Timber Recycling Opportunities in the East of England

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New Hall College, Cambridge

Fauna & Flora International
Great Eastern House
Tenison Road
Cambridge CB1 2TT
Tel: 01223 571000
Fax 01223 461481
e-mail info@fauna-flora.org
www.fauna-flora.org
www.globaltrees.org

Edited by Simon Mickleburgh

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BACKGROUND TO THE WORKSHOP

The workshop *Timber Recycling Opportunities in the East of England* was organised by Fauna & Flora International as part of a project to promote the minimization, reuse and recycling of timber waste.

Fauna & Flora International (FFI) is the world's oldest international conservation organisation, with headquarters in the UK. It is a non-governmental organisation and a registered charity and acts to conserve threatened species and ecosystems worldwide, choosing solutions that are sustainable, are based on sound science and take account of human needs. FFI has projects in over 60 countries worldwide and works with local partners. More information on FFI is on the website www.fauna-flora.org

One of FFI's main programmes is the Global Trees Campaign, which aims to take action for the 8,000 tree species worldwide that are threatened with extinction, including 1,000 species threatened by trade. The Global Trees Campaign has its own website www.globaltrees.org. As part of the Global Trees Campaign, FFI is working to promote sustainable timber use in the UK, particularly looking at the minimisation, reuse and recycling of timber waste. This work is funded by Fenside Waste Management through the Landfill Tax Credit Scheme. Past activities have included publication of a background report, *An Introduction to Wood Waste in the UK*, production of a revised version of the *Good Wood Guide* (in collaboration with Friends of the Earth), provision of a Timber Recycling Information Service, including web-based lists of timber recycling facilities, and media and public awareness work.

The workshop in Cambridge was the first in a series of regional workshops aiming to bring together wood waste producers, collectors, processors and users to share information and experience and promote best practice. The focus of the workshop was on practical solutions for dealing with timber waste and on identifying opportunities and constraints to timber reuse and recycling in the region. The event proved very popular, with 68 delegates attending. Speakers presented a range of aspects of timber recycling and there were many interesting questions and comments from the floor. A discussion session at the end of the day raised a number of interesting issues, as highlighted in this document.

This document is intended to provide a written record of the workshop and to be a useful reference source for those interested in wood reuse or recycling. Further regional workshops on timber recycling are being held in Manchester (24 March 2003), Birmingham (28 April 2003) and Bristol (12 May 2003). Other current FFI initiatives on wood waste include production of best practice guidelines on waste minimisation for the furniture industry, research on timber use and waste in the musical instrument industry, development and promotion of a label for recycled wood products (in collaboration with Forest Stewardship Council UK) and production of a directory of reclaimed furniture manufacturers and retailers.

Comments, contributions or questions on this publication or any aspect of FFI's wood waste project are always welcome – please address them to Georgina Magin at the FFI address.

SESSION 1 – INTRODUCTION

An overview of wood waste in the UK

Georgina Magin, Wood Waste Project Manager, Fauna & Flora International
Great Eastern House, Tenison Road, Cambridge CB1 2TT

The world's forests are under great pressure – forest loss is continuing at 13.7 million ha a year. Coupled with this, over 8,000 of the world's tree species are classified as globally threatened with extinction. Logging for the timber trade has been identified as a major factor in the loss of the world's forests and also threatens over 1,000 tree species. Demand for industrial wood, not counting that used for fuelwood or subsistence uses, was predicted to increase by 25% from 1996 to 2010, putting further pressure on the world's forests and trees in the future.

The sustainable management of forests for timber production has received considerable attention over the past decades. The issue of how timber is used once it has been extracted has been less in the spotlight but it is also a vital element of sustainable timber use. Making efficient use of the material and minimising waste will help manage the growing demand for wood and the consequent pressure on the world's forest resources. It is in this context that Fauna & Flora International (FFI) has been working on wood waste. There are also important issues around waste disposal, i.e. the need to reduce the amount of waste going to landfill. This applies especially to biodegradable materials such as timber, which as they rot give off methane, a very powerful greenhouse gas that contributes to global climate change.

This paper will give an overview of where wood waste is generated, what currently happens to it and the opportunities and constraints for better management of the issue. There is a lack of reliable, standardised data on wood-waste generated, much of the available information being anecdotal and in non-standard units (e.g. bags, bins or skips). Estimates in this paper have used what information is available but should only be regarded as indicative. It should also be noted that this work concentrates on processed timber waste rather than green wood.

Generation of wood waste
Waste is generated at all stages in the processing and use of timber.

