HOUSE OF LORDS SCIENCE AND TECHNOLOGY SELECT COMMITTEE
SUSTAINABLE APPROACHES TO WASTE REDUCTION

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The 'waste' hierarchy

1 It has become a mantra that at the top of the waste hierarchy is 'reduction'. In various interpretations of the term the words ', minimisation 'and 'prevention' and 'avoidance' are also used, sometimes interchangeably

2 For this submission we suggest that there is a need for a hierarchy for reduction which we feel should be adopted for general use in order to clarify terms in regular use.

Design and innovation

3 Objectives sought should be wider than consideration of the materials in products. This stage should consider whole life impacts including the use phase especially in relation to energy (carbon) and end of life recovery. The incorporation of environmental considerations into product development and design (ref. ISOTR14062) should be become integrated into the product creation process. For example, Philips have six focal areas of eco-design and implement throughout the lifecycle - packaging reduction, material reduction, longevity, increased recyclability, energy reduction and substitution of hazardous chemicals.

4 Innovation is required at this level to take advantage of materials technology development but also of product stewardship taking into account the opportunity to 'own ' the product during its use phase and recover fully as a result of take back schemes. For example, 'design for remanufacturing' (DfReman) is in fact a strategic concept that is includes 'design for closed loops' e.g. to effectively implement DfReman requires investment in remanufacturing factories e.g. Xerox, as well as thinking at the 'front of pipe' (see 'Design for Remanufacturing' report on www.cfsd.org.uk). There are lessons to be learnt from Japanese 'system innovation' related to resource productivity (see www.cfsd.org.uk and report on 'information' pages on www.cfsd.org.uk/aede) Examples already demonstrate how widespread this service is possible include vehicles, carpets, furniture, mobile phones, ink cartridges, and could extend to a much wider range of products. The outcome sought is a new business relationship with companies that better marry together the functions of design and marketing yet still retain price competitiveness. A number of examples exist of how companies are shifting to offering the service rather than the physical products e.g. this is various ly known as functional sales, product-service-systems, servicing (see www.suspronet.org)

However, we need to widen our thinking to explore the innovation system from ideas, through r&d to commercialisation. Design is one part in the system and to enable 'eco-innovation' requires all elements to come together e.g. entrepreneurs, investors, technology suppliers, inventors, etc (see 'Sustainable Innovation' report on www.cfsd.org.uk and also www.cfsd.org.uk/eco-i-net

5 The above comments apply to manufactured products. In addition to the product itself similar consideration is regularly given to packaging although packaging is often highlighted as one area where there can be reduction. Inevitably improvements will be made but the issue should always be to look at the role of the packaging to see if it is fit for purpose as well as for recovery.

Consumption

6 Business and the domestic behaviour is the driver behind patterns of consumption induced by effective marketing of products (see www.cfsd.org.uk/smart-know-net). Consumption of goods is determined by many factors of which the most important are economic and population growth. These two predominant factors have the biggest impact on material use (see www.score-network.org).

More sustainable approaches to consumption and production needs to be implemented. There is growing focus on the environmental impacts of consumption and the EIPRO study highlighted 3 key sectors: housing; food; and travel. The EC's SCP Action Plan is likely to be pick-up on these areas.

7 Assuming that goods are produced with the right materials, using the necessary amount and all resource efficiency has been achieved upstream the consumer has two impacts it can make on waste. Firstly, if a product is under a stewardship or regulatory regime and can be wholly recovered, the material is not 'waste' but a secondary raw material or component part for reuse. The domestic system of recovery has to be economic and return material to market quality.

8 Should we worry then if consumption increases? We want a healthy growing economy and if there is little or no wastage then we shall have effectively decoupled economic growth from resource use—a major goal sought by the EU. However, we use our national statistics to count this process as 'waste'

9 We would recommend a change to the 'waste' strategy so that this element of statistical accounting is established with those Government Departments say for Customs and Excises, Business and regulation so the figures have a meaning and a business focus and on which better resource use policies may be made.

10 Targets can still be set for business for recycled materials. A different way of accounting should be applied.

11 The area where increased consumption can lead to more waste lie within internal business cultures and in domestic demand.

12 For businesses, despite the good work of Envirowise and Government's publications of ways to reduce consumption, waste and costs, it has not been economic to focus on material reduction. Big figure cost reductions are not available or commensurate to the investment in making modest savings to the majority of the UK's businesses which are SME's. As energy costs increase, as regulations bite and as fiscal measures like the landfill tax increase in impact behaviour will change as it will become important for these companies to focus on their wastage as it will have a greater impact on the bottom line than now. The knowledge of how to reduce all types of wastage including materials is widely available on many web sites, Government leaflets and via NGO environmental groups and is increasingly available in articles in business journals. Most regions also have green business 'angels' or sustainable business enterprise. There is thus no reason for organisations not to know what to do response is slow only due to the external conditions which have not hit them hard enough yet. However, there is a need to make sure the message to SMEs is put in business rather than environmental language. Awareness and knowledge of eco-design amongst is still effectively at 'zero' in the UK - this mean possible future compliance challenges, as well as missed opportunities for innovation e.g. eco-design as a mechanism to simply produce better products.

13 For the consumer it is a different task. Technology changes mean greater need to change, for example, consumer electronics and electrical goods, especially to derive cost and energy reduction benefits. Fashion changes rapidly leading to discard of goods which exceed the opportunity of reuse outlets to deal with.

14 Food is probably the greatest area where there can be reductions in waste. This relates to the use of organic material, farm products from home or aboard which use resources like feed, fertilisers, pesticides and water.

15 DEFRA in its recent review of Waste Strategy 2000 for England have urged the separate collection of food and its treatment for compost type output material. This seems to be the wrong way of looking at the issue of resource management as it starts from the bottom upwards and the bottom of the current so called 'waste ' hierarchy.

16 If food accounts for some 20 -24% of the dustbin and dustbin volumes increase by 1-2 % per year it would seem important to focus on something which is not only a reasonable volume but also has a negative environmental impact if land filled. We should also consider the input volumes of material and other ingredients that go into producing the food which is wasted to see if there is potential to reduce the total system.

17 Current domestic reduction actions too often focus on high profile but low volume items like carrier bags and nappies with the generic heading of packaging coming under regular attack. Most of the countries activities which

attract a substantial cost for no ability to prove impact focus on activities which are really reuse and recycling.

18 It would be better to focus on reducing the food waste by 50%. This would reduce the dustbin size by 10% and allow fro some 5-10 years growth t be subsumed. It would save householders some £200 + per year far more than any recycling incentive schemes might produce. There would also be upstream savings in resource use in the production process.

19 This action would have an impact on, the recycling levels achieved by local authorities (unless their targets were changed) , the collection systems that have been encouraged to be implemented and the potential sizing and siting of processing plants which would be built expecting a certain throughput.

20 We would encourage a multi agency approach to food waste consumption and reduction. Food consumption more than is needed is creating a health problem of obesity which has a cost to the nation and also will require more material resources to look after people, and its general waste is really a moral and ethical issue which is about how a developed nation uses world resources in an unequal way. So this is a matter for a wide range of Government Departments working together holistically and not solely for DEFRA as part of a waste strategy.

Is ‘waste’ an evil and should the aim be to reduce it?

21 We need to reduce resource use for its environmental damage during its excavation and process modes. It is also at those early stages that hazardous, scarce and expensive materials can be removed from inclusion in products.

22 Once products have been purchased they will become known as ‘waste’ when the consumer discards them. Our attitudes and behaviours have been changing in the last 20 years and will continue to change so that what we currently count as ‘waste’ will in the future be seen to be part of a recovery system. Assuming that 60% average of all materials can be recycled practically then ‘waste’ fro treatment will be 40% of current figures.

23 If this amount requiring treatment is used for energy production more can be extracted from its inherent properties. Energy, a public utility which we now need for security and cost reasons as well as the ability to contribute to carbon reduction is produced and also as a by product residues which can have further use to displace constriction material as well as the recycling of as much metal as is collected from conventional recycling schemes. Such material is not allowed to count in the recycling figures and so distorts real material utilisation mass balances.

24 So should our aim be to count waste is that land filled as being our true target for reduction. If so we would not wish to default to the next immediate element of the current hierarchy, energy recovery, but to develop a set of business and total system principles which take a top down approach so that

optimum resource use can be derived throughout the cycle of (sustainable) consumption and production (SCP).. It may be that we can accept more tonnages being recycled than now even if the percentage levels we currently manage are reduced because we have a more effective total resource management system. It is not a de facto right that re use is better than recycling, slavish adherence to a hierarchy that does not relate to business or societal principles seems to mislead policy.

Is a focus on waste reduction the right way of asking the question?

25 We believe the focus should be on ensuring that there is an effective utilisation of resources through society.

There is a need for a major investment in primary, through secondary, tertiary and higher-education in the benefits of a eco-design and lifecycle approach including material and energy reduction strategies. This should be built into design, engineering, technology and architecture courses. A key target will be to bring the Deans and Heads of Departments of appropriate courses together.

26 A top down focus achieves more energy is spent on the critical elements of design and material choice. But there will not be any figures produced for this so it will be difficult to prove resource optimisation. Successful companies may well reduce the unit costs of their product by careful choice and good production methods but use more resources as a result of selling more goods.

27 It is only when goods are produced and can be weighed that it is possible to trace the best resource routes and if as we argue the new system is about recovery and not waste then we should take away from the waste statistics those which relate to material recovery.

28 There is a view that a better statistic is the use of Kilograms per household or person per year of both recycling and waste. This allows a comparative study over time of whether there is real waste reduction on a per capita basis. It is population growth that distorts aggregated figures such as total volumes. Nevertheless this is the task that has to be managed. So setting total waste reduction targets without taking into account population growth creates a challenge that may lead to non fulfilment.

29 The OECD highlights that waste growth will rise in the next 20 years but these figures are based on expected resource use and population growth. This leads to a recognition that we are dealing with two paradigms one relating to a macro level societal development and the other micro level targets to create change in behaviour.

Conclusion

The outcomes of our analysis are that we need;

Need to recognise that we live, work and do business in a global sustainable consumption and production system e.g. UK is not a closed system (therefore we need to cooperate with key players in the chains and networks e.g. US, China)

A top down approach coupled with incentives on the ground

Smarter and joined up product policy e.g. how can public procurement be used to drive innovation and reduced environment impact (zero waste mattresses should be view as just a start and not as a tick the box exercise)

A focus on a sustainable society that values resource use in a looped system

A review of our policy approach to a hierarchy for the subject

Encouragement for designers to work closely with marketing parts of organisations

Develop eco-innovation systems involving ALL appropriate stakeholders (avoiding 'silo thinking')

Closer working on the issues between DTI (whatever it is now) and DEFRA

International cooperation e.g. build on Anglo-Japanese initiative (we should learnt the lessons from those the have been more successful)

Sensible statistics and national performance targets based on total environmental assessments

To overcome the confusion in the use of terms and also the solutions e.g. minimisation and prevention and reuse and recycling confused with reduction.

NOTES

- Need to look at the system and broaden thinking from design to innovation
- Explore the reasons why the Sustainable Design Forum and the Product Body failed to happen – there is perhaps a need for a new body to take the strategic thinking (and implementation) forward e.g. WRAP is not there, Design Council (don't want the issue), etc
- Need for smarter policy
- Need for education