

From Waste



to Resource Management

This paper produced in September 2003 has prompted a great deal of interest and debate on the need for societal change at all levels, and on how resources, rather than 'waste', are managed.

AN UPDATE FOR 2005

Introduction

The paper asked how the UK could move from the historical approach of treating waste as a problem, to valuing unwanted materials and products as a resource to be recovered and re-used. The desired outcomes from this change would be to mitigate the environmental impact of society and maximise the associated economic development opportunities.

The resource management vision set out took a wider view of how we could use materials more efficiently, reduce wastage and maximise the recycling and recovery potential of the materials in waste. This involves influencing design, business processes, retail, procurement and consumption as well as traditional waste management. When looked at in this context, resource management is inextricably linked with the way society and business operates as it encompasses the whole process chain involved with the life-cycle of goods and services. It is therefore as much about achieving behaviour change across all sectors as it is about collection, processing systems and infrastructure.

A resource management route map suggested how change could be delivered via:

- Engaging the whole process chain involved with the lifecycle of goods and services, including the design stage. Engagement must be at both macro level (e.g. public sector) and micro level (e.g. the consumer)
- Continuing development of new material recovery systems to cater for the increased quantities of materials recovered and the larger number of resource streams involved – from the household, commercial and industrial sectors
- Facilitation of new infrastructure, using innovative site selection criteria and novel material processing techniques

From Waste to Resource Management is available in full at www.hnri.co.uk

The concept of ‘closing the loop’ in resource management led to the proposal that a sensible way forward in terms of making the best use of land for resource management sites could be by co-locating businesses that collect, store and process materials with those that use these secondary materials within their own production processes. This cluster principle needs to be worked into the planning process so that it enables such development.

Finally, the paper suggests changes are needed at all levels, including GOVERNMENT, other national bodies, the PUBLIC SECTOR, the BUSINESS sector, ACADEMIA and the COMMUNITY in general to effect a change to sustainable resource management.

Since 2003, substantial progress has been made in all sectors both in debate and in practice. As a result of better understanding of the way forward in implementing a UK wide system of change has developed; it is the outcome of these developments that this update paper presents so that the debate can continue. Importantly, it reiterates and develops the case for implementation of the vital changes needed.

Putting Resource Management into Practice

Resource Management principles are starting to be reflected in key policy documents like the Regional Waste Management Strategies. In the South East for example an overall 65% recycling and composting rate by 2025 is proposed. If the aspirations for the South East were mirrored across England and Wales, it would result in over 150 million tonnes per annum of materials (from the household, commercial and industrial and construction and demolition streams) being fed back into the process chain. This is over double current volumes. These materials can be broadly divided as follows:
100 million tonnes per annum of locally traded materials (secondary aggregates, composts and wood)

50 million tonnes per annum of globally, nationally and regionally traded materials (metals, paper, glass, plastics, etc)

This scenario reverses the historic recycling:disposal balance. Currently about two thirds of our discarded materials are dealt with by waste treatment/disposal and one third by recycling/composting. Under the new scenario this situation will be progressively reversed so that in 20 years time much less discarded materials are produced, but of what is, two-thirds is recycled/composted. In addition there is the potential for a significant additional element of efficient energy recovery through better integration with the planning of more sustainable communities.

This change has very significant implications. It changes the emphasis of the resources/waste debate from how to meet the needs for waste treatment/disposal to how to optimise the logistics of recycling/composting to achieve robust, efficient, sustainable outcomes and manage the associated risks - for example ensuring robust markets. Historic issues such as the rights and wrongs of various technologies for traditional waste treatment and disposal will be marginalised.