Harvesting
Waste is recognised as an issue at harvesting, especially in tropical forests where waste levels may be greater than in temperate forests and the timber of higher value. Waste is generated through both the damage to surrounding trees during harvesting and extraction and the inefficient utilisation of the tree that is cut. One estimate from the tropics puts extracted logs at 54% of the wood over 20 cm diameter.

Primary processing – sawmill
Typically, 40–50% 'waste' is generated at sawmills, the average in the UK being 44%. In other countries waste levels may be up to 70%. In the UK and the rest of the industrialised world sawmill wastes or residues are regarded as co-products and are generally well utilised as raw materials for the panel board and paper industries. In less industrialised countries the residues are less well utilised. While offcuts may be used for furniture components, for example, there is often no use for sawdust, which can be up to 14% of the log input.

Use of sawn timber
The waste generated depends on the use to which the timber is put. The construction industry is the largest user of sawn timber in the UK, accounting for approximately 39% of the total consumed. The Building Research Establishment (BRE) has a project looking at wood waste in the construction industry.

It is estimated that more than a quarter of waste from construction sites is timber and that there is approximately 8-10 million tonnes of timber waste a year from construction and demolition sites.

Secondary processing
A lot of timber undergoes secondary processing into a finished product and further waste occurs at this stage. In the manufacture of furniture, for example, up to 40–50% of the sawn timber is typically wasted where hardwoods are used, approximately 30% with softwoods and 10–15% with panel products. The manufacture of joinery products such as windows and doors generates similar levels of waste. The Furniture Industry Environment Trust published a research report in summer 2002 on waste in the furniture industry and estimated that waste amounted to 186,000 tonnes of solid timber and 209,000 tonnes of board materials per year. The British Furniture Manufacturers are currently working on a project for Waste and Resources Action Programme (WRAP) on the recycling of timber waste in the furniture industry and how it can be improved.

Disposal after use
Disposal of timber after use is another major source of waste. A considerable amount of timber waste is generated by the demolition of old buildings. It is estimated that in the UK 1.5 million tonnes of reclaimable timber is produced by demolition every year, of which approximately 0.75 million tonnes is currently reclaimed and 0.75 million tonnes is disposed of, mostly to landfill or being burnt. This is equivalent to the disposal of 3,000 tonnes of timber every working day. An estimated 10% of this timber is tropical hardwood and a lot of it is high quality, coming from old, slow-growing forests. Packaging, such as wooden pallets, crates and drums, is another large source of post-use timber. Approximately 13% of packaging waste is timber, amounting to an estimated 1.3 million tonnes a year in the UK. Households are another source of waste timber, including items such as unwanted furniture (often useable), DIY offcuts, old doors, windows and floorboards. Most of this material is taken to civic amenity waste sites where timber is estimated to make up 7–10% of the material deposited. Various estimates put the total amount of timber disposed of at civic amenity sites at between 420,000 and 672,000 tonnes a year.

Potential for wood waste
What can be done with all this wood waste? This presentation looks at timber in the UK, not including harvesting wastes or sawmill residues, the latter generally being already well used.

Reduce
The first priority must be reducing waste at source. A whole host of issues are important here, of which the following are just a few.

- *Design* Efficient design of a product or building can reduce the wood used and wasted. A report by Envirowise on waste minimisation within the furniture industry gave an example of Layezee Beds who redesigned their divans and reduced their raw material input by 3%.
- *Specification* Accurate specification of the timber required for a job can significantly reduce waste. The dimensions in which timber is available can vary, so considerable effort may be required to source timber of the required size.
- *Collaboration* On jobs such as construction projects where several agents are involved, collaboration at an early stage between the developer, architect, engineer, and builder can help maximise the opportunities for material efficiency.
- *Durability* Repair and replacement of deteriorated wood accounts for a significant amount of use of new wood, so making things to last avoids waste.
- *Storage* Keeping and transporting timber carefully to avoid accidental damage or deterioration due to exposure to weather is important. Surplus timber from one job can be stored for use on a subsequent project.

- *Use of composite and engineered products* Using products such as panels or structural timber composites such as Glulam and parallel-strand lumber makes efficient use of wood since they can be made from small-dimension timber, thinnings and, in the case of panel products, recycled wood. However, from an environmental point of view there are other issues to do with the use of these products that should be considered. For example, the energy used in their production and the use of glues and resins in their manufacture. No analysis of the overall environmental impact of these materials can be found.

Reuse

Reusing timber is the next priority. Reuse is defined as the use of timber in its current form, as distinct from recycling that involves significant reprocessing of the material. The following are examples of ways in which timber is currently reused.

- There is a significant trade in reclaimed timber, involving items such as floorboards, beams, doors and fireplaces. There are over 2,500 businesses in the UK dealing in reclaimed building materials and timber, with a total turnover, for all materials, of £450 million a year. Timber is a significant component of this trade although the total value of reclaimed timber sales is not known. Ornamental timber, such as fire surrounds, panelling, and pub interiors, alone accounts for £36 million a year.

