to improve porosity and oxygen content once the required temperature is achieved (typically 65˚C). This method is currently used to process both household and commercial green waste, producing a soil conditioner which can be applied to the land. It is not suitable for food waste.

Space at Mont Cuet Landfill Site is currently used for windrowing. If landfilling of untreated waste is stopped at Mont Cuet, this site could be capped and managed better for the Windrow Composting. Should landfill continue for a significant period, resulting the mounding of waste at the site, additional investment will be required to provide a dedicated facility with hard-standing and leachate management at an alternative site.

Outputs
Soil Conditioner

Advantages

- Low technology and cost option.
- Local expertise.
- Produces potentially useful outputs (soil conditioner).
- Reduces organic wastes sent to landfill or thermal treatment systems.

Disadvantages

- Only treats the green organic fraction of the waste stream.
- Requires sustainable markets for soil conditioner produced.
- Only suitable for green waste as does not comply with Animal By-Products legislation.
- Requires odour management.

3.0 Residual Waste Management Technologies

The options assessment process closely follows the principles of the waste management hierarchy. This section considers the residual waste treatment options available to Guernsey**:**

- Materials Recovery Facility (MRF) – Pre-Treatment
- Landfill
- Autoclaving (Mechanical Heat Treatment)
- Gasification/Pyrolysis (Advanced Thermal Treatment)
- Incineration/Energy from Waste (EfW)
- Mechanical Biological Treatment
- MBT – Refuse Derived Fuel
- MBT – Anaerobic Digestion
- MBT – Bio-Stabilisation
- Plasma Arc Gasification

Materials Recovery Facility (MRF) – Pre-Treatment

This is the simplest form of mechanical treatment in which waste is subjected to mechanical separation to recover recyclates, primarily metals, hard plastics, and glass. Inert waste will also be recovered. The technology can be used as a precursor to heat treatment and is often combined with Advanced Thermal Treatment as a 'fuel' preparation stage.

The technology on its own does not result in significant volume and mass reduction and is therefore not suitable as a sustainable waste management solution in isolation. It does not alter the physical properties of waste materials, but does allow for separation of waste into different fractions for recycling, further treatment, or disposal.

Dirty MRFs can also be employed with bag splitters and additional technology included to allow black bag waste to be sorted. This allows for less reliance on source segregation, but results in a lower quality product.

Landfill

A landfill is a waste disposal site for the deposit of waste onto or into the land. In the past there has been a reliance on sending most waste to landfill, and is the current method adopted by the States for managing residual waste.

The Island has a single operational landfill site for putrescible waste at Mont Cuet, however despite significant success in minimising and recycling household and commercial wastes the landfill is estimated to have a working life of approximately 10 years at current filling rates.

An additional quarry (Les Vardes) may be suitable as a landfill, subject to appropriate engineering; however the quarry is still actively producing stone and is likely to continue doing so until 2030. The quarry is also earmarked for future water storage requirements.

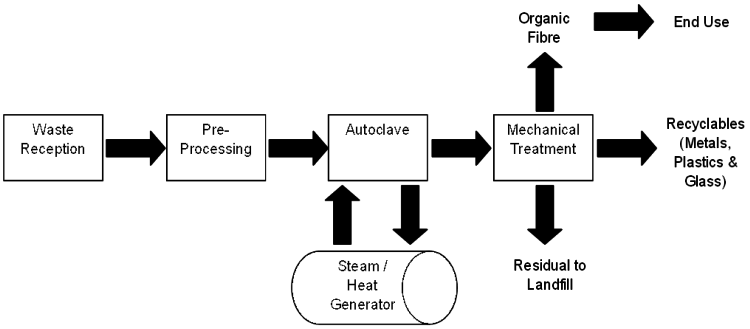
Whether additional capacity is made available or not the use of landfill to manage residual wastes is contrary to the requirements of the EU Landfill Directive and the philosophy of the waste hierarchy. As such, landfill should not be seen as a long-term sustainable solution for the management of residual wastes that could be otherwise treated.

However, landfill capacity will need to be available for disposal of wastes that are considered untreatable and for the disposal of certain residues from residual treatment processes.

Autoclaving (Mechanical Heat Treatment)

The most common form of mechanical heat treatment (MHT) is the pressurised steam autoclave. A variation to this is continuous, non-pressurised mechanical heat treatment, which relies on dry heat rather than steam to process and sanitise waste.

The main output of both methods is a cellulose fibre similar in appearance to compost, plus recyclates and a clean landfill fraction. Dependent on design, pre-processing may be required; at a minimum the removal of oversize items with shredding to reduce particle size.



The fibre may be used as a high biomass fuel known as Secondary Recovered Fuel (SRF) or converted into other products for example cardboard, insulation or bio-ethanol. The fibre may also be suitable for anaerobic digestion.

Common outputs
Ferrous metals – 1-2% of input waste, depending upon level of separation
Non-ferrous metals – 0.2-0.5% of input waste, depending upon level of separation
Glass – 3-5% of input waste depending upon level of separation
Organic Fibre
Waste to Landfill

Advantages

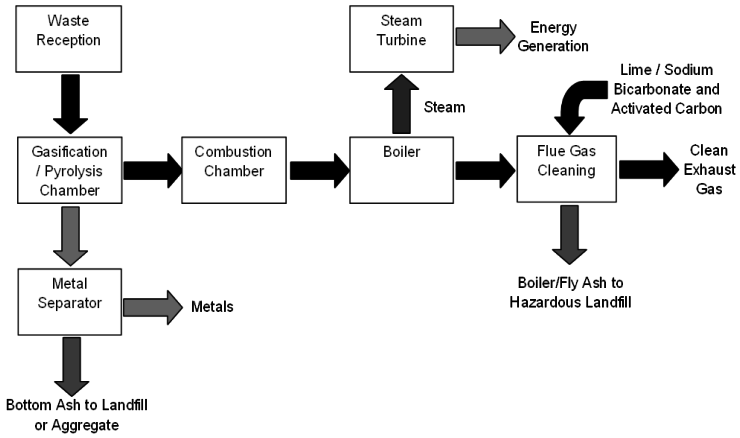
- Maximum recovery of clean recyclable streams
- Organic fibre has potential for useful end uses, e.g. bioethanol, SRF
- Volume Reduction

Disadvantages

- Not fully proven on a commercial scale in the UK
- Gate fees dependent on an uncertain markets for outputs
- If the organic output has no local market but is sent to landfill, the overall avoided greenhouse gas performance will be reduced,
- Perception of market risk with regard to overall deliverability.
- High Energy Consumption

Gasification/Pyrolysis (Advanced Thermal Treatment)

Advanced Thermal Treatment (ATT) technologies are primarily those that employ pyrolysis and/or gasification to process residual waste.



Gasification is the partial thermal degradation in the presence of oxygen but with insufficient oxygen to oxidise the waste completely as with combustion.

Pyrolysis involves exposing organic materials to temperature in excess of 400°C in the complete absence of oxygen.

As with incineration, these processes include four main stages:

1. **Waste reception/processing;**
2. **Pyrolysis and/or gasification;**
3. **Energy recovery (steam)/generation of electricity (turbo-generator);**
4. **Air pollution control.**

Common Outputs
Bottom ash – 25% by weight of input waste as slag or dry ash: Greater than this if char.
Fly ash – 3-5% of input waste
APC Residues

Advantages

- Gate fees do not rely upon uncertain markets for outputs
- Volume reduction of waste requiring landfill
- Highly regulated emission controls
- Energy recovery.

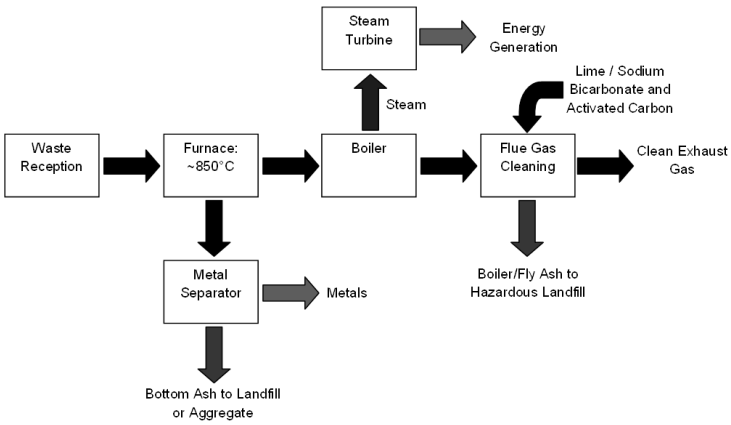
Disadvantages

- Not a fully commercial technology in the UK but proven elsewhere, e.g. Japan (Pyrolysis) and Norway (Gasification)
- Similar residue management issues to incineration

Incineration / Energy from Waste (EfW)

Incineration is a technology that uses combustion, the total thermal degradation of a substance with sufficient oxygen to oxidise the fuel completely, and is appropriate for wastes that are hazardous, non-biodegradable or that cannot be re-used/recycled.

A number of furnace designs can be used and include moving grate, rotary kiln, and fluidised bed technologies. Primary combustion of the waste takes place within the grate/furnace section and secondary combustion of the exhaust gases within a separate chamber.



Common Outputs
Bottom ash – 25% of input waste by mass
Fly ash and APC residues – 3-5% of input waste
Ferrous Metal recovery 1-3%

Advantages

- Incineration is a proven technology throughout the UK and Europe
- Volume reduction of waste requiring landfill
- Gate fees do not rely upon uncertain markets for outputs
- Highly regulated emission controls
- Potential off-island solution
- Energy Recovery

Disadvantages

- Potential lack of public acceptability
- Residues require additional treatment and/or specialist disposal.
- Public concern over emissions
- High Capital investment
- Lack of flexibility in capacity.

Mechanical Biological Treatment

Mechanical Biological Treatment (MBT) is a generic term for residual waste processes that involve both mechanical and biological elements. They incorporate systems commonly found in other waste management technologies, such as Materials Recovery Facilities (MRFs), and composting or anaerobic digestion plant. Outputs vary according to the components employed, but commonly include dry recyclables (i.e. metals and glass) and non-biodegradable material (e.g. plastics), as well as typically: - a Refuse Derived Fuel (RDF); compost and 'biogas'; or, a 'stabilised' organic material for landfill. These are considered further on the following pages.

Key Features

Most MBT facilities receive waste that has already undergone source separation (e.g. kerbside or bring bank) to remove some recyclables. Some additional metals and glass are recoverable during upfront mechanical sorting.

A large proportion of the biodegradable or 'organic' fraction, and a 'reject stream' of residual waste (largely plastics), will require onward management and additional facilities, depending on the MBT components used.

Common outputs for MBT technologies

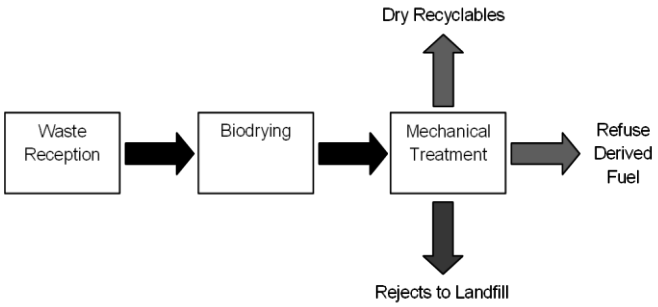
Metals - 1.0-2.5% of input waste, sent for reprocessing

Glass - 3.0-5.0% of input waste, but a low quality stream, suitable only for use as aggregate

Reject stream – 10-20% of input waste, likely to be sent to landfill but possible use as RDF

MBT – Refuse Derived Fuel

This form of MBT system uses various screening, conditioning and sanitising processes to extract recyclable materials and plastics from mixed household and commercial residual waste and produce a stabilised bio-waste that can processed into RDF for combustion in energy from waste incinerators, cement kilns, power stations, or other high temperature plants.



Outputs

One tonne of input waste can yield 110-140 units of electricity from thermal processing of RDF. However if no viable outlet is available will have to be sent to landfill. Metals, glass, reject stream (see above)

Advantages

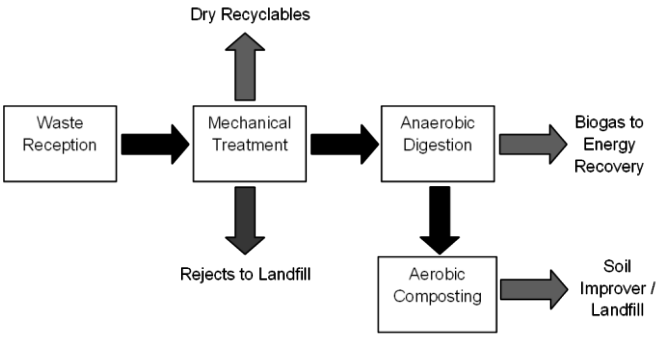
- Fully commercial technology.
- Potentially large volume reduction of residual waste requiring landfill
- Potential energy recovery from RDF.

Disadvantages

- The residual organic fraction and reject stream require 'onward' management, at additional cost.
- Gate fee potentially relies on uncertain markets for RDF.
- Large reliance on landfill if reliable market cannot be found for RDF.

MBT – Anaerobic Digestion

The key component of this MBT technology is the anaerobic digester. This produces conditions that encourage the natural breakdown of organic matter (e.g. food waste, paper) by bacteria.



The process generates three main products:

1. A 'biogas' mixture of methane and carbon dioxide that can be used to generate electricity
2. 'Fibre' that can be used as a nutrient-rich soil conditioner
3. A liquid 'digestate' that can potentially be used as fertiliser.

