THE REIGATE SOCIETY (RS) Transport Committee.

REPORT No. 25 Updated 05.12.2011

WASTE DISPOSAL LOGISTICS and THE CLIMATE CHANGE Act 2008.

Reference;- (a) The Denkstatt Report on Plastic products Sustainability.
(b) Sustainable Energy - without the hot air by D J C MacKay
(c) The Reigate Society Report No. 24

Legislation requiring the Local Authority (LA) to collect and dispose of beverage and other packaging are increasing rather than reducing Costs and Greenhouse gasses (GHG).

1.0 OBJECTIVE and SUMMARY;-

1.1 Objective ;- To review the increasing amount of traffic employed in the Transport of beverage and other packaging waste and seek alternative methods and financial savings.

1.2 SUMMARY;- The growth of packaging especially beverage containers and the directive that Local Authorities should arrange for the cleansing of the environment, collection, storage, recovery, recycling, and disposal of waste packaging presents an increasingly expensive problem for the council tax payer.

The disposal services provided by the LA is free to the consumer and amounts to a subsidy to the supplier of retailed goods because the cost of disposal of the beverage and other containers is not included within the price of the product.

This free service has the effect of discouraging the manufacturers and suppliers from the reuse of container and encourages the transfer of beverages and other goods to short life "use once only container products" that are easily discarded but not easily collected.

It is contended that the supplier arranging for delivery should be encouraged to arrange for the packaging and beverage containers to be returned for reuse or recycling or disposal. This returning traffic should reduce transport costs and fuel consumption emissions.

It is frequently contended that the customer is always right, but the LA free disposal service may lead to a poor decision being made by the purchaser if the cost of the product does not include all the disposal costs of the container or packaging.

IT IS SUGGESTED;- That the buyer be given the choice of container or packaging that will include a charge to cover the suppliers disposal costs or a refund for reuse. This procedure being encouraged by Carbon Tax savings or refund or payments to the LA to cover items that cannot initially be conserved.

2.0 THE ARGUMENT;-

This discussion document is based on the premise that an essential service provided free is likely to grow and expand exponentially.
That the LA collection and disposal of beverage and other packaging waste as a service free of charge to suppliers of goods constitutes an encouragement to expand the packaging waste product at the LA expense and may also involve an increase in the production of GHG.

3.0 THE EUROPEAN DENKSTATT REPORT States ;-

3.1 Within Europe approximately 52,500,000 tonnes of polymer resin are consumed each year. The total amount of energy consumed in the production of plastics is estimated to be in the region of 2350 Mill G J/a of which about **53% of the total is used in the production of Packaging ,including beverage containers.**
The report indicates that a substantial amount of packaging is in the form of plastic containers. Aluminium cans and glass bottles are also used for the transport and retailing of beverages.

3.2 The report also considers GHG emissions

“Energy recovery of plastic waste in Municipal solid waste incineration (MSWI) plants within European produces more CO2 emissions than it prevents ”

3.3 The report states that Plastics can be made from ethanol derived from renewable sources (grain, sugar etc) as well as from fossil fuels.
3.4 The report emphasises the value of long life plastic products such as underground pipes and cables for water supply, drainage, gas, electricity, telephones and the preservation of food.
3.5 The value of plastics in the protection and preservation of food is fully appreciated. However as the shelf life of the food is limited perhaps biodegradable polymers could be introduced to simplify the composting of food waste.

3.6 An Example of PACKAGING GROWTH ;- (see paragraph No. 6)

Proposals are being developed for the use of plastic bags as opposed to glass bottles for the delivery of Milk products.
Investigations reveal that milk delivered to the Supermarket in plastic containers has a current cost value in the region of 48 p per pint whilst milk delivered to the home residence in bottles has a cost value in the region of 69 p most of the cost difference being the cost of local delivery.
Milk delivered in plastic bags need structural support possibly a cardboard or plastic box that may add to the waste disposal problem. Should the cardboard be lined with plastic the recycling or composting option may be

compromised.
The legislation make it the duty of the LA to collect and dispose of this and similar growing packaging developments.
3.7 It is suggested that some of this duty to collect, reuse, recycle or dispose of packaging. BE TRANSFERRED BACK TO THE SUPPLIERS.

4.0 THE WASTE LOGISTIC PROBLEMS ;-
4.1 Each type of waste product to be recycled needs separate collection, transport, storage, processing and redistribution to incineration and or to land fill.
This expanding logistics problem, growing obstruction of the footway and carriageway by extra bins and boxes adds to the LA costs and transport costs of others.
At a time of Financial retrenchment the question arises as to whether proper consideration and support has been given to the LA problems and alternative GHG and other more sustainable solutions for waste disposal.
4.2 The growing quantities of packaging materials for collection, recycling and disposal places additional pressure on LA transport and storage facility costs.
4.3 It is appreciated that charges are made for the collection of garden and some food waste and that this material may be composted and redistributed for sale providing it is not contaminated.
4.4 The elimination or reduction in size of private gardens implies that home composting is in decline with the result that transport fuel costs increase and GHG emissions grow rather than decline.
4.5 Rising land fill and garden waste charges encourages fly tipping at other locations, case histories and costs are well documented by some LAs.