- Furniture reuse is also common and there is a network of reuse projects around the country taking unwanted furniture and passing it on to disadvantaged or low-income families. These projects are coordinated by an organisation called SOFA.

- Wooden pallets are widely reused, a pallet being used on average nine times. Leasing pools help the efficient use of pallets and there are also companies that repair damaged pallets thus prolonging their life.

- Reusable lengths of timber from a range of sources can be sold at scrap yards. We are fortunate to have Richard Mehmed from the Brighton and Hove timber recycling project to tell us about how they do this.

- New items such as furniture and garden structures are manufactured from reclaimed wood. For example, reclaimed pine furniture, often made from old floorboards, is available in many retail outlets. A limited number of small businesses or community projects make garden furniture and accessories from old pallets or scrap timber.

- Some schools and community groups use scrap wood for woodwork classes. Scrap stores that sell materials for youth groups sometimes have wood offcuts in stock. Where possible, the DIY chain B&Q donates reusable wood offcuts to local groups, timber that is not reusable being returned in the empty delivery lorries for recycling at their central depot.

Recycling

Timber is, in principle, an ideal material for recycling since it is relatively easy to sort and does not require complicated reprocessing as is the case with plastic, glass and even paper. The most common use for recycled timber is as a raw material for chipboard manufacture. In 2001, the chipboard industry used approximately 675,000 tonnes of recycled timber. Chipboard and related panel products are progressively replacing solid timber in a number of applications, making a potentially useful contribution to efficient use of timber. However, panel products themselves currently cannot be recycled because of the resins they contain so it is an ‘end of the road’ option.

Horticultural mulch can also be made from recycled wood and John Jardine from County Mulch will be telling us about that later. Animal bedding is another option and a product called Easibed made by Hadfields Wood Recyclers in Manchester recently won the Best Reprocessing Initiative category in the National Recycling Awards. Surfacing for landfill cover and gallops, compost and fuel are other options for wood waste. Many would not regard burning waste for energy as true recycling and there is some concern that the drive to increase the use of biofuels to meet the government's fossil fuel targets will reduce investment in recycling. There are also novel products that can be made from wood waste that may become more common in the future and I noticed that a wood plastic composite that has started to be made in the UK won the Best Recycled Product category in the National Recycling Awards in 2002.

Facilities for timber reuse and recycling

There are a growing number of specialist wood-recycling companies most of whom chip waste timber for use in the chipboard industry. In summer 2000, a survey of the 12 largest national waste-management companies (according to a list provided by WasteWatch) found that seven were doing some timber recycling on at least one site and a further two were planning to start soon. The inclusion of wood in the Packaging Directive (see below) has increased the demand for wood recycling services and the industry is responding accordingly.

An increasing number of Local Authorities are providing facilities for households to recycle timber. In 2000, a survey of Local Authorities in England, Wales, Scotland and Northern Ireland revealed that 36 out of the 109 that replied were doing some timber recovery. When FFI repeated the survey in summer 2002 it found that 75 out of the 143 authorities that replied were now collecting timber. The most common use for this recovered wood was in the chipboard industry although informal reuse and composting were also common.

The information on timber recycling by Local Authorities, together with the location of private sector companies offering timber recycling for the industrial sector, will be plotted on a map of the UK on FFI's new Global Trees Campaign website www.globaltrees.org, which went live in December 2002. The lists of facilities are by no means comprehensive and we would be very grateful to hear of corrections or additions to the information.

Opportunities and drivers for wood reuse and recycling

There are a number of positive drivers and opportunities that should encourage and promote better practice with respect to timber waste in the future.

- The Landfill Tax is payable per tonne of material sent to landfill. Biodegradable materials such as timber are charged at a premium rate that is increasing each year. Whilst there is some controversy about its effect, most commentators believe it has been a significant driver in encouraging waste reduction and recycling.
- The Landfill Directive is an EU Directive aimed at reducing the amount of biodegradable municipal (household) waste sent to landfill. Ambitious targets are in place for Local Authorities in order to meet the Directive. Local Authorities are therefore becoming increasingly interested in how to divert wood waste at civic amenity sites from landfill, as witnessed by the results of our Local Authority surveys mentioned earlier.
- The Packaging Directive is another EU Directive that addresses packaging waste. Although not initially covered, wood packaging was included in the Directive in January 2000, spawning increased interest in timber recycling in the industrial and trade sectors.