Alternatively the mixed fibre & digestate can be dried and pelletised for use as a Secondary Recovered Fuel (SRF).

Outputs
Dependent of processing of digestate
Organic fraction (40-50%) – sent to landfill if no viable outlet to land.
Metals, glass, reject stream (see above)

Advantages

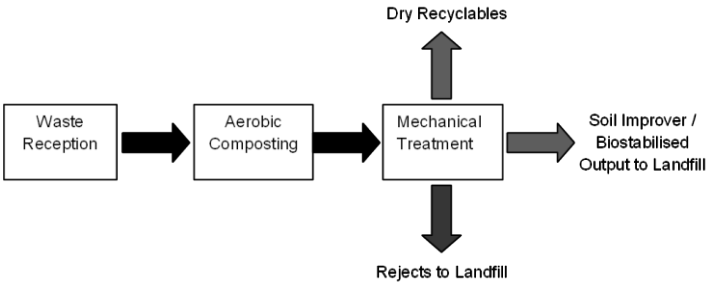
- Fully commercial technology
- Volume reduction of waste requiring landfill.
- Energy recovery from bio-gas.
- Organic fraction stabilised, reducing green house gas impact if landfill required.

Disadvantages

- The residual organic fraction and reject stream require 'onward' management, at additional cost.
- Gate fee potentially relies on uncertain markets for organic outputs. If no local market available will be sent to landfill, and the avoided green house gas performance will be reduced.

MBT - Bio-Stabilisation

The simplest design of MBT 'bio-stabilises' the mixed household and commercial residual waste, to reduce the biodegradability of the organic elements which is sent direct to landfill.



Outputs

Organic fraction (40-60%) – sent to landfill or applied to land
Metals, glass, reject stream (see above)

Advantages

- Fully commercial technology.
- Not reliant on uncertain market outlets.
- Stabilisation of organic fraction reduces green house gas production in landfill.

Disadvantages

- If no local market available organic outputs sent to landfill, reducing the avoided greenhouse gas performance.
- Likely to be expensive as costs must include treatment and landfill
- No energy recovery.
- Only moderate volume reduction of waste requiring landfill.

Plasma Arc Gasification

Plasma arc gasification is a waste treatment technology that uses electrical energy and the high temperatures created by an electric arc gasifier. This arc breaks down waste primarily into elemental gas and solid waste (slag), in a device called a plasma converter.

The technology is yet to be fully proven on a commercial scale for treatment of household waste. The most successful use of the technology may be sequentially comprising gasification, plasma gas treatment, syngas polishing and gas engine power generation. This approach has been adopted by Advanced Plasma Power, based in Swindon, UK, utilising the plasma to clean up the syngas and maximise the energy yield.

Plasma arc gasification is unlikely to be commercially viable as a singular treatment technology.

Advantages

- Energy recovery.
- Potentially useful materials produced for use in construction.
- Minimal landfill of residues.

Disadvantages

- Not fully proven on a commercial scale in the UK.
- Gate fees dependent on uncertain markets for outputs.
- Waste requires pre-treatment.
- High energy consumption.

4.0 Development of Options

Having identified the various components, a range of viable scenarios for the management of waste can be developed, allowing the various components of an integrated waste strategy to be modelled. This enables the comparative performance of waste management scenarios to be assessed.

Although some methods or technologies are not compatible with each other, this still leaves a significant number of possibilities which need to be reduced to a reasonable number to allow more detailed analysis.

Additional work on the development of different scenarios was carried out through stakeholder workshops. In advance of the workshops stakeholders were provided with briefing packs providing details of the various components that might be included in a revised waste strategy.

With the Waste Hierarchy at the cornerstone of the island's waste strategy, information was presented to stakeholders for each of the individual tiers of the Waste Hierarchy, split into themes for prevention, reuse, recycling, collection/transfer, treatment (recovery), and disposal.

The Waste Hierarchy ranks the various different methods of waste treatment to reflect the relative sustainability of each, and seeks to drive the management of waste up the Hierarchy.

As all disposal options have some impact on the environment, the best way to reduce this is not to produce waste in the first place. Where waste is produced, despite all preventative measures, it should be viewed as a resource to be put to good use.

During stakeholder workshops the different themes were considered and combined in group exercises to form a range of possible 'scenarios' for Guernsey. Choices for each theme were presented as different methods or technologies for each tier of the Waste Hierarchy.

Theme 1: Prevention

- Method A – Raising awareness: education/information leading to behaviour change.
- Method B – New measures
- Method C – Enforcement through legislation
- Method D – Provision of incentives

Theme 2: Reuse

- Method A – Raising awareness: education/information leading to behaviour change.
- Method B – Reuse of a range of household/office/commercial items
- Method C – Collection of reusable materials and redistribution to others for reuse

Theme 3a: Recycling

- Method A – Raising awareness: education/information leading to behaviour change.
- Method B – Enforcement through legislation
- Method C – Food Waste Recycling
- Method D – Green Waste Recycling

Theme 3b: Collection/Transfer

- Method A – Kerbside collection.
- Method B – Bring Bank sites

Theme 4: Treatment

Methods A to K

a) Autoclaving (Mechanical Heat Treatment)
b) Gasification/ Pyrolysis (Advanced Thermal Treatment)
c) Incineration (on Island and off Island)
d) Materials Recovery Facility
e) Mechanical Biological Treatment with Anaerobic Digestion
f) Mechanical Biological Treatment with Bio-stabilisation; and
g) Mechanical Biological Treatment with Refuse Derived Fuel
h) Plasma Arc Gasification
i) Anaerobic Digestion
j) In-Vessel Composting
k) Windrow Composting

Theme 5: Disposal

- Method A – Status quo – maintain Mont Cuet.
- Method B – Additional landfill at another site

Examples of each method were provided to stakeholders who were encouraged to develop a range of scenarios, including some they might not be entirely comfortable with, and to provide comment on them. Combinations of methods under each theme could be included.

An average of four scenarios was developed by each group, and typically the range of potential solutions featured the following:

- reliance on enforcement at the front end to minimise the amount of waste requiring further treatment (stick approach),
- encouragement and incentives to minimise the amount of waste requiring treatment (carrot approach)
- a scenario that included all measures (ideal world)
- a low cost 'practical' option

Other scenarios were generally formed around a particular treatment option such as autoclave.

There was also a clear indication that a strong focus on waste prevention and minimisation measures should be central to any future waste strategy.

From the outputs of the second stakeholder workshop ten scenarios were selected for further analysis. All incorporate waste prevention and minimisation measures, and are distinguishable from each other by the level of recycling and employed and residual waste treatment technology selected.

1) Baseline – As now, no change.
2) Autoclave with Bio-ethanol production from outputs, and a Materials Recovery Facility for commercial waste, with enhanced recycling.
3) Advanced Thermal Treatment (Gasification), including a Materials Recovery Facility for commercial waste, with enhanced recycling.
4) Incineration (on-Island), including a Materials Recovery Facility for commercial waste, with enhanced recycling.
5) Incineration (off-Island), including a Materials Recovery Facility for commercial waste and local transfer station, with enhanced recycling.
6) Mechanical Biological Treatment with Anaerobic Digestion, producing a Refuse Derived Fuel for energy production, and enhanced recycling.

7) Mechanical Biological Treatment with In-Vessel Composting, producing a Refuse Derived Fuel for energy production, and enhanced recycling.
8) Waste Park with Micro-incineration, an advanced Materials Recovery Facility for commercial and household wastes, In-Vessel Composting for food/green waste, and ash management.
9) Incineration (off-Island) and maximising recycling.
10) Mechanical Biological Treatment with In-Vessel Composting, producing a Refuse Derived Fuel for energy production, and maximising recycling.

Scenarios 2 to 7 incorporate the same enhanced recycling measures, building on existing levels and incorporating waste minimisation, but without kerbside collection. This allows comparison of different treatment technologies against similar recycling methods, using more reliable data. Comparison with this can then be made regarding the higher level of recycling that may be achieved through kerbside collection.

Scenarios 9 and 10 incorporate high level recycling and waste minimisation, including island-wide kerbside collection and some legislative measures. Scenario 8 sees a waste park solution tested, incorporating enhanced recycling with food waste collections, advanced sorting methods, and on island heat treatment.

5.0 Testing Selected Scenarios

Having identified the above 10 scenarios life cycle analysis could then be carried out for each scenario. This work was completed in March 2011 by consultants ERM Ltd. The Life Cycle Analysis report is based on outputs from the WRATE software.

The aim of using the WRATE model is to evaluate the impacts on the environment of a series of waste management scenarios. The study contrasts a reference, 'baseline' scenario, comprising landfill and the current rate of recycling performance, with several different proposed scenarios.

Preliminary discussions with ERM identified that the ten selected scenarios could be modelled using the WRATE software, but it was agreed that additional sensitivity was required to assess both Gasification and Pyrolysis as Advanced Thermal Treatment technologies. Further work on the scenario featuring Autoclave was also necessary. A standalone WRATE module for Autoclave producing outputs for bio-ethanol production as a fuel source has yet to be developed. To assess this scenario ERM created a user defined process to assess this emerging technology.

As a result the list above was revised with two additional scenarios added for testing:

2a) Autoclave with Bio-ethanol production from outputs, and a Materials Recovery Facility for commercial waste, with enhanced recycling.
3a) Advanced Thermal Treatment (Pyrolysis), including a Materials Recovery Facility for commercial waste, and enhanced recycling.

All other scenarios above remained the same, although for testing purposes where segregated food waste collections are included Anaerobic Digestion was used rather than In-Vessel Composting.

Life cycle analysis using WRATE software takes into consideration a number of variables including waste management options, waste tonnages and composition, recycling rates, electricity mix, energy mix, and the destination and type of transport for waste, residues and products. This enables comparison of different options on a like-for-like basis. Waste prevention and minimisation are currently outside the scope of WRATE software as it relies the inputting of actual data. This cannot be quantified for waste prevention as it is difficult to calculate accurately a figure for waste that has not existed.

Full results of the Life Cycle Analysis are available in the Report titled 'Life Cycle Analysis of Technical Waste Management Options for Guernsey – Final Report' dated April 2011, and produced by ERM. A copy of this report is available through the Public Services Department website (**www.gov.gg/waste-strategy**), and has been lodged with the Greffe.

The WRATE modelling and subsequent interpretation of the results enabled the following conclusions to be drawn:

- recycling is an extremely important driver of the overall outcomes;
- power generation is also an important determinant of the results;
- the overall level of diversion from landfill is key to the overall results obtained for each scenario; and
- transport is relatively unimportant, despite some of the distances involved (e.g. recyclables shipped to the far east).

A single preferred option cannot be picked from the WRATE assessment as many other factors should be considered in the decision. Even in terms of the WRATE assessment itself there are a number of variables and it is not possible to be certain of the exact characteristics of these and what may be delivered in practice. From the life cycle analysis carried out by ERM, no scenario from the 12 tested stands out as a clear favourite, although obviously some perform better than others.

In order to obtain greater confidence in the result of the life cycle analysis and assess the effect of changes to variables, sensitivity analysis was subsequently carried out on the following variables:

- Electricity Mix[24].

[24] The 'Electricity Mix' is the combined electricity from fossil fuel sources (e.g. on-island power generation using oil/gas), and non-fossil fuel sources (e.g. imported from France which is predominantly nuclear), which will be required for the plant and offset by energy generated.

ERM concluded that although the marginal electricity mix has an effect on the overall results, the significance of this effect is relatively small.

- In-Vessel Composting vs. Anaerobic Digestion for food waste processing

  The difference between AD and IVC in environmental benefits and impacts calculated using the WRATE model is very small and in some case not discernable; therefore the use of either technology will not significantly affect the overall performance of a scenario. However the management of outputs from anaerobic digestion systems pose significant challenges to our Island due to limited land available to accept digestate, and the need to protect local water supplies

- Commercial & Industrial Waste Composition, following new data becoming available.

  Despite a significant change in composition from that previously assumed, relative performance of scenarios would not expect to change.

- High (Maximised) Recycling Rates against all scenarios.

  In general all scenarios performed better at higher rates of recycling.

Work carried out to assess the High Recycling Rate sensitivity involved running all options where this had not previously been assessed through the WRATE model for Guernsey as standalone scenarios. An additional scenario was also added at this stage to test MBT technology producing a 'stabilite[25] for landfill, as suggested by a small group of stakeholders. As a result a total of 22 different scenarios were tested using WRATE.

The various outputs from the life cycle analysis work have subsequently been used in scoring some of the evaluation criteria for the appraisal of the range of waste strategy options.

[25] This form of MBT involves processing waste to stabilise the biodegradable component, producing an output suitable for landfill with a reduced potential for environmental impacts.

6.0 Scoring and Short-listing Options

Through the consultation process stakeholders and members of the public (who attended the drop-in sessions) were asked first to identify a list of factors that they believed to be important in delivering a waste strategy. These criteria covered environmental, social, economic, and practical issues related to the Island's waste management. An initial list of 25 criteria, known as evaluation criteria, were whittled down to 12 by this process. They were as follows:

i. Air, land and aquatic environment
ii. Global climate change
iii. Natural environment
iv. Human environment
v. Transport
vi. Sustainable waste management
vii. Water resources
viii. Costs and financing/affordability
ix. Making producers responsible
x. Securing public acceptability and commitment
xi. Practical deliverability
xii. Technical feasibility

These criteria were subsequently approved by the WDA and have been used in comparing different options for delivering against the waste strategy objectives.