4.6 Beverage Containers a Local Investigation reveals that whilst many members of the public carefully return beverage and other containers for recycling others are not able or prepared to allocate time to this operation and as a result containers are either included with general waste for disposal or discarded on site at random where considerable cost is incurred retrieving packaging from Parks open spaces, verges, ditches, watercourses, blocked highway and other drainage systems.
It is suggested that all problems be assessed and taken into account when calculating the carbon emission and other costs of packaging product disposal.

4.7 Whilst appreciating the economic benefits of the whole range of plastic products that are and will become available the question arises as to whether further expansion in the use of plastic in short life packaging products is wise bearing in mind the rising cost, increasing shortage of fossil fuel and likely demand for grain and sugar by a population projected to grow to 700 billion plus at a time when the sustainable objectives are set out in

the CC Act 2008.

5.0 THE LOGISTIC COST and GHG PROBLEM ;-.

5.1 The Distribution of Products, Recovery of packaging and beverage containers;-

Manufacturers, Retailers and others are increasingly taking orders on line or telephone and arranging for delivery direct to the householder. The goods and packaging are delivered by vehicles that normally return to depot empty.
That is there is no return load or **" there is no back load ".**
Packaging and container disposal require an extra journey by all including the LA.
5.2 Orders delivered by the reatailer or collected by the householder may involve packaging that can be returned after or at the time of the next visit.
5.3 The delivery of milk is of particular interest in that the proposed change in packaging may take place (see para. 3.6). Waste disposal costs may rise as a result.

6.0 WHOLE LIFE COSTS OF CONTAINER PRODUCTS;-

6.1 Sustainable Energy Ref (b) above advises that;- the amount of embodied energy within a product is approximately as follows;-
Glass milk pint bottle at 7 kWh per Kg. at 225g = 1 .54 kWh
(kilowatt-hours but average of 20 deliveries/bottle reduce kWh to) = **0.078 kWh**
Wood at 5 kWh per Kg
Paper at 10 kWh per Kg

Polyethylene terephthalate (**PET)**
Plastic 0. 5 l bottle at 30 kWh per Kg at 40g = **0.75 kWh**
(average use cycle once although a small 500 ml personal water bottle may be used many times with care)
Aluminium drink can at 40 kWh approximately = **0.6 kWh**
(average use cycle once then discarded)

7.0 SUGGESTIONS for CONSIDERATION:-

7.1 That beverage containers be returnable to the supplier - bottler as "**a back load "**
for reuse or recycling (as with the glass milk bottle) rather than LA collection for recycling etc As a result LA costs can be reduced and the current practice of collecting, transporting, and crushing of glass containers eliminated.
7.2 In the case of other beverage distribution systems bulk shipping and local bottling / rebottling might be expanded, encouraged and provide employment.

7.3 **GHG** emissions will be reduced and Fossil fuel savings on transport costs achieved, the collection and hauling to land fill or MSWI reduced.

8.0 CARBON EMISSION and TRANSPORT ENERGY;-

The approximate amount of energy consumed by various forms of transport in Kilowatt hours per Tonne - Kilometres (kWhr per ton- Km)

AIR FREIGHT ---------- **1.6** kWh per Ton- Km
GOODS VEHICLE ---------- **1.0** ditto
RAIL FREIGHT ---------- **0.1** ditto
CONTAINER SHIP and coastal delivery ------- **0.015** ditto.

9,0 METHOD and COST SAVINGS;-

Encouragement and reward is more likely to have success in effecting GHG and cost savings than the introduction of more legislation and directives.
It is therefore suggested that a generous element of the Carbon Tax and other long term cost savings be returned via the supplier to the individual for the return of clean containers for reuse much as was done previously with glass beverage bottles.
The GHG savings and conservation to be made by reducing the use of PET, long distance transport delivery (beverages in bottles from the Far East etc) and subsequent container disposal costs including transport, storage and Land fill charges, cleansing, clearance and associated administration costs.

10.0 A NEGATIVE RESPONSE ? ;-

It may be that Plastic manufacturers, Beverage suppliers, Waste Disposal Contractors, Haulage Contractors and Landfill Owners and Operators may not be in favour of the savings that have been suggested in this document.
The RS welcomes any constructive comments concerning the resolution of the cost and GHG problems identified in this report.

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The Reigate Society Transport Committee.
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