- There are various more general initiatives for sustainable development that address waste issues. The Government's initiative *A Better Quality of Life – a strategy for sustainable development in the UK* includes as one of the indicators of sustainability the amount of construction waste going to landfill. Another initiative examining the construction industry, *Building a Better Quality of Life – a strategy for more sustainable construction* emphasises waste reduction, more recycling and the use of recycled materials in construction.
- Alongside these initiatives are several funding and development opportunities. The relatively new Waste Resources Action Programme (WRAP) aims to develop markets for recycled products and Liz Morrish from WRAP will tell you more about their programme shortly. The Landfill Tax Credit Scheme can also be a source of funds for recycling programmes.
- There has recently been substantial growth in the UK's chipboard manufacturing capacity, with the opening in 2000 of a large new factory near Liverpool. As a result, there is an increase in demand for wood chip and the chipboard industry is increasingly looking to recycled wood as source of raw material. Richard Coulson from Kronospan, one of the UK's chipboard makers, will tell us more about this.

Constraints

As well as these positive indications there are a number of constraints to the development of the wood recycling sector. Some specific constraints apply to using reclaimed timbers in building. The need to meet building regulations may be an issue in some applications such as load-bearing beams. Supply and demand is a potential constraint since it is difficult to guarantee the supply of items in the right location and at the right time. Demolition is highly mechanised, usually performed with large machines, few people and in a short time-scale. Reclaiming materials inevitably takes longer and is more labour intensive, although, of course, there are financial gains to be made from the sale of the materials.

For wood reuse or recycling more generally one of the most commonly cited issues is contamination in the waste wood supply, a lot of waste timber being mixed with other materials. Wood treated with preservatives such as creosote also creates problems. At building sites, manufacturing facilities or civic amenity waste sites space to store waste wood separately is often an issue. Many sources of waste wood are small and dispersed. For example, the furniture industry in the UK comprises approximately 8,000 companies, typically with fewer than 20 employees each. The logistics of collecting small amounts of wood waste from these scattered locations could limit the potential for wood recycling. There is also currently a lack of wood recycling facilities or services – many waste wood producers contacted would be willing to do something with their waste but report a lack of companies offering recycling in their area. There are currently limited markets for recycled timber and the financial value of the material is relatively low and volatile in some markets such as the chipboard industry.

The issue of Packaging Recovery Notes (PRNs) for recycling packaging has been very controversial with the value generally going to the end user, such as the chipboard mill, rather than the timber recycling companies. It has also been observed that awareness of the possibilities for waste wood is limited amongst some waste producers. Hopefully some of these issues will come out in the discussion at the end of this meeting..

Lastly, a few words about FFI's wood waste project. The project aims to raise awareness of the issue of wood waste and the possibilities for improving the situation. We have produced a background report on wood waste in the UK (*An Introduction to Wood Waste in the UK*) and a public awareness leaflet that has been distributed through various channels. We have also undertaken significant press work on the issue. In collaboration with Friends of the Earth, FFI has produced a revised version of the *Good Wood Guide*, a consumer guide to choosing and using timber, with a significant focus on reducing waste and promoting the use of reclaimed timber. We have established an information service providing help and advice to

enquirers. This includes the website mentioned earlier with the facility for private individuals and businesses to locate their nearest wood recycling operations.
As well as this series of workshops other current initiatives include work with the Forest Stewardship Council (FSC) on the development and promotion of a label for recycled wood products, the production of best practice guidelines on waste minimisation within the furniture industry, a directory of companies that manufacture or sell furniture or other items made from reclaimed wood and research into waste levels in the musical instrument industry where many of the rare and threatened timbers are used. We would also like to develop some policy targets for wood waste and hope that later discussions may help with that.

The legislative and policy framework for waste management in the UK

Brigid Preston, Waste Strategy Division, Department of Food, Environment and Rural Affairs (DEFRA)
7/E14 Ashdown House, 123 Victoria Street, London SW1E 6 DE

The legislative and policy framework for waste is shaped primarily by the document *Waste Strategy 2000* and various EU Directives, particularly the Landfill Directive. The Prime Minister's Strategy Unit have recently released a review of waste policy and implementation called *Waste Not, Want Not*. *Waste Not, Want Not* focuses largely on how the government can achieve the requirements of the Landfill Directive (see Box 1). If the UK fails to achieve these, it will start paying fairly substantial fines to the EU, so there is a very strong incentive to succeed. The document is a report to government and not government policy and it recognises that quite marked change is required. What happens next is still being talked about and a ministerial group has been formed to discuss the financial implications of the report. The group will be led by the Treasury with other interested ministries such as DEFRA participating. The response is expected in the first part of 2003.

Box 1: Requirements of the Landfill Directive

- By 2010 to reduce biodegradable municipal waste (BMW) landfilled to