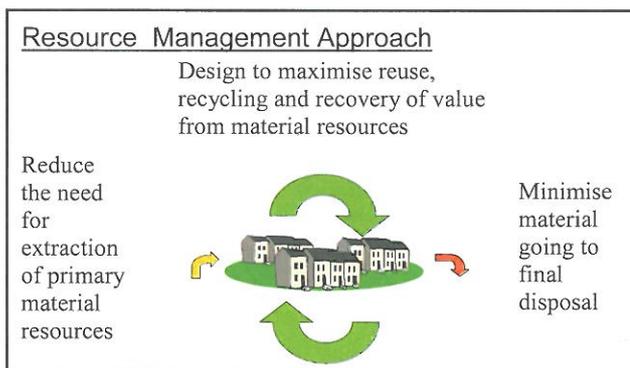
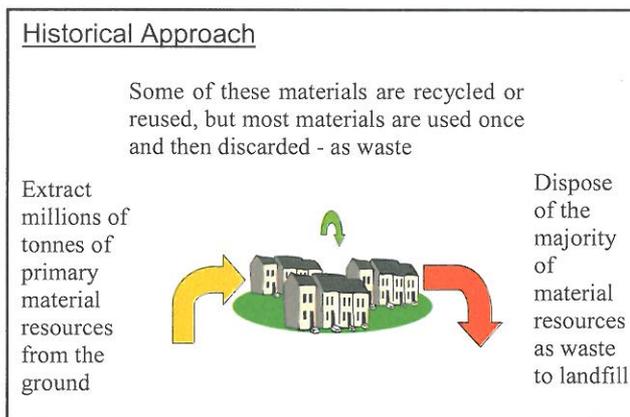
The new core challenge is how to best collect, transport and process large volumes of materials and feed them back into production systems that may operate at global, national, regional or local levels. A key need is to plan for the handling and marketing of these materials in a way that minimises the associated risks in terms of availability of markets and ensures solutions are sustainable. To this end, recovered materials must be competitive with primary raw materials.

But do we really understand what this means in terms of the materials handling and resource recovery systems needed? For example, should we be considering approaches adopted by the retail distribution industry rather than the traditional waste management ones?

Whilst the resource management approach is not a total panacea for overcoming the public disaffection with traditional approaches. The experience in Hampshire outlined below offers a way forward that the majority of people, including key community interests and opinion formers, will buy into.

Evidence of Change in the Local Context: Hampshire

The resource management philosophy set out in 'From Waste to Resource Management' has been debated in Hampshire during the past twelve months by a wide range of stakeholders from all sectors including the wider community. Hampshire County Council, Portsmouth and Southampton City Councils and Project Integra (the Hampshire municipal waste partnership) enabled an independently facilitated debate with representatives of all sectors about how the area should deal in the short, medium and long terms with materials that currently end up as waste. They also considered how to meet the demand for aggregates and the role recovered materials could play in meeting this need. The outcome has seen cross-sector support for the resource management approach.



The process involved a total of 350 organisations who participated in one or more of seven major stakeholder workshops (each with up to 200 participants), research involving experts from a variety of fields, and some 30 'offline' working groups looking at specific issues. In total 5000 hours of stakeholder input went into quality investigation and debate.

The result was a stakeholder report entitled '*More from Less*' that has provided clarity of direction in making the case for change and indicated the steps to be taken to satisfy the vision, which was agreed as: **'We will change the way we use material resources to maximise efficiency and minimise wastage'**

The full document is available at www.mrs-hampshire.org.uk



Stakeholder Workshop at Winchester Guildhall

'*More from Less*' emphasises that a move towards a resource management approach is essential if Hampshire is going to deliver change and achieve government targets whilst meeting local community aspirations. More importantly, it stresses that this change can only be delivered if cost effective solutions are achieved in both the public and private sectors. It provides evidence of the need for investment in new facilities and jobs and the potential to offer business solutions to achieve legislative compliance, reduce costs in the public and private sectors, contribute to the reduction in waste and greenhouse gas emissions, and derive energy from renewable sources.

'*More from Less*' spells out how to move from the historical method of separate minerals and waste planning and management, to a fully integrated resource management and societal change implementation plan. It includes 'stakeholder agreed' actions that set out practical ways to implement the changes needed to achieve the vision.

However this is only the first step. The opportunities identified by the stakeholders now need to be taken forward and prioritised so that those which yield quick wins can be initiated and those that require longer term work planned for.