6.1 Scoring Options

To assess comparatively each of the scenarios, scoring methods were developed for each of the evaluation criteria. These were either quantitative scores based on actual data, such as outputs from the WRATE model, or qualitative scores based on professional judgement. The scoring methods used are summarised below:

1) Air, Land and Aquatic Environment - Outputs from WRATE: Freshwater Aquatic Ecotoxicity Potential (using data calculated to measure the adverse effects on aquatic organisms from exposure to toxic substances), and Acidification (using calculated impacts from the release of acidic gases (e.g. sulphur dioxide).
2) Global Climate Change - Outputs from WRATE: Climate Change, measured as Global Warming Potential through the assessment of carbon dioxide and other greenhouse gases emitted to the atmosphere.
3) Water Resources - Outputs from WRATE: Eutrophication (reflecting the nutrient releases (nitrates and phosphates) from each scenario and their impact on the aquatic environment) combined with an assessment of actual water

consumption derived from the WRATE model, as an indicator of any additional pressure on local water resources.

4) Natural Environment - Qualitative scores generated based on visual impact (building/stack height), land-take (footprint), and Nature & Archaeological Conservation (based on potential loss of habitats and sites of historical importance).
5) Human Environment - Qualitative scores on amenity factors: Noise & Vibration, Odour, Dust, Vermin, Litter & Light Pollution; and culture heritage (setting) and social & community issues.
6) Transport - Based on actual 'on-land' miles derived from the WRATE model, relating to social impacts from congestion, risk of accidents, road repairs, etc. (environmental impacts are included in other outputs from WRATE).
7) Sustainable Waste Management - Application of an incremental weighting against each level of the waste hierarchy which is applied to the tonnage relative to each level of the waste hierarchy.
8) Costs and Financing/Affordability – Based on the indicative costs derived from SLR model, covering the whole strategy.
9) Making Producers Responsible - Simple qualitative score based on the requirement for additional legislation, with greater legislation resulting in higher performance.
10) Securing Public Acceptability & Commitment - Based on information gathered through market research carried out by Island Analysis.
11) Practical Deliverability - Qualitative score based on the flexibility of the technology involved in each scenario, and its flexibility to handle changes in waste volumes and composition.
12) Technical Feasibility - Qualitative score based on proven technology, combined with calculated risks associated with securing markets for outputs.

The scores for each option tested are normalised to enable comparative results for each of the evaluation criteria. Normalisation is a relatively simple process whereby a set of numbers are scaled so that the lowest becomes zero, and the highest becomes one, with the rest falling proportionally between zero and one.

As an example the scores derived for the first criterion, Air, Land and Aquatic Environment, are provided below in Table 6.1. This shows the results from the WRATE model for the outputs of Acidification and Freshwater Aquatic Ecotoxicity which relate to this criterion. The normalised scores for each output are combined to produce a final normalised score for each option. The negative scores shown in the outputs from WRATE indicate an environmental benefit. The option with the lowest score is the option that performs best, and conversely the option with the highest score is the worst performer. Analysis of Table 6.1 shows option 16 to perform best for this criterion with a combined score of 0.09 (Normalised score = 0), whilst option 1 performs worst with a

combined score of 2 (Normalised score = 1), with all other options falling proportionally between these two options.

Table 6.1 Output Scores for Criterion 1: Air, Land & Aquatic Environment

Option	WRATE Output: Acidification		WRATE Output: Freshwater Aquatic Ecotoxicity		Combined Score	Normalised Combined Score	Rank
	WRATE Score (kg SO2-Eq)	Normalised Score	WRATE Score (kg 1,4-DCB-Eq)	Normalised Score			
1	-293,687	1.00	-21,609,588	1.00	2.00	1.000	22
2	-299,204	0.93	-23,926,138	0.30	1.23	0.599	21
2a	-332,783	0.53	-23,926,138	0.30	0.83	0.390	15
3	-354,273	0.27	-22,517,098	0.73	1.00	0.475	19
3a	-360,345	0.20	-23,877,317	0.32	0.52	0.225	11
4	-360,747	0.20	-23,933,214	0.30	0.50	0.216	8
5	-360,249	0.20	-23,932,415	0.30	0.50	0.216	8
6	-359,337	0.21	-24,940,607	0.00	0.21	0.063	3
7	-328,591	0.58	-23,466,545	0.44	1.02	0.488	20
8	-365,767	0.14	-24,536,536	0.12	0.26	0.090	4
9	-366,299	0.13	-23,670,471	0.38	0.51	0.221	10
10	-341,936	0.42	-23,419,248	0.46	0.88	0.412	16
12	-327,986	0.59	-23,965,519	0.29	0.88	0.414	17
12a	-345,553	0.38	-23,965,519	0.29	0.67	0.304	12
13	-363,100	0.17	-22,369,613	0.77	0.94	0.445	18
13a	-372,148	0.06	-23,764,482	0.35	0.41	0.168	5
14	-369,782	0.09	-23,774,602	0.35	0.44	0.183	6
16	-372,206	0.06	-24,826,169	0.03	0.09	0.000	1
18	-377,184	0.00	-24,431,244	0.15	0.15	0.031	2
19	-369,144	0.10	-23,770,073	0.35	0.45	0.188	7
20	-345,786	0.38	-23,534,414	0.42	0.80	0.372	14
21	-345,302	0.38	-23,904,366	0.31	0.69	0.314	13

This process is repeated for each of the criterion, and obviously some options will perform better for some criteria, but not so well for others. Once the normalised scores have been calculated on a similar basis for all the criteria, they are fed into a matrix to enable comparison of all options against all criteria.

Using this matrix the performance of each option can then be assessed. The normalised scores for each option are shown in Table 6.2, and the total score is calculated by adding the score for each of the criteria. The option with the lowest total can be assumed to be that which performs best in comparison to all other options. Based on these initial scores, option 21 (Maximised Recycling with MBT producing a stabilite) performs best across all criteria with a score of 3.22, whilst Option 2a (Autoclave with Bio-ethanol production) has the highest score of 7.74, and therefore performs worst.

Table 6.2 Option Scoring Matrix Showing Normalised Scores

Option	Treatment Technology	Evaluation Criteria												Total	Rank
		Air, Land & Aquatic Environment	Climate Change	Natural Environment	Human Environment	Transport	Sustainable Waste Management	Water Resources	Costs and Financing/ Affordability	Making Producers Responsible	Securing Public Acceptability	Practical Deliverability	Technical Feasibility		
1	Baseline - as now, no change.	1.00	1.00	0.00	0.75	0.65	1.00	0.68	0.00	1.00	0.81	0.00	0.00	6.89	18
2	Autoclave with commercial MRF	0.60	0.17	0.68	0.00	0.89	0.09	0.94	0.66	0.75	0.80	0.73	1.00	7.31	20
2a	Autoclave (Bio-Ethanol) & commercial MRF	0.39	0.28	0.88	0.13	0.82	0.51	1.00	0.53	0.75	0.80	1.00	0.66	7.74	22
3	ATT (Gasification), & Commercial MRF	0.48	0.43	1.00	0.38	0.88	0.18	0.68	0.30	0.75	0.80	0.87	0.84	7.57	21
3a	ATT (Pyrolysis), & Commercial MRF	0.22	0.33	1.00	0.38	0.89	0.18	0.22	0.30	0.75	0.80	0.87	1.00	6.94	19
4	Incineration (On-Island), & Commercial MRF	0.22	0.34	1.00	0.38	0.82	0.35	0.47	0.34	0.75	0.80	0.70	0.62	6.79	16
5	Incineration (Off-Island), & MRF/Transfer Station	0.22	0.34	0.36	0.00	0.8	0.19	0.47	1.00	0.75	0.99	0.28	0.43	5.80	14
6	MBT with AD, producing RDF from outputs	0.06	0.40	0.64	0.13	0.81	0.37	0.89	0.79	0.75	0.99	0.48	0.54	6.86	17
7	MBT with IVC, producing RDF from outputs	0.49	0.49	0.71	0.13	0.82	0.19	0.41	0.53	0.75	1.00	0.35	0.54	6.41	15
8	Waste Park, Micro-incineration, MRF, IVC, & Ash Management	0.09	0.24	1.00	0.63	0.89	0.19	0.40	0.32	0.50	0.20	0.70	0.51	5.67	13
9	Incineration (Off-Island), & MRF/Transfer Station. Max. Recycling	0.22	0.22	0.47	0.25	0.99	0.09	0.22	0.84	0.00	0.17	0.70	0.49	4.67	9
10	MBT with IVC, producing RDF from outputs. Max. Recycling.	0.41	0.29	0.71	0.38	1	0.08	0.21	0.50	0.00	0.11	0.35	0.51	4.54	8
12	Autoclave with commercial MRF, Max Recycling	0.41	0.00	0.68	0.25	0.03	0.00	0.51	0.87	0.00	0.00	0.73	0.97	4.45	6
12a	Autoclave (Bio-Ethanol) & comm.. MRF, Max Recycling	0.30	0.13	0.88	0.38	0.01	0.32	0.53	0.86	0.00	0.00	1.00	0.68	5.09	11
13	ATT (Gasification), & Commercial MRF, Max Recycling	0.45	0.25	1.00	0.88	0	0.14	0.35	0.51	0.00	0.01	0.87	0.70	5.13	12
13a	ATT (Pyrolysis), & Commercial MRF, Max Recycling	0.17	0.14	1.00	0.88	0	0.14	0.00	0.72	0.00	0.00	0.87	0.83	4.73	10
14	Incineration (On-Island), & Commercial MRF, Max Recycling	0.18	0.16	1.00	1.00	0	0.20	0.20	0.55	0.00	0.01	0.70	0.46	4.46	7
16	MBT with AD, producing RDF from outputs, Max Recycling	0.00	0.16	0.64	0.38	0.01	0.20	0.49	1.00	0.00	0.10	0.48	0.51	3.98	5
18	Waste Park, Micro-incineration, MRF, IVC, & Ash Management	0.03	0.06	1.00	1.00	0.02	0.16	0.14	0.40	0.00	0.01	0.70	0.37	3.90	4
19	Incineration (Off-Island), & MRF/Transfer Station. Max. Recycling,	0.19	0.16	0.47	0.25	0	0.09	0.21	0.84	0.00	0.10	0.70	0.26	3.27	2
20	MBT with IVC, producing RDF. Max. Recycling.	0.37	0.25	0.71	0.38	0	0.08	0.19	0.50	0.00	0.11	0.35	0.37	3.30	3
21	MBT Stabilisation, Max Recycling, Kerbside	0.31	0.24	0.81	0.50	0.01	0.29	0.14	0.53	0.00	0.01	0.35	0.03	3.22	1

In the above table it can be seen that the baseline (landfill option) performs worst for some of the environmental criteria, as would be expected, with a score of 1 for 'Air, Land and Aquatic Environment', 'Climate Change', and 'Sustainable Waste Management'; however this option also performs best for some criteria, for example 'Costs and Financing/Affordability', as no major capital expenditure is included, and 'Technical Feasibility' as landfill is a proven low risk technology. Table 6.2 also shows that all options with maximised recycling rates (options 9 – 21) perform better than those with lower recycling rates (options 1 – 8).

The evaluation criteria need to be weighted before final scores can be calculated. In order to identify the weightings for each criterion, stakeholders, working in small groups, were asked to allocate sixty tokens to the twelve criteria, with those that were considered more important having a higher allocation of tokens. The results of each group were combined to produce the weightings shown in Table 6.3 below.

Table 6.3 Evaluation Criterion Weighting

Evaluation Criterion	**Weighting**
Sustainable waste management	9.9
Costs and financing/affordability	7.7
Practical deliverability	6.8
Air, land and aquatic environment	5.8
Making producers responsible	5.6
Technical feasibility	5.5
Human environment	4.3
Securing public acceptability and commitment	4.1
Natural environment	3.8
Water resources	3.1
Global climate change	2.3
Transport	1.3

These weightings are then applied to the normalised scores generated for each option in order to calculate final scores. In order to do this the normalised scores first need to be inversed. Table 6.4 below shows the weighted scores for all options tested, with their rank indicated. With the normalised scores now inversed and weighted, the higher scoring options now indicate better performance. Table 6.4 shows that option 20 scores the highest with a score of 43.12, whilst option 2a performs worst with a score of 22.23.

As part of the process of evaluating the different options some further sensitivity analysis has subsequently been carried out on the results to assess the assumptions and variables used in calculating some of the evaluation criteria.

The criterion 'Sustainable Waste Management' was tested in response to concerns raised about the scoring method, where no score was attributed to waste prevention measures, and the same score was applied to all landfill tonnages irrespective of whether this was stabilised, pre-treated or exported to a hazardous landfill facility.

Concern was also raised regarding the whether or not an on-island thermal treatment system would achieve an R1 efficiency rating[26], allowing it to be classed as 'recovery' rather than 'disposal'.

Both these sensitivities indicated that although there was an impact in adjusting these variables, those options that initially performed best were still gaining the highest scores.

The matrix scores presented in this report differ from those presented at the stakeholder workshops as further testing and refinement has been carried out subsequently. These updated scores incorporate the results obtained for a revised method for calculating Sustainable Waste Management, taking into consideration the concerns discussed above.

[26] The R1 Efficiency rating is calculated from an energy efficiency formula provided by the European Union Waste Framework Directive. This determines whether or not a waste incinerator can be classed as a recovery operation, where recovery means waste is used principally as a fuel to generate energy, and the plant efficiency achieves a certain standard.

Table 6.4 Matrix of Evaluation Criteria Scores Applied to Each Option

Option	Treatment Technology	Air, Land & Aquatic Environment	Climate Change	Natural Environment	Human Environment	Transport	Sustainable Waste Management	Water Resources	Costs and Financing/ Affordability	Making Producers Responsible	Securing Public Acceptability	Practical Deliverability	Technical Feasibility	Total	Rank
1	**Baseline - as now, no change.**	0.00	0.00	3.80	1.08	0.46	0.00	0.99	7.70	0.00	0.78	6.80	5.50	27.10	**19**
2	**Autoclave with commercial MRF**	2.32	1.91	1.23	4.30	0.14	9.02	0.17	2.61	1.40	0.84	1.81	0.01	25.77	**20**
2a	**Autoclave with Bio-Ethanol production, & commercial MRF**	3.54	1.66	0.45	3.76	0.23	4.82	0.00	3.65	1.40	0.83	0.00	1.88	22.23	**22**
3	**ATT (Gasification), & Commercial MRF**	3.04	1.31	0.00	2.69	0.16	8.12	1.00	5.41	1.40	0.81	0.91	0.88	25.73	**21**
3a	**ATT (Pyrolysis), & Commercial MRF**	4.50	1.55	0.00	2.69	0.14	8.08	2.42	5.41	1.40	0.81	0.91	0.00	27.90	**17**
4	**Incineration (On-Island), & Commercial MRF**	4.55	1.52	0.00	2.69	0.23	6.45	1.65	5.05	1.40	0.81	2.04	2.06	28.46	**16**
5	**Incineration (Off-Island), & MRF/Transfer Station**	4.55	1.52	2.45	4.30	0.26	8.04	1.65	0.00	1.40	0.04	4.93	3.16	32.30	**13**
6	**MBT with AD, producing RDF from outputs**	5.44	1.37	1.37	3.76	0.25	6.24	0.34	1.62	1.40	0.02	3.51	2.51	27.83	**18**
7	**MBT with IVC, producing RDF from outputs**	2.97	1.18	1.10	3.76	0.23	7.98	1.84	3.60	1.40	0.00	4.42	2.54	31.01	**15**
8	**Waste Park, Micro-incineration, MRF, IVC, & Ash Management**	5.28	1.74	0.00	1.61	0.14	8.00	1.87	5.26	2.80	3.27	2.04	2.69	34.70	**10**
9	**Incineration (Off-Island), & MRF/Transfer Station. Max. Recycling**	4.52	1.79	2.00	3.23	0.01	9.00	2.42	1.23	5.60	3.39	2.04	2.83	38.06	**6**
10	**MBT with IVC, producing RDF from outputs. Max. Recycling.**	3.41	1.63	1.10	2.69	0.00	9.15	2.46	3.87	5.60	3.65	4.42	2.67	40.64	**4**
12	**Autoclave with commercial MRF, Max Recycling**	3.40	2.30	1.23	3.23	1.26	9.90	1.52	1.01	5.60	4.10	1.81	0.18	35.53	**9**

12a	**Autoclave with Bio-Ethanol production, & commercial MRF, Max Recycling**	4.04	2.00	0.45	2.69	1.29	6.72	1.47	1.05	5.60	4.10	0.00	1.75	31.15	**14**
13	**ATT (Gasification), & Commercial MRF, Max Recycling**	3.22	1.73	0.00	0.54	1.30	8.51	2.02	3.81	5.60	4.07	0.91	1.67	33.37	**12**
13a	**ATT (Pyrolysis), & Commercial MRF, Max Recycling**	4.83	1.99	0.00	0.54	1.30	8.47	3.10	2.19	5.60	4.09	0.91	0.96	33.96	**11**
14	**Incineration (On-Island), & Commercial MRF, Max Recycling**	4.74	1.93	0.00	0.00	1.30	7.94	2.47	3.45	5.60	4.07	2.04	2.99	36.52	**8**
16	**MBT with AD, producing RDF from outputs, Max Recycling**	5.80	1.93	1.37	2.69	1.29	7.89	1.57	0.02	5.60	3.70	3.51	2.68	38.04	**7**
18	**Waste Park, Micro-incineration, MRF, IVC, & Ash Management**	5.62	2.15	0.00	0.00	1.27	8.28	2.65	4.66	5.60	4.06	2.04	3.45	39.78	**5**
19	**Incineration (Off-Island), & MRF/Transfer Station. Max. Recycling, Kerbside**	4.71	1.93	2.00	3.23	1.30	9.04	2.46	1.23	5.60	3.68	2.04	4.08	41.30	**3**
20	**MBT with IVC, producing RDF from outputs. Max. Recycling. Kerbside**	3.64	1.73	1.10	2.69	1.30	9.15	2.52	3.87	5.60	3.65	4.42	3.46	43.12	**1**
21	**MBT Stabilisation, Max Recycling, Kerbside**	3.98	1.74	0.71	2.15	1.29	7.07	2.68	3.62	5.60	4.07	4.42	5.34	42.67	**2**

Note: Scenarios 12 to 20 incorporate high recycling and are numbered in relation to the original scenarios 1 to 10. Scenarios 15 and 17 are excluded as original scenarios 5 & 7 had already been assessed at high recycling rates (see scenarios 9 & 10).

6.2 Short-listing Options

In order to develop a shortlist of options, constraints are applied first and those performing worst are then screened out in a staged process. At each stage those options remaining are then re-scored against each other. This can result in changes to the relative performance of the remaining options and the highest scoring option can change.

This process is repeated, progressively screening out options, until a reasonable shortlist of 3 – 5 options is achieved. The final shortlisted options presented at the fourth Workshop to the stakeholders taking part in the consultation process are shown in Table 6.8, including their relative scores. It is worth noting that although the scoring process

has been refined since the consultation process, and scores have changed, the shortlisted options remain the same.

6.2.1 Applying Constraints

A constraint in this context is an over-riding factor that must be met by the options, such as a specific cost ceiling or legal requirement. This is considered outside of the assessment of evaluation criteria, and is limited to factors that can be easily assessed. The consultation process identified the following constraints:

- Space. Limited land area available at Longue Hougue & Mont Cuet
- Cost. Maximum acceptable gate fee.
- Regulatory. Compliance with local environmental and planning legislation.
- Timescale. Related to the remaining capacity at Mont Cuet.

In applying these constraints, options that were heavily reliant on landfill were excluded from further evaluation due to the constraints of both Time and Space. The following scenarios were therefore excluded.

1. *Baseline – reliant on Landfill*

2a. & 12a. *Autoclave with Bio-Ethanol – large quantity of rejects and processed material requiring landfill.*

Whilst option 21 also had a high reliance on landfill, the remaining capacity for Mont Cuet was considered sufficient to receive outputs from this option for a significant period, estimated at 25 years, and therefore this option warranted further testing and was retained.

Other constraints did not have an effect on the remaining options.

6.2.2 Short-listing Options - Staged Process

The next step in short-listing the various options saw those achieving the lowest scores being screened out in a staged process. A cut off score of 25 was initially applied, with those options scoring less than 25 dropping out of the evaluation process and excluded from further testing.

Table 6.5 shows the results of testing the remaining options against each other after the application of constraints, with options scoring less than 25 being highlighted. These poor performers are then removed and excluded from comparative testing at the next stage.

Table 6.5 Matrix Scores after Applying Constraints

Option	Treatment Technology	Evaluation Criteria												Total	Rank
		Air, Land & Aquatic Environment	Climate Change	Natural Environment	Human Environment	Transport	Sustainable Waste Management	Water Resources	Costs and Financing/ Affordability	Making Producers Responsible	Securing Public Acceptability	Practical Deliverability	Technical Feasibility		
2	**Autoclave with commercial MRF**	0.00	1.50	1.90	3.76	0.14	7.52	0.10	3.72	1.40	0.84	1.70	0.00	22.58	**17**
3	**ATT (Gasification), & Commercial MRF**	0.71	0.28	0.00	2.69	0.15	5.09	1.08	7.70	1.40	0.81	0.00	0.90	20.80	**19**
3a	**ATT (Pyrolysis), & Commercial MRF**	3.45	0.76	0.00	2.69	0.14	4.97	2.22	7.70	1.40	0.81	0.00	-0.01	24.12	**15**
4	**Incineration (On-Island), & Commercial MRF**	3.57	0.71	0.00	2.69	0.24	0.58	1.55	7.19	1.40	0.81	2.98	2.12	23.82	**16**
5	**Incineration (Off-Island), & MRF/Transfer Station**	3.54	0.71	3.80	4.30	0.26	4.86	1.55	0.00	1.40	0.04	6.80	3.25	30.53	**11**
6	**MBT with AD, producing RDF from outputs**	5.26	0.39	1.45	3.76	0.25	0.00	0.00	2.30	1.40	0.02	4.25	2.59	21.67	**18**
7	**MBT with IVC, producing RDF from outputs**	0.89	0.00	0.86	3.76	0.23	4.70	1.60	5.12	1.40	0.00	5.95	2.61	27.13	**14**
8	**Waste Park, Micro-incineration, MRF, IVC, & Ash Management**	4.92	1.15	0.00	1.61	0.14	4.76	1.79	7.48	2.80	3.27	2.98	2.77	33.67	**10**
9	**Incineration (Off-Island), & MRF/Transfer Station. Max. Recycling**	3.43	1.25	2.82	3.23	0.01	7.47	2.44	1.75	5.60	3.39	2.98	2.91	37.27	**6**
10	**MBT with IVC, producing RDF from outputs. Max. Recycling.**	1.58	0.92	0.86	2.69	0.00	7.87	2.35	5.52	5.60	3.65	5.95	2.74	39.73	**4**
12	**Autoclave with commercial MRF, Max Recycling**	1.73	2.30	1.90	3.23	1.26	9.90	1.59	1.44	5.60	4.10	1.70	0.17	34.92	**8**
13	**ATT (Gasification), & Commercial MRF, Max Recycling**	0.96	1.13	0.00	0.54	1.30	6.15	2.19	5.42	5.60	4.07	0.00	1.71	29.08	**13**
13a	**ATT (Pyrolysis), & Commercial MRF, Max Recycling**	3.93	1.66	0.00	0.54	1.30	6.02	3.10	3.11	5.60	4.09	0.00	0.98	30.33	**12**

14	**Incineration (On-Island), & Commercial MRF, Max Recycling**	3.82	1.55	0.00	0.00	1.30	4.60	2.51	4.91	5.60	4.07	2.98	3.07	34.40	**9**
16	**MBT with AD, producing RDF from outputs, Max Recycling**	5.80	1.54	1.45	2.69	1.29	4.46	1.46	0.02	5.60	3.70	4.25	2.76	35.00	**7**
18	**Waste Park, Micro-incineration, MRF, IVC, & Ash Management**	5.40	2.00	0.00	0.00	1.28	5.52	2.73	6.63	5.60	4.06	2.98	3.55	39.74	**3**
19	**Incineration (Off-Island), & MRF/Transfer Station. Max. Recycling, Kerbside**	3.77	1.54	2.82	3.23	1.30	7.58	2.50	1.75	5.60	3.68	2.98	4.21	40.95	**2**
20	**MBT with IVC, producing RDF from outputs. Max. Recycling. Kerbside**	2.01	1.13	0.86	2.69	1.30	7.87	2.44	5.52	5.60	3.65	5.95	3.56	42.56	**1**
21	**MBT Stabilisation, Max Recycling, Kerbside**	2.63	1.16	0.12	2.15	1.29	2.26	2.46	5.15	5.60	4.07	5.95	5.50	38.33	**5**

All options excluded from this stage are within the group having enhanced rather than maximised recycling rates, and all have equivalents at the higher rate of recycling which remain for the next stage of testing. Of the above options, option 20 performs best, with a score of 42.56, whilst option 3 performs worst, scoring 20.80.

Table 6.6 shows the results of the next stage of scoring, with options 2, 3, 3a, 4, and 6 excluded, and the remaining options re-scored against each other.

Table 6.6 Matrix Scores after Applying the First Screen at a Score of 25

Option	Treatment Technology	Evaluation Criteria												Total	Rank
		Air, Land & Aquatic Environment	Climate Change	Natural Environment	Human Environment	Transport	Sustainable Waste Management	Water Resources	Costs and Financing/ Affordability	Making Producers Responsible	Securing Public Acceptability	Practical Deliverability	Technical Feasibility		
5	**Incineration (Off-Island), & MRF/Transfer Station**	3.36	0.71	3.80	4.30	0.26	3.37	0.19	0.00	0.00	0.04	6.80	3.67	26.50	**13**
7	**MBT with IVC, producing RDF from outputs**	0.00	0.00	0.86	3.76	0.23	3.17	1.60	5.27	0.00	0.00	5.95	3.04	23.88	**14**
8	**Waste Park, Micro-incineration, MRF, IVC, & Ash Management**	4.80	1.15	0.00	1.61	0.14	3.25	0.63	7.70	2.80	3.27	2.98	2.69	31.01	**10**
9	**Incineration (Off-Island), & MRF/Transfer Station. Max. Recycling**	3.42	1.25	2.82	3.23	0.01	6.75	1.88	1.80	5.60	3.39	2.98	3.44	36.56	**5**
10	**MBT with IVC, producing RDF from outputs. Max. Recycling.**	1.01	0.92	0.86	2.69	0.00	7.27	1.67	5.67	5.60	3.65	5.95	3.07	38.36	**3**
12	**Autoclave with commercial MRF, Max Recycling**	0.77	2.30	1.90	3.23	1.26	9.90	0.32	1.48	5.60	4.10	1.70	0.00	32.56	**7**
13	**ATT (Gasification), & Commercial MRF, Max Recycling**	1.03	1.13	0.00	0.54	1.30	5.05	1.48	5.58	5.60	4.07	0.00	1.44	27.22	**12**
13 a	**ATT (Pyrolysis), & Commercial MRF, Max Recycling**	4.05	1.66	0.00	0.54	1.30	4.88	3.10	3.20	5.60	4.09	0.00	0.79	29.21	**11**
14	**Incineration (On-Island), & Commercial MRF, Max Recycling**	3.88	1.55	0.00	0.00	1.30	3.04	2.03	5.05	5.60	4.07	2.98	2.98	32.46	**8**
16	**MBT with AD, producing RDF from outputs, Max Recycling**	5.80	1.54	1.45	2.69	1.29	2.86	0.00	0.03	5.60	3.70	4.25	2.75	31.94	**9**
18	**Waste Park, Micro-incineration, MRF, IVC, & Ash Management**	5.56	2.00	0.00	0.00	1.28	4.23	2.45	6.82	5.60	4.06	2.98	3.18	38.16	**4**
19	**Incineration (Off-Island), & MRF/Transfer Station. Max. Recycling, Kerbside**	3.82	1.54	2.82	3.23	1.30	6.90	2.01	1.80	5.60	3.68	2.98	4.08	39.74	**2**
20	**MBT with IVC producing RDF from outputs. Max. Recycling. Kerbside**	1.52	1.13	0.86	2.69	1.30	7.27	1.85	5.67	5.60	3.65	5.95	3.71	41.19	**1**
21	**MBT Stabilisation, Max Recycling, Kerbside**	2.09	1.16	0.12	2.15	1.29	0.00	1.81	5.30	5.60	4.07	5.95	5.50	35.04	**6**

To further reduce the number of options remaining for consideration, a score of 32 was set as the bar for progress to the next stage, with options 5, 7, 8, 13, 13a, and 16 (as highlighted in Table 6.6) dropping out of the next stage of testing. As with the previous stage, option 20 is the highest scoring option.

Table 6.7 shows the relative scores following retesting of those options that remain. Of the eight remaining options, option 20 again performs best. In order to reduce the number of options to a final shortlist, the relative scores are again assessed. Options 8, 9, and 10 all have comparable options with higher scores at maximised recycling rates in options 18, 19, and 20. Therefore these options are excluded. Given that options 14 and 18 are very similar, based on maximised recycling and on-island thermal treatment, option 14 is also excluded from the final shortlist.

Table 6.7 Matrix Scores After Applying the Second Screen at a Score of 32

Option	Treatment Technology	Evaluation Criteria													
		Air, Land & Aquatic Environment	Climate Change	Natural Environment	Human Environment	Transport	Sustainable Waste Management	Water Resources	Costs and Financing/ Affordability	Making Producers Responsible	Securing Public Acceptability	Practical Deliverability	Technical Feasibility	Total	Rank
8	**Waste Park, Micro-incineration, MRF, IVC, & Ash Management**	2.71	0.69	3.80	4.30	0.01	9.20	2.38	2.01	5.60	0.00	0.00	1.69	32.40	**6**
9	**Incineration (Off-Island), & MRF/Transfer Station. Max. Recycling**	0.00	0.00	0.95	3.58	0.00	9.90	2.11	6.40	5.60	1.55	6.80	1.02	37.92	**3**
10	**MBT with IVC, producing RDF from outputs. Max. Recycling.**	3.25	1.34	0.48	0.00	1.30	4.14	2.56	5.69	5.60	4.08	0.00	0.63	29.08	**7**
14	**Incineration (On-Island), & Commercial MRF, Max Recycling**	5.80	1.31	3.80	3.58	1.29	3.89	0.00	0.00	5.60	1.84	0.00	0.00	27.11	**8**
18	**Waste Park, Micro-incineration, MRF, IVC, & Ash Management**	5.36	2.30	0.48	0.00	1.28	5.77	3.10	7.70	5.60	4.00	0.00	1.00	36.59	**4**
19	**Incineration (Off-Island), & MRF/Transfer Station. Max. Recycling, Kerbside**	3.19	1.32	3.80	4.30	1.30	9.40	2.54	2.01	5.60	1.75	0.00	2.87	38.07	**2**
20	**MBT with IVC, producing RDF from outputs. Max. Recycling. Kerbside**	0.60	0.44	0.95	3.58	1.30	9.90	2.34	6.40	5.60	1.55	6.80	2.20	41.67	**1**
21	**MBT Stabilisation, Max Recycling, Kerbside**	1.37	0.51	0.00	2.87	1.29	0.00	2.30	5.98	5.60	4.10	6.80	5.50	36.32	**5**

The results of testing the remaining four options against each other are then presented with their relative scores in Table 6.8 as the final shortlist of options, and designated new identification codes as options A - D.

Table 6.8 Matrix of Final Shortlisted Options

Option	Treatment Technology	Evaluation Criteria												Total	Rank
		Air, Land & Aquatic Environment	Climate Change	Natural Environment	Human Environment	Transport	Sustainable Waste Management	Water Resources	Costs and Financing/ Affordability	Making Producers Responsible	Securing Public Acceptability	Practical Deliverability	Technical Feasibility		
A	**Maximised Recycling, Heat Treatment, MRF, IVC (Food Waste), & Ash Management**	5.80	2.30	0.48	0.00	0.00	5.77	3.10	7.70	5.60	0.17	6.80	0.00	37.71	**3**
B	**Maximised Recycling, MRF/Transfer Station, IVC (Food Waste),Incineration (Off-Island),**	2.91	1.08	3.80	4.30	1.30	9.40	0.00	0.00	5.60	3.79	6.80	2.90	41.87	**1**
C	**Maximised Recycling, MBT with IVC producing RDF. IVC (Food Waste), Heat Treatment of RDF (Off-Island)**	0.00	0.00	0.95	3.58	1.06	9.90	0.37	5.94	5.60	4.10	6.80	2.23	40.54	**2**
D	**Maximised Recycling, MBT Stabilisation, IVC (Food Waste), Landfill of Stabilite**	1.16	0.08	0.00	2.87	0.75	0.00	2.18	5.37	5.60	0.00	6.80	5.50	30.30	**4**

Table 6.8 shows the option that performs best to be option B. Options A – C all perform significantly better than option D.

It should be noted that in the results presented to the stakeholders, option A scored highest; however following subsequent adjustment of scoring methods, in particular for the Sustainable Waste Management criterion, the relative scores have changed; however option D scored significantly lower in both instances.

When presented to stakeholders at the final workshop, there was clearly a lack of support for option D; however, although options A, B and C were broadly acceptable to stakeholders, no clear consensus could be achieved on which was the best option.

Appendix 12

THE UTILISATION OF FOOD WASTE DERIVED COMPOST FOLLOWING ANAEROBIC DIGESTION OR TREATMENT IN AN IN-VESSEL COMPOSTER

COMMERCE AND EMPLOYMENT
A STATES OF GUERNSEY GOVERNMENT DEPARTMENT

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Your Ref: RR2722/RR

Mr R Roussel
Senior Project Manager
Public Services Department
Sir Charles Frossard House
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18 August 2011

Dear Rob

Island Waste Strategy: The Utilisation of Food Waste Derived Compost Following Anaerobic Digestion or Treatment in an In-Vessel Composter.

Thank you for your memorandum requesting confirmation that this Department would be satisfied that food waste derived compost produced by an In-Vessel Composting process would be a suitable solution for the treatment of locally produced food waste, and that the application of this material to farmland would be acceptable, provided that quality control measures can be met.

There are certain animal and human health safeguards that must be complied with in order to ensure that it is safe to use food waste derived compost. These are clearly laid out in EU and UK legislation and must be complied with at all times. We have noted in the past that food waste that is inappropriately treated and utilised can cause animal disease (such as Swine Fever and Foot and Mouth Disease) and if not stored and applied to the land in the correct quantity and at an appropriate time of the year, can cause nitrate pollution of the island's potable water resources. The Public Services Department should determine whether or not it will be possible to effectively manage the quantity of compost that might be produced and, with the limited availability of cultivated agricultural land in the island, ensure that they are able to dispose of it without causing a risk of water pollution.

The plant and the process should be subject to licensing and regular inspection by the Island's animal health authority (The States Veterinary Officer) and environmental health authority (The Director of Environmental Health and Pollution Regulation, HSSD). The plans for the plant and equipment, and the proposed method of operation, should be approved in advance by the island's environmental regulator and the States Veterinary Officer (who will be most concerned to ensure that the material produced will not provide a risk of infection by viral or bacterial pathogens that could cause 'Notifiable Diseases' in the island's livestock). The Director of Environmental Health and Pollution Regulation, and Guernsey Water, will no doubt be concerned with implications for human health and, in particular, the protection of the island's potable water catchment from the risk of pollution.

From an animal health perspective, our understanding is that the food waste material to be composted must be:

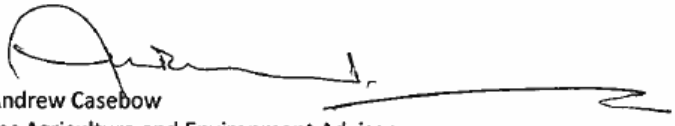
- Reduced in particle size sufficiently (as laid out in EU Animal By-Products Regulations, EU 1069/2009 and 142/2011, which replaced EU 1774/2002) to allow effective heat penetration;
- During processing the material must be subject to specified heat treatment which must be automatically and permanently recorded. Currently this is a minimum of 70°C for at least 60 minutes ;
- The processed material must be subject to specified bacteriological testing;
- Composting plants must be approved and comply with certain structural and operational standards to ensure that no material can bypass the process and that processed material cannot become contaminated with unprocessed material
- Compost must undergo a specific and separate secondary maturation process (with the prevention of livestock access) for a specified period; and
- There is a time delay between application of compost to the land and grazing or cropping. In the UK this is at least 8 weeks in the case of pigs or 3 weeks for other livestock. Prevention of livestock access during this period remains paramount.

In addition, it is understood that in England and Wales the Environment Agency requires that a soil analysis is undertaken at all proposed sites of application. The digestate or compost must also be analysed for nutrient content and the presence of potential contaminants. The Environment Agency will then specify or approve an application rate at which the material must be applied to the land. The Director of Environmental Health and Pollution Regulation might consider that a similar process would be appropriate in Guernsey.

There are advantages and disadvantages of each of the two treatment processes that have been considered: Anaerobic Digestion of food waste and the In-Vessel composting of this material. These have been fully explored in past meetings and in correspondence between this Department and the Public Services Department. In these meetings we have emphasised the necessity of developing appropriate storage and maturation facilities as well as the initial processing of the material. We have also emphasised the need for PSD to develop a robust and practical system for the application of the material produced to agricultural land at the appropriate time of the year for crop growth and to comply with the existing 'non-spreading' periods. This includes building strong links with the farming industry and local contractors, so that the application can be carried out in an appropriate manner with full monitoring and record keeping.

This Department maintains that whichever process is selected and built, the key elements of a future successful operation will be the selection of appropriate equipment, the effective operation of the process by trained and experienced staff, the testing and recording of the material prior to despatch, and the appropriate distribution and application to the land of the product (incl. the recording of the quantity of material applied) to ensure that neither animal health nor human health is put at risk. It is understood that this will remain the responsibility of the Public Services Department.

Yours sincerely



Dr Andrew Casebow
States Agriculture and Environment Adviser

MEMORANDUM

TO: Senior Project Manager, Public Services Department

FROM: Director of Water Services, Guernsey Water

DATE: 7 September 2011

YOUR REF: RR2722/RR

WASTE STRATEGY – CONSULTATION WITH THE FARMING COMMUNITY

Thank you for your memorandum on the 11th August 2011 with regard to the meeting with the farming community in June 2011 as part of the Waste Strategy consultation process.

Due to already high nitrate loadings in raw water In-Vessel Composting is Guernsey Water's preferred option rather than digestate from Anaerobic Digestion systems being applied to farm land.

Guernsey Water will require the following points to be taken into account and incorporated into the final working model to ensure already high nitrate levels in raw waters are kept to an acceptable limit:

- On a site by site basis soil from fields must be analysed pre compost application to determine the nitrate loading.
- Per batch the compost material must be analysed to determine the nitrate loading.
- The application rate as set out in the EU Nitrate Directive of 170kg of nitrate per hectare per year is not to be exceeded.
- Accurate records must be kept electronically and passed to Guernsey Water of all tests carried out, applications of compost and livestock manure (required details to be confirmed once the process has been approved).
- Environmental Health will be setting surface and ground water limits for nitrate and the preliminary nitrate limit is set at 42 mg/l, this must not be breached in water allowed to flow or percolate into any stream.

Guernsey Water will require the process details once approval is given and a pollution safety plan to be formulated prior to commissioning which sets out likely risks, mitigation measures and process validation.

A. Redhead

Andrew Redhead
Director of Water Services, Guernsey Water

Appendix 13

LETTER FROM TRANSPORT AND TECHNICAL SERVICES DEPARTMENT, JERSEY, REGARDING THE EXPORT OF WASTE

Transport and Technical Services Department
Chief Officer
P.O. Box 412, States Offices
South Hill, St Helier
Jersey JE4 8UY
Tel: +44 (0)1534 445509
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States of Jersey

13 October 2011

Ms Colette Brown
Deputy Chief Officer
Public Services Department
Sir Charles Frossard House
St Peter Port
Guernsey
GY1 1FH

Our ref: JNR/EL/ASW 39/8/6

Dear Colette

Further to your e-mail dated the 30 September I can confirm that our position has not changed with regard to the potential receipt of Guernsey Waste.

As we have previously discussed any agreement would be subject to the ratification of both islands governing bodies.

The parameters as agreed were:

- A three year agreement with an option to extend.
- Quantity of up to 30,000 tonnes per annum
- The type of waste will be based on our waste license, waste acceptance criteria.
- The APC residue proportional to the Guernsey Waste quantity may need to be exported from Jersey for disposal
- Bottom ash in proportion to the Guernsey waste quantity may need to be exported to Guernsey for recycling and or disposal
- Charging based on current information will be between £90 and £130 per tonne dependant on the agreement, risk and ash solutions adopted.

The new EFW is coming to the end of a successful commissioning phase and we are confident that the plant will have the capacity as we originally specified and the plant operates as per the specification.

To this end we are gathering actual data regarding the costs of gas cleaning chemicals, maintenance, and income from electrical generation. This information will allow the gate fee to reflect the real costs and not estimates as previously utilised.

On a final point the biggest influence on the final cost will be dependant on the service level agreed between the islands and where the risks remain regarding plant availability, waste acceptance criteria and the guarantees on quantities and qualities of waste.

Our position on RDF is a philosophical one in that the plant in Jersey is designed to deal with normal municipal and commercial waste. Input of a high calorific value 'fuel' would potentially offer process issues with the plant and the cost of processing a waste into a 'RDF' would not improve capacity issues.

The capacity of any EFW is limited by physical and thermal parameters, our total capacity of 105,000 tonnes is set at an average calorific value. Therefore, although the RDF waste will be lower in quantity the increased thermal capacity within the waste will lower the throughput by weight.

I hope this letter goes some way to assisting you in providing a solution for Guernsey and I suggest that we get together in the near future to discuss how we can continue to help and assist each other on this and other issues.

Yours sincerely

John Rogers
Chief Officer

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Appendix 14

REGULATORY POSITION WITH REGARD TO WASTE EXPORTS

HEALTH AND SOCIAL SERVICES
A STATES OF GUERNSEY GOVERNMENT DEPARTMENT

Environmental Health &
Pollution Regulation
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Deputy B Flouquet
Public Services Departmnet
Sir Charles Frossard House
La Charroterie
St. Peter Port
Guernsey
GY1 1FH

24 November 2011

Dear Deputy Flouquet

SUMMARY OF REGULATORY POSITION WITH REGARD TO WASTE EXPORTS

In order to clarify the waste regulation position with respect to potential exports of waste to Jersey from Guernsey I am setting out a brief history together with the legislative framework that may permit an export of waste from Guernsey, should it be required as part of the proposed draft Waste Disposal and Management Plan.

Background

Following high profile cases such as the *Karin B* and *Khian Sea* when hazardous waste was being exported to developing countries, the United Nations proposed "The Basel Convention On The Control Of Transboundary Movements Of Hazardous Wastes And Their Disposal", in order to implement a control system for such waste shipments.

The underpinning principle of the Convention is that a material regulated as a hazardous waste in one country may be exported to another country only with the importing country's prior informed consent. The Convention permits a country to object to shipments systematically, or to permit certain waste movements under bilateral or multilateral agreements.

The Basel Convention came into force on 5 May 1992 and the United Kingdom extended the Convention to Guernsey on 27 November 2002 and to Jersey on 14 September 2007. In order to have the Convention extended to Guernsey it required that the States adopt legislation that implements sufficient controls over wastes exports and imports, as detailed in Article 4 of the Convention. The States approved The Transfrontier Shipment of Waste Ordinance, 2002 on 30 January, (Billet D'État I, 2002), which incorporated provisions for controlling waste in line with European standards. The legislation sets out, *inter alia*, who are the competent authorities, how prior informed consent can be obtained and places restrictions on waste movements based on the status of the receiving country.

Restrictions in the Ordinance

The Transfrontier Shipment of Waste Ordinance, 2002, (Article 3 of the Schedule), prohibits the export of waste for disposal from Guernsey, except to countries that are Member States of the European Union, or are Members of The European Free Trade Area, provided they are also signatories to the Basel Convention. Given this, potential exports of waste for disposal to Jersey are prohibited. Jersey adopted legislative controls under Article 4 of the Basel Convention with The Waste Management (Jersey) Law, 2005. Following the UK's extension of the convention to them, imports and exports in Jersey have been permissible since 2007, excepting that exports from Guernsey to Jersey are prohibited under the 2002 Guernsey Ordinance.

In 2009 Jersey concluded a bilateral agreement with the UK's Environment Agency permitting the disposal of waste in the UK. Guernsey has had a similar bilateral disposal agreement with the UK since 2004. Despite the changes to Jersey's status, the 2002 Ordinance does not take account of Jersey's more recent ability to conduct bilateral agreements under the Basel Convention that could potentially facilitate proposed waste exports from Guernsey. As such, the prohibition of exports to Jersey remains the current situation, unless the 2002 Ordinance is amended accordingly.

Law for Controlling Waste Movements in Jersey

The Waste Management (Jersey) Law 2005 sets out the legal framework of controls on waste imports into Jersey and is based on the OECD amendments under Article 17 of the Basel Convention. As stated previously, prior informed consent is normally required of the competent authority receiving the waste and the procedures for doing so are set out in Part 4 of the Jersey Law.

If a consignment note for the import of waste into Jersey is received by the Minister for Planning and Environment they follow the procedures set out in sections 1 to 7 of Schedule 8, Part 3 of the Law. The Minister, depending on the circumstances of the application, is compelled and must object to the shipment in circumstances where there is insufficient information etc, or they may object to a shipment for disposal on the grounds set out in section 5, Schedule 8. Part 3, or may approve the shipment. A copy of this part of the Jersey Law is attached for reference.

The Minister has discretion and may raise objections on the basis of section 5 (d) &(e) Schedule 8, Part 3 which includes objections if the capacity of a site in Jersey is prejudiced from dealing with Jersey's waste by such an import, or an objection can be raised based on the proximity principle, priority for recovery or self-sufficiency.

The Jersey Law refers to Amber List control procedures. The OECD decision applies Amber List control on wastes listed in Annexes II and VIII of the Basel convention. Annex

II refers to wastes that require specific consideration, Y46 - Wastes collected from households.

It follows that household waste collected in Guernsey could be shipped to Jersey under these Amber List controls, subject to approval, by the Minister for Planning and Environment, having received and acknowledged a duly completed application for such a shipment. If approval is given it may be agreed subject to conditions and a general notification would normally be granted for up to 1 year. In addition there are requirements for a written contract and a financial guarantee between the parties together with a fee for processing the application. The current application fee in Jersey for processing a transboundary consignment note is £1107.36 with a further charge of £99.81for each permitted shipment. These costs are not linked to the cost of disposal and are payable to the regulator.

I trust this clarifies the current position.

Yours sincerely

Valerie Cameron

Valerie Cameron
Director of Environmental Health
and Pollution Regulation

Appendix 15

BREAKDOWN OF COSTS – ANALYSIS OF WHOLE LIFE COSTS

Based on judgements and estimates derived from various sources, the table below summarises the indicative breakdown of the various costs associated with the waste strategy options, assuming that all capital expenditures are loan financed over a 20-year period using 2011 prices throughout.

Costs are shown for both 2015 (the assumed first year of operations of residual treatment infrastructure) and 2025 in order to demonstrate the cost implications of declining residual waste in need of treatment. As forecast residual waste declines from approximately 28,000 tonnes in 2015 to about 16,000 tonnes in 2025, the on-island solutions (options A and C) become more expensive relative to a solution involving export of waste. This is because on-island solutions are more fixed cost predominate and, in the case of option A, operating costs net of revenues increase in line with reduced electricity production.

The whole life costs are also calculated based on the forecast waste arisings to give an indication of which method is likely to be the least costly over the life of the strategy.

At such an early stage in the process, it must be borne in mind that the costs set out in this report are purely indicative and based on reasonable estimates and judgements derived from industry expertise. The methodology in calculating the cost indications is consistent between options considered, but the results should not be considered as final, firm costs. As decisions are made and a formal procurement process begins, the costs associated with the preferred option will become more accurate.

	2015			2025			over 20 years (2015-2034)		
	Option A	Option B	Option C	Option A	Option B	Option C	Option A	Option B	Option C
Capital costs									
MRF	88	88	88	88	88	88	1,760	1,760	1,760
IVC	96	96	96	96	96	96	1,920	1,920	1,920
Residual treatment	3,813	68	1,027	3,813	68	1,027	76,260	1,360	20,540
Total capital costs	**3,997**	**252**	**1,211**	**3,997**	**252**	**1,211**	**79,940**	**5,040**	**24,220**
Operating costs - existing services									
Existing parish collection	809	809	809	809	809	809	16,180	16,180	16,180
Other costs of existing services	3,996	3,996	3,996	3,996	3,996	3,996	79,920	79,920	79,920
Cost savings - bring bank	(55)	(55)	(55)	(239)	(239)	(239)	(3,761)	(3,761)	(3,761)
Cost savings - landfill costs	(727)	(727)	(727)	(730)	(730)	(730)	(14,584)	(14,584)	(14,584)
Cost savings - fixed costs	(13)	(13)	(13)	(14)	(14)	(14)	(260)	(260)	(260)
Operating costs - existing services	**4,010**	**4,010**	**4,010**	**3,822**	**3,822**	**3,822**	**77,495**	**77,495**	**77,495**
Operating costs - new services									
Kerbside/MRF (incl. maintenance)	547	547	547	1,414	1,414	1,414	23,771	23,771	23,771
Kerbside/IVC (incl. maintenance)	134	134	134	166	166	166	3,150	3,150	3,150
Residual Treatment (incl. maintenance)	1,245	5,107	4,494	1,359	2,994	3,065	26,593	70,719	68,621
Operating costs - new services	**1,926**	**5,788**	**5,175**	**2,939**	**4,574**	**4,645**	**53,514**	**97,640**	**95,542**
Total waste strategy costs	**9,933**	**10,050**	**10,396**	**10,758**	**8,648**	**9,678**	**210,949**	**180,175**	**197,257**

Note: In the table above the 'other costs of existing services' can be broken down approximately into the following service blocks:

Landfill Site Management & Operations:	£900k	Recycling & Waste Minimisation (External Contracts):	£700k
Inert Waste Disposal Management & Operations:	£300k	Recycling & Waste Minimisation Admin/Misc:	£300k
Green Waste Composting:	£400k	Waste Services: Management/Technical/Admin:	£400k
Recycling & Waste Minimisation Operations:	£1mil	Total	£4mil

The indicative costs of commencing the front end operations are as follows:

	2012 Budget £'000	2013 £'000	2014 £'000	2015 £'000
INCOME				
Mont Cuet	2,305	2,200	2,200	2,200
Longue Hougue	1,338	1,250	1,250	1,250
Surcharge (part)	1,235	1,779	1,857	1,935
Waste Services				
Bulk Refuse	38	38	38	38
Recycling of waste	60	60	60	60
Waste Segregation site	473	473	473	473
	571	571	571	571
TOTAL INCOME	**5,449**	**5,800**	**5,878**	**5,956**
EXPENDITURE				
Mont Cuet	(1,445)	(1,343)	(1,313)	(1,284)
Longue Houge	(344)	(344)	(344)	(344)
Other sites/costs	(373)	(373)	(373)	(373)
Site prep	(43)	(43)	(43)	(43)
	(2,205)	(2,103)	(2,073)	(2,044)
Waste Services				
Bulk Refuse	(221)	(221)	(221)	(221)
Paper Savers	(136)	(136)	(136)	(136)
Recycling of waste	(222)	(222)	(222)	(222)
Kerbside/MRF	-	(340)	(444)	(547)
Kerbside/IVC	-	(126)	(130)	(134)
Waste Segregation site	(1,101)	(775)	(775)	(775)
	(1,680)	(1,820)	(1,928)	(2,035)
Waste Strategy				
Administration	(121)	(209)	(209)	(209)
PR	(28)	(28)	(28)	(28)
Initiatives	(178)	(403)	(403)	(403)
	(327)	(640)	(640)	(640)
Exenditure on other areas of PSD's budget	(1,237)	(1,237)	(1,237)	(1,237)
TOTAL EXPENDITURE	**(5,449)**	**(5,800)**	**(5,878)**	**(5,956)**

Appendix 16

NET PRESENT VALUE (NPV) ANALYSIS

Annual cash flows will vary considerably over the planning period for each option in line with forecast increases in recycling and decreases in residual waste. As a result, a one year snapshot – comparing costs for each option for a single operating year – will not yield meaningful results. Options are therefore, in line with industry best practice, compared on the basis of discounted cash flows by means of a net present value (NPV) analysis, considering Capex and Opex costs over a 20-year operating period. This effectively sums all the costs for the options over the period and presents them in a way in which they can be compared.

Annual Results are presented in terms of NPV for each option as well as in terms of breakeven costs per treated ton of waste.

The analysis is performed on a simple cash basis – i.e. all capital and operating expenditures are assumed to be cash financed in the year in which they occur. This is in line with industry best practice where comparisons of technical options are held financing neutral. Financing costs (for example in connection with loans to cover Capex) are not explicitly modelled but are rather reflected by the discount rate used to calculate NPV. A full description of the methodology applied and underlying assumptions can be found in Appendix 17.

The NPV Results of the analysis are summarised in the following table in terms of £millions and £/ton treated residual waste. The NPV/ton figures should not be translated directly as a gate fee per tonne. This will be dependent on the actual financing structure and is used here to provide a useful unit comparison between options.

Summarised NPV Costs of Options, 2011 prices

OPTION		Entire Solution *	Residual Treatment
		NPV	NPV
		£, millions	£, millions
A	On-island micro thermal treatment	(135)	(71)
B	Transfer to off island thermal treatment	(118)	(54)
C	MBT to RDF, to off island thermal treatment	(127)	(64)

*represents the discounted costs of all waste management initiatives over a 20-year operating period (recycling initiatives, residual waste collection and treatment, landfill operations etc).

It can be seen that option B offers more favourable treatment costs than development of on-island micro thermal treatment or MBT.

Results differ between the residual treatment options by only 23%, meaning that, bearing in mind the considerable uncertainties surrounding the cost certainty of technologies, it is questionable whether one can definitively determine a preferred option on the basis of cost. Even slight changes in assumptions with regard to Capex or key Opex drivers can change the results and the rank order of results.

Results are very sensitive to Capex assumptions for EfW and MBT and gate fees for off-island treatment. Given the doubts of the accuracy and reliability of Capex, the conclusion at present is that it is not clear at this time which of these two presented options offers the least cost solution. Overall the level of cost uncertainty for the scenarios that have been shortlisted (particularly the local treatment options) means that cost provides a poor basis for decision making between the options.

Appendix 17

FINANCE METHODOLOGY AND ASSUMPTIONS APPLIED

Cost Comparison of Technical Options

1. Approach

The States of Guernsey is considering three technical options for solid waste management. All three options involve significant increases in recycling and introduction of kerbside collection of dry recyclables and food waste.

Further, all three options consider the same waste flows, recycling levels (ramping up from over 46% in 2010 to 70% in 2025), and local waste collection procedures and costs. The options differ only with regard to residual waste treatment approach as outlined below:

- Option A: development of small scale on-island thermal treatment facility
- Option B: export of residual waste to off-island facility (presumably Jersey)
- Option C: development of on-island MBT with export of RDF

The above three short-listed options were identified following a multi-criteria analysis of a long list of options as described in Appendix 11 – Developing and Short Listing of Options, of the Revised Waste Strategy Report.

Quantities of residual waste are forecast to decrease considerably over the planning period, from 28.4 ktpa to 16.6 ktpa, in line with increased recycling. Annual cash flows will in turn vary considerably over the planning period, meaning that a one year snapshot – comparing costs for each option for a single operating year – may not provide meaningful results.

Ramboll has therefore, in line with industry best practice, compared options on the basis of discounted cash flows by means of a net present value (NPV) analysis, considering capital expenditure (Capex) and operating expenditure (Opex) costs over a 20-year operating period. Results are presented in terms of NPV for each option as well as in terms of 'balancing tariffs', or breakeven discounted costs per treated ton of waste. Balancing tariffs are the theoretical fee per ton of treated waste necessary to cover all capital expenditures and operating and maintenance costs over the planning period and allow for a breakeven result, i.e. NPV = 0.

The analysis is performed on a simple cash basis – i.e. all capital and operating expenditures are assumed to be cash financed in the year in which they occur. This is in line with industry best practice where comparisons of technical options are held

financing neutral. Financing costs (for example in connection with loans to cover Capex) are not explicitly modelled but are rather reflected by the discount rate used to calculate NPV. The discount rate reflects the assumed weighted average cost of capital (WACC) for debt and equity providers necessary to finance the investments.

Results of the analysis should be seen as illustrative, given a range of assumptions concerning costs and revenues over the development and operating period of alternative residual treatment facilities on Guernsey.

We stress that Ramboll's assessment of project materials, assessment of cost inputs and cost comparison of technical options has been performed under tight time constraints. The work has been performed as a desk study relying to a large extent on readily available data and information. Capex and Opex assessments are based on a review of reference projects. More robust findings would require a more thorough study where bottom-up, detailed specifications reflecting specific conditions on Guernsey could be specified.

The analysis is based on a range of assumptions as outlined below.

2. Key Assumptions

Source of Data
The analysis takes as a point of reference the forecast data as provided through SLR's summary forecasting model (hereinafter referred to as SLR high-level model).

The following data is taken as given in the SLR high-level model:

- Waste arisings, recycling levels and levels of residual waste for treatment;
- Local waste collection costs;
- Landfilling costs and costs for disposal of bottom ash and fly ash;
- Estimated gate fees for off-island treatment and export/shipping costs per ton in connection with off-island treatment;
- Unit costs for key Opex inputs such as electricity and local salary levels;
- Capex and Opex for MRF and IVC and kerbside collection of recyclables (as estimated by Integrated Skills Limited).

Ramboll has assessed SLR estimates with regard to:

- Capex and Opex for MBT
- Technology and Capex and Opex for on-island thermal treatment

The NPV analysis of options reflects the revised Capex and Opex as estimated by Ramboll.

3. Specific Assumptions

***Price Levels*:**
All prices are presented at real 2011 levels.

***Planning Period*:**
Each Option is assessed for the residual waste treatment implementation period of 2012-14 plus 20 years of operation.

***Discount Rate*:**
A real discount rate of 5% is assumed.

***Waste arisings*:**
Waste arisings are held constant over the planning period at 74.15 ktpa (26.45 ktpa from households and 47.70 ktpa from commercial entities).

***Recycling Rates*:**
Following introduction of kerbside recycling, recycling rates increase from 46% to 70% for households and 42% to 70% for commercial entities between 2010 and 2025.

***Residual Waste to treatment*:**
Residual waste quantities sent for treatment decline from 28.4 ktpa in 2015 to 16.6 ktpa in 2025, in line with increased recycling.

***Residual Waste to Landfill*:**
Following implementation of residual waste treatment (MBT or thermal treatment) residual waste to landfill is forecast to remain constant at 1.3 ktpa from 2015 and beyond.

***Electricity Prices*:**
Electricity price assumed is £130 per MWh (per SLR model). Electricity produced by the EfW facility beyond own consumption needs are assumed to be sold to the grid at £55 per MWh (in accordance with assumptions used in connection with the Suez bid).

***Staffing Costs*:**
Salaries for residual waste treatment operational staff are based on SLR defined staff categories and salary levels.

***Bottom ash disposal costs*:**
Based on SLR estimate (assuming use of bottom ash primarily as inert material) - £15 /ton.

***Landfill costs*:**
Based on SLR estimate - £20/ton (represents the internal incremental cost of disposal per ton).

***Gate fees for off-island thermal treatment of residual waste*:**
SLR estimate, based on initial discussions with Jersey - £120/ton.

***RDF treatment costs*:**
SLR estimate - £120/ton.

***Export costs*:**
Based on SLR market assessment - £50/ton.

***Waste management and collection costs*:**
The analysis takes as a point of reference baseline waste management and collection costs (actual for 2010) of approximately £4.6 million, which includes over £2 million allocated to recycling and waste minimisation services.

Current costs per tonne for the main household recycling steams are provided below for individual recycling streams, based on figures for 2010.

Table 3.1 Main Household Recycling Categories – Current Costs

Service	Net Cost	Domestic Tonnage	Cost/Tonne
Paper	130,130	2,644	£49.22
Card (banks only)	55,663	1,460	£38.13
Plastic	20,561	233	£88.24
Glass	164,902	1,850	£89.14
Tins/Cans	42,013	212	£198.17
Cartons	49,966	128	£390.36
TOTAL	**463,235**	**6,527**	**£70.97**

***Incremental savings/costs in local waste management costs resulting from the project*:**
The analysis reflects savings as calculated by SLR resulting from increased recycling including:

- Operation savings, Mont Cuet landfill (savings as a result of reduced waste to landfill)
- Operation savings, bring banks (savings as a result of kerbside collections)
- Operation savings, of Fontaine Vinery
- Costs to promote recycling initiatives
- Other savings/cost increases

Net savings range from roughly £ 0.8 million to £ 1 million between 2015 and 2025 as a result of the project. These savings are offset against the total waste management and recycling annual costs.

Savings as calculated by SLR related to residual waste collection are not considered in the analysis. These savings are seen to be overstated as all collection costs are treated as variable and are adjusted downward directly in line with declining residual waste levels. In actual practice, some elements of the collection costs will be fixed unless changes are made to collection frequency. It is States of Guernsey's long-term plan to introduce Alternate Weekly Collection (AWC) of residual waste beginning in 2016. Such a development will likely result in cost savings but these savings have yet to be estimated.

4. WtE Capex

Capex cost estimates of roughly £30 million are based on a standard facility with energy recovery utilising conventional waste-to-energy technology. Conventional WtE facility represents proven technology, although the production of electricity is less common at small scales and efficiencies are likely to be low in relation to larger plants (and very unlikely to meet R1).

The costs elaborated represent pure Capex as expected to be realised in northern Europe in connection with a design/build procurement. The estimated £30 million Capex should allow sufficient scope to account for higher on-island development costs.

Estimated WtE Capex, 28.400 tpa Nominal Load Point.

CAPEX		Unit	MSW	
M&E Elements				
	Furnace/boiler	£	13.000.000	
	Flue gas cleaning	£	3.500.000	
	Turbine	£	3.500.000	
	Other	£	2.000.000	
Total		£		**22.000.000**
Civil Works Elements, Building Works				
Total		£		**7.700.000**
Capital Costs, Total		£		**29.700.000**

We stress that actual prices for a thermal treatment facility to be realised by Guernsey will depend on a number of factors including:

- Market conditions/market appetite at the time of bidding and market perception of risk (which may be influenced by Guernsey's past procurement experiences);
- Procurement method, contract terms and risk allocation can be expected to have a significant impact on Capex and system unit costs/gate fees;

- Employer's Requirements regarding technology: Accuracy of costs will be influenced by the degree to which employer's requirements clearly specify the technical solution;
- Employer's requirements regarding architecture, ancillary facilities etc.

Due to the factors above Ramboll's pure Capex estimates will likely be lower than actual costs realised following a procurement process on Guernsey. The actual cost impacts of the factors outlined above are however extremely difficult to estimate.

It is notable, for example, that the proposed costs of the WtE facility in connection with the Suez 2009 bid appear at face value to be significantly higher than estimated costs under a design build procurement. The Suez bid was roughly £70 million for WtE Capex for a facility of larger capacity than currently being considered by Guernsey (37.5 – 41.5 ktpa). Ramboll estimates that Capex for a facility of this size would be in the range of £40- £42 million if procured on design build terms. The gap between Ramboll's estimate and the Suez bid can possibly be explained by a range of factors including:

- Procurement and contract structure – risk premium assigned to DBO structure as opposed to DB procurement;
- Premium for a full turnkey solution as opposed to DB procurement based on standard civil and M&E lots;
- Market perception of risk including possibly a Guernsey specific factor including bidder risk pricing due to failed past project;
- Architectural treatment. The Suez bid included a more sophisticated solution. In our experience an advanced architectural treatment can add 5-10% or even more to total Capex;
- The Suez bid price was based on phase one treatment capacity, but the phase two option to increase waste treatment capacity to 70 ktpa may have complicated the phase one technical solution. Additionally, the lack of certainty with regard to needed treatment capacity throughout the operational period may also have had an influence on bidder perception of risk and overall prices for received bids;
- Competitive tension – Had the original Guernsey procurement been more narrowly designed to elicit technical solutions similar to that proposed by Suez, a greater number of 'Suez type' bids would have been received, possibly offering lower prices.

The implied mark-up between Ramboll's £40-£42 million estimate and the earlier Suez bid encompassing all of the above factors is between 1.65 and 1.75. It must be stressed however, that it is not possible to extend with any degree of certainty such a general mark-up to any future EfW procurement processes on Guernsey. Future mark-up will again be a consequence of the new procurement structure, market appetite and perception of risk etc.

The factor might however, be used as a guide to the potential for experiencing Capex levels above design/build estimates. For the purposes of the current analysis, therefore, States of Guernsey has decided to apply a factor of 1.6 to Ramboll's design build estimate in order to capture some of the potential risk of Capex overhead in connection with a Guernsey based procurement. Capex for the WtE facility inclusive of the 1.6 factor is roughly £47.5 million.

5. WtE Opex

Opex estimates for a WtE facility are specified below for throughputs of 28.4 ktpa (2015 levels) and 16.6 ktpa (2025 levels) utilising cost assumptions concerning electricity, salaries, disposal costs, etc. as specified above.

Opex estimates are presented net of assumed electricity revenues and range from roughly £1.25 to £1.35 million per year.

Electricity revenues will decline in line with falling residual waste levels. As fixed costs in the form of salaries and maintenance dominate overall operating costs for the facility, it can be seen that the facility, net of electricity revenues, becomes increasingly expensive to operate as residual waste levels decline.

Estimated WtE Opex, 28.400 tpa and 16.600 Nominal Load Point

OPEX Nominal Load Point		**Unit**	**Year 1, 28.4 ktpa**		**Year 10, 16.6 ktpa**	
Fixed Cost						
Maintenance						
	M&E Elements	[£/a]	660.000		660.000	
	Civil Works Elements	[£/a]	77.000		77.000	
Staff		[£/a]	784.000		784.000	
Total Fixed Costs		[£/a]		1.521.000		1.521.000
Variable Costs						
Consumables (nominal load point)						
	Hydrated lime (Ca(OH)2)	[£/a]	19.767		11.554	
	HOK	[£/a]	9.880		5.775	
	Ammonia water	[£/a]	21.945		12.827	
	Electricity	[£/a]	62.400		36.473	
	Water	[£/a]	16.567		9.683	
Disposal (nominal load point)						
	Bottom ash	[£/a]	106.500		62.250	
	Flue gas cleaning residues	[£/a]	133.609		78.095	
Total Variable Costs		[£/a]		370.668		216.658
Revenues, electrical		[£/a]		647.167		378.273
Total		[£/a]		**1.244.501**		**1.359.384**

6. MBT Capex and Opex

A conservative estimate on the basis of reviewed costs is roughly £8.0 million, which represents a mid-range price for a facility of this size. It must be stressed that this estimate must be seen as very rough and based on a review performed within a limited timeframe. Comparison of project costs for MBT facilities is difficult due to lack of data for especially smaller facilities and the range of technologies applied. As was the case with WtE facilities, MBT Capex costs will also be strongly influenced by market conditions and the procurement approach/contract structure applied in connection with the project.

Applying a mark-up of 1.6[27] for on-island development yields Capex of roughly £12.8 million.

Opex estimates for an MBT facility are specified below for throughputs of 28.4 ktpa (2015 levels) and 16.6 ktpa (2025 levels).

Opex estimates range from roughly £4.5 million in 2015 to £3.0 million per year in 2025. Disposal costs represent combined costs for the MBT throughput assuming 25% to landfill, 10% compost-like material to be used as cover, and 65% RDF for export and treatment.

As fixed costs in the form of salaries and maintenance dominate overall operating costs for the facility, it can be seen that the facility becomes increasingly expensive to operate per ton waste as residual waste levels decline.

Estimated MBT Opex, 28.400 tpa and 16.600 Nominal Load Point

[27] Committee of Enquiry into Building Costs – Final Report 2002 compared Jersey development with mainland UK – Average Jersey excess in 2001 was 1.6; According to Guernsey Press 2006, markups on Guernsey are 1.8; 1.6 is assumed as 2006 was a boom year.

MBT OPEX Nominal Load Point		Unit	Year 1, 28.4 ktpa		Year 10, 16.6 ktpa	
Fixed Cost						
Maintenance						
	Maintenance/Asset Replacements	[£/a]	360.000		360.000	
	Spare Parts	[£/a]	60.000		60.000	
	Admin/Other	[£/a]	55.000		55.000	
Staff		[£/a]	563.880		563.880	
Total Fixed Costs		[£/a]		1.038.880		1.038.880
Variable Costs						
Consumables (nominal load point)						
	Fuel	[£/a]	30.000		17.535	
	Utilities	[£/a]	104.000		60.789	
	Other	[£/a]	44.020		33.449	
Disposal (nominal load point)						
	Disposal (cover, landfill, rdf export and disposal)	[£/a]	3.280.200		1.917.300	
Total Variable Costs		[£/a]		3.458.220		2.029.073
Total		[£/a]		**4.497.100**		**3.067.953**

7. MRF/IVC Capex and Opex

Assumptions regarding kerbside collection and MRF/IVC Capex and Opex costs are as elaborated by ISL.

ISL estimated Capex are as follows:

- Kerbside Collection Vehicles: £0.38 million
- IVC: £1.205 million
- MRF: £1.1 million

Ramboll has introduced a distinction between fixed and variable costs related to kerbside collection, and operation of the MRF and IVC based on data received by ISL.

The Capex and Opex costs estimated by ISL are based on a review of reference prices and are in need of further investigation. The cost levels associated with kerbside collection and MRF/IVC, however, will be identical across all three options and therefore do not influence the assessment of the most cost advantageous solution A-C.

8. Concluding Remarks

The current analysis has been performed within a very tight timeframe as a desk study and reliant to a large extent upon readily available input data. A more detailed analysis would be based on more thorough investigations of costs and more detailed testing of sensitivity to changes in key variables (considering both degree and probability of change).

Determination of the most cost advantageous solution will to a large extent be reliant upon Capex expectations for on-island treatment facilities. As previously mentioned Capex costs for on-island treatment facilities that can be realised following a procurement process on Guernsey may be significantly higher than estimated design build costs.

With application of a risk factor of 1.6 on WtE Capex (noting that a crude comparison of design build estimates with the earlier Suez bid price suggests a mark-up of between 1.65 and 1.75), it can be seen that option B (export to off-island thermal treatment facility) is the least cost technical option.

As previously stressed, it is not possible to extend with any degree of certainty a general risk mark-up to future WtE procurement processes on Guernsey. Future mark-up will be a consequence of the new procurement structure, market appetite and perception of risk etc.

Option A (development of on island WtE) and option B (exporting residual waste for thermal treatment) offer very similar treatment costs before application of a WtE risk factor (i.e. assuming Capex of roughly £30 million for a 28ktpa capacity facility). However, even modest increases in option A costs would serve to favour option B as least cost approach.

States of Guernsey applies a factor of 1.6 to Ramboll's design build estimate in order to capture some of the potential risk of Capex overhead in connection with a Guernsey based procurement. While there is uncertainty regarding the particular level of risk factor to be applied, it is Ramboll's view that some mechanism is necessary to reflect the mark-up risk and that as a conservative approach it is advisable that some level of mark-up factor be considered (or range of mark-up factors in a sensitivity analysis) when comparing the technical options on the basis of cost.

9. Key Findings

Key Findings of the analysis can be summarised as follows:

- Ramboll cost estimates for thermal treatment are made on the basis of project experience, for a thermal treatment facility based on a standard

facility with energy recovery utilising conventional waste-to-energy technology. Conventional WtE facility represents proven technology. Assumed is procurement on design/build terms.

- Costings for residual waste treatment on Guernsey are subject to great uncertainty due to a number of factors including market appetite, uncertainty regarding procurement and contract structure and uncertainty regarding employer's requirements. Actual costs to be realised by Guernsey following a procurement process may differ greatly from cost estimates presented in the current analysis.
- States of Guernsey applies a factor of 1.6 to Ramboll design build costs for WtE to capture some of the above risks. While there is uncertainty concerning the precise level of risk factor to be applied, it is Ramboll's view that application of such a factor or ranges of factors in sensitivity testing, should be applied in order to improve robustness of cost comparisons between options.
- It must be stressed that the analysis accepts as given Guernsey's forecast for residual waste levels. Assumed changes in residual waste levels would alter the scope of technical options considered and potentially the results of the analysis/ranking of options.
- Conclusions of the analysis are sensitive to a number of variables, most notably Capex for WtE and MBT and gate fees for off-island treatment.
- Overall the level of cost uncertainty for the scenarios that have been selected (particularly the local treatment options and uncertainty regarding turnout costs following a procurement process) means that cost alone provides a poor basis for decision making between the options.
- The Capex and Opex costs estimated by ISL for MRF and IVC are based on a review of reference prices and are in need of further investigation
- The current analysis has been performed within a very tight timeframe as a desk study and reliant to a large extent upon readily available input data. A more detailed analysis would be based on more thorough investigations of costs and more detailed testing of sensitivity to changes in key variables (considering both degree and probability of change).

10. Comments Concerning Prioritisation of Options

Economies of Scale Advantages

Larger facilities provide an economy of scale that reduces treatment cost per tonne of waste.

Some UK authorities are considering sending waste to larger facilities to try to access lower overall cost via the economy of scale of the larger facilities. This suggests that, at small scale, export may be cost effective over developing a local facility, and that transport costs do not necessarily dominate. In some cases UK Authorities are looking

at export of waste to European facilities – this has been widely reported in recent months. The suggestion is therefore that even the cost of shipping waste overseas does not dominate this decision.

Export vs. local facility

It is notable that some EU countries have recently been active in the market in seeking export of waste to established facilities that are experiencing under capacity. Most notably this includes facilities in The Netherlands and Germany. Some of these facilities offer very high energy efficiency. To receive pre-treated municipal waste in accordance with EU law they must exceed the R1 recovery level of efficiency.

It is unclear what terms are on offer for such EU export, the costs, or the length of contracts being offered, however considering such an option may at least provide some means of creating cost pressure upon other export options.

Development of small local facilities is sometimes seen as a price worth paying to achieve local policy and proximity objectives, or perhaps to provide a local energy supply / material recovery source. Arguments other than cost may therefore serve as a basis for a local solution.

If energy recovery from residual waste is a policy driver then this may provide as a further argument for export to an off-island facility, although this will not of course provide local energy security to Guernsey.

Small scale on-Island plant performance

Given the very small and declining residual waste quantities forecast for Guernsey, it is unlikely that it will be possible to operate an electricity only facility at R1 level of efficiency and achieve "recovery" status. Heat export may allow R1 to be achieved, provided a suitable heat user can be found, or developed.

Development of a facility capable of treating 28 ktpa at the beginning of the planning period will necessitate that the facility is operated below capacity or with periods of downtime if waste quantities do decline in future.

In general, where small local treatment facilities (i.e. not pre-treatment facilities such as MBT which also produce significant output wastes requiring special management facilities/outlets) have been provided, at the scale being considered in this case, the technology (and performance) has been simplified to prevent cost escalation due to the poor economy of scale. Examples include small 'heat only' WtE facilities, and straight waste incineration plants with no energy recovery.

Overall the development of a quality 'end' treatment option at very small scale is very challenging and is likely to be costly. Some simplified technologies are sometimes adopted at this small scale, but they are less well proven, less robust, and have a poorer environmental/efficiency performance. Importantly for Guernsey, where the facility developed is likely to be the only one available for waste treatment, such facilities may

not be day-to-day reliable – giving rise to waste disposal service continuity issues on the Island, which may have far reaching impacts.

Waste service procurement options

Given the unique situation in Guernsey, as noted above, it is very hard to provide an accurate means of comparing cost options that truly reflect the likely outturn cost in Guernsey. Ramboll suggest that clarity on costing may only really be achieved through the results of a tendering exercise.

The main options would still appear to be increased recycling with residual waste managed by:

- Local treatment in a small facility;
- Minimal pre-treatment and export (Jersey or elsewhere);
- More extensive treatment and export of a reduced residual quantity.

One option that is sometimes considered by Authorities in such circumstances is to go to market with an 'open specification' – one that does not specify the solution – and see what the market provides. The challenge with this approach is that, in Guernsey's situation (including consideration of past procurements) such an approach may deter good quality bidders with an interest in building a local facility. Effectively this approach may become a decision to procure an export solution, although in not making this clear it may also undermine the procurement of the export solution. Thought is required here to develop a suitable set of Employers Requirements, evaluation methodology, and other tender documents that will avoid such issues. Provision of a site with the relevant permission in place is likely to be essential to attract a local option.

Any such procurement will need to include certain key parameters that will be used to pre-qualify/deselect tenderers, e.g. reliability and track record of technology, environmental performance, flexibility, as well as cost and other matters as required. These criteria need to reflect the policy decisions that matter to Guernsey, and must also be attractive to potential bidders, and dissuade bidders who are unlikely to offer a viable solution. This latter issue is of significance to ensure that bids are comparable – so that effective value for money cost comparisons can be made.

(NB The Policy Council acknowledges the huge amount of work the Public Services Department has undertaken on this important matter, including one of the largest public and industry consultations ever undertaken in Guernsey. By a majority the Policy Council supports the revised waste strategy as set out in the Public Services Department's report, including the option to direct the Department to pursue the option of exporting Guernsey's residual waste, and the possibility of buying into Jersey's waste incinerator.)

(NB The Treasury and Resources Department supports the interim funding mechanism for recycling initiatives, including a loan from States Treasury for the capital costs for kerbside recycling and in-vessel composting.

The long-term solution for disposing of solid waste will inevitably have significant financial implications including in respect of the funding method and model, the charges made and any consequential effect on the States budget. The Treasury and Resources Department believes that the risks associated with pursuing only one option including the possibility of not being able to negotiate an acceptable agreement and the absence of detailed and reasonably certain costings mean that, at this stage, it is not possible to demonstrate value for money and it would be preferable to simultaneously investigate other options. It is requested that the Public Services Department gives an undertaking that it will involve the Treasury and Resources Department in any investigations arising from this States Report in order that the key financial consequences are fully considered.)

The States are asked to decide:-

VII.- Whether, after consideration of the Report dated 7th December, 2011, of the Public Services Department, they are of the opinion:-

1. To approve recycling targets as follows:

   - 50% by the end of 2013;
   - 60% by the end of 2018; and
   - 70% by the end of 2025.

2. To approve the Waste Minimisation Plan as set out in Appendix 8 to this report and to direct the Public Services Department to take forward the measures identified therein without delay, with the revenue costs funded by a transfer from the Waste Strategy Fund to the revenue budget of the Department.

3. To direct the Treasury and Resources Department to consider and approve appropriate business cases from the Public Services Department to implement prevention, re-use and recycling initiatives (namely kerbside collections; in-vessel composting of food waste and refurbishment of bring bank sites) at the

earliest opportunity, with reference to indicative costs detailed in Appendix 15 of this report and for the capital costs of these schemes to be funded by a loan from States Treasury.

4. To direct the Public Services Department to report back to the States no later than December 2013 with the results of its investigations into any legislative and policy changes necessary, together with full costings to give maximum effect to waste prevention and minimisation measures.

5. To direct the Public Services Department to pursue the option of export of waste, including the possibility of buying into the Jersey plant, and to report back to the Policy Council no later than September 2013 with full costings to lay before the States.

6. To rescind Resolutions 6 and 7 concerning Billet d'État IX, 2009.