Stakeholder momentum is now driving the process. At the launch of '*More from Less*', it was the stakeholders - both community and business - who were demanding continued effort, co-ordination, co-operation and communication.

A shift in core values allied with action across all sectors and at all levels is needed to achieve the real changes that are needed. The following section sets out suggested actions for key sectors. The ideas set out reflect the views of stakeholders - from business to environmental NGOs - involved in the '*More from Less*' process.

Sector Change

Action and Change needed in Central Government

It is vital that the Government takes a long-term strategic view of material resource management alongside climate change and energy use. The Government must lead on the development of new logistics for sustainable materials handling. Input from the retail distribution industry would be helpful with this work.

There now needs to be a final joining up of the national to local agendas for change, in terms of both a redefinition of roles and the creation of an executive capability to deliver over the next 10-20 years. This would enable business and local government to meet their legal obligations, e.g. pertaining to producer responsibility.

The Government will then be assured of the UK being capable of meeting the Landfill Directive targets on time and without incurring EU penalties. The resource management approach if widely implemented could put the UK at the top of performance in the European Community.

Closer working is required between the Department for Trade and Industry, the Department for Environment, Food and Rural Affairs, the Treasury and the Office of the Deputy Prime Minister to achieve the following :

- ▶ Objectives in respect of the process chain must be attributed to those with responsibilities e.g. the producers
- ▶ Fiscal impacts/incentives must be considered across the whole of the public and private sectors as well as consumers so that implications are fully understood
- ▶ Efficient energy production opportunities (such as combined heat and power) need to be derived via joined up local implementation and linkages with local development frameworks
- ▶ Planning process guidelines must lead the establishment of national, regional and local priorities for the development of strategic materials handling / resource recovery site network

The role of local authorities should be reconsidered to address:

- ▶ Changing the organisation, funding and targets in respect of local authority roles as statutory waste collection and disposal authorities. These roles as set out in legislation need to be urgently reviewed as they are outdated and substantially removed from what is now needed
- ▶ Integrating the separate systems of municipal waste collection and final disposal to give the focus that is needed to encompass the resource management approach. Barriers to the co-handling of commercial material streams (e.g. from SMEs) with the household stream need to be overcome

Review the definition of waste to:

- ▶ Facilitate optimum recovery of materials by encouraging the Environment Agency to influence the EU debate on the definition of waste
- ▶ Develop further risk based regulation to create a positive UK regulation process that acknowledges that discarded/secondary materials for re-use and recycling often pose a very low environmental risk (when compared to mixed waste) and thus can be moved, stored and processed equivalent to 'new' materials

Streamline decision making in order to:

- ▶ Create a UK organisational capability at national and local levels that can enable the most effective mechanism and reduce barriers by reconsidering the roles of the Waste and Resources Action Programme, Envirowise, the Regional Development Agencies and Local Government

Develop cross-sector partnerships to:

- ▶ Create new alliances between different business sectors to maximise the financial and economic development benefits to commerce and industry of reducing the reliance on new imported raw materials
- ▶ Work with logistics experts from retail distribution industry to apply the principles of efficiency and supply chain management to materials resource management

Action and Change needed in the Public Sector

As major employers and consumers, all sectors of government and government sponsored agencies at all levels should act as leaders in supply chain management in order to:

- ▶ Use their collective spending power to demand the use of sustainable materials by contract specification. Words need to be turned into action to make this happen. This will stimulate the process chain without interfering with the market economy

- ▶ Using this buying power will also influence supply chains to change the way their suppliers manage their resources
- ▶ Lead by example as large organisations in optimising their own materials management and if necessary use county/regional contracts to achieve best value in terms of economies of scale
- ▶ Investigate working in partnership with the private sector and determine the best methods to mitigate risks and influence the financial sector so that these can be adequately managed

Action and Change needed in Local Government

Local Government needs to respond to the resource management challenge by defining its role as a major facilitator and moving beyond the boundaries of household waste. Authorities need to use their collective corporate power to join together functions such as economic development, planning, education, procurement and waste management to make changes happen. In particular local authorities need to:

- ▶ Show leadership in managing their own material resources in the most efficient manner. This means that the concept of resource management has to be promoted at all levels and receive elected member support
- ▶ Use their position as large organisations in procuring goods and services to best effect, influencing the process chain locally to move their private sector suppliers to efficient materials management
- ▶ Be aware that numerous new facilities will be required to cater for the increased quantities of secondary resources and to accept that some of these will need to be local facilities and that this represents an economic development opportunity rather than a 'dirty' process
- ▶ Develop markets for locally traded materials and set an example by using these in their own activities

- ▶ Work with adjacent authorities to develop solutions that make sense in efficiency and sustainability terms, rather than work to arbitrary geographic boundaries
- ▶ Consider substantial change in their 'waste management' duties. Waste Collection Authorities must work together to provide the optimum and most efficient collection infrastructure and ensure that recycling performance overall is optimised

Action and Change needed in the Private Sector

In order to maximise the business opportunities presented by resource management there is a need to:

- ▶ Help businesses learn that efficient resource management is an economic opportunity and not a cost burden. This may need a reorientation of business activity with respect to the collection, storage and reprocessing of material resources
- ▶ Engage the finance sector to promote a greater understanding of resource management concepts and develop methods of risk mitigation which currently hinder funding being readily available



New Recycling Bank at Tesco Winchester

Action and Change needed in Academia

Universities and other higher education institutions have a key role and need to:

- ▶ Embed the concept of resource management in course content to promote and make the case for change with all new students, e.g. in civil engineering, architecture, design and marketing

- ▶ Bring the multiple disciplines involved together in a coherent and nationally understood 'science' of resource management and encourage the formation of policy and decision making based on the rationale of this science
- ▶ Consider options for the setting up of a Resource Management Institute to focus studies and research and development on gaps in current knowledge
- ▶ Strengthen partnerships with industry, the public sector and local authorities so that research needs can be targeted on practical needs and the results put into practice

Action and Change needed in the Community

Individuals will change behaviour if they understand the reasons for doing so and it is easy to do. Awareness will increase as a result of the changes in systems and products, for example in the services and information offered by business and local authorities. Ultimately structural change will have an impact on consumption patterns and social behaviour and this in turn will create a demand for further change. In order to hasten this process there is a need to:

- ▶ Communicate the rationale derived from the science of resource management to the community at large in easily understandable terms. This could include making the link between personal consumption and the consequences for society.
- ▶ Make the behaviours which reflect the core resource management values 'normal' in the community, for example by ensuring recycling is part of the culture at home, at work and at leisure

Role of Non-Food Crops

Non-food crops are produced from renewable and sustainable sources and have the potential to play an important role in materials resource management as alternatives to traditional non-renewable

oil-based materials. They impact on the whole process chain including design, business practices retail procurement, consumption and traditional waste management.

Non-food crops have the potential to produce a range of sustainable materials including biodegradable plastics for packaging, environmentally friendly lubricants and composites for the construction industry. The National Non-Food Crops Centre focuses on promoting materials made from non-food crops and is a key resource in encouraging the wider use of these materials, including through public sector supply chains.



Non-food crops also produce biofuels and are an important renewable energy source and there is potential for the co-combustion of non-food crops with other waste materials, including the residues from cereal crops. Combining the recovery of waste materials with the use of non-food crops as a fuel could make a significant contribution to reducing carbon dioxide emissions, as well as providing a more sustainable recovery route.

Flexibility in terms of recovery routes is an important advantage of non-food crops. In addition to thermal treatment processing, they can be handled by anaerobic digestion or composting.

Conclusion

The debate must continue urgently. Equally those in a position to act should do so now. Potentially the best way to drive this change is for the Government to ensure the review of Waste Strategy 2000 signals a move to resource management by 2010.

For further information

If you would like to receive a further copy of this update or the original document 'From Waste to Resource Management: A Discussion Paper', or have any questions or queries in regards to the paper, then please contact Adrian Flavell at the below address.

An electronic version of this update and the first discussion paper (published in September 2003), along with a shortened summary of 'From Waste to Resource Management' is available on the NRI website, please see details below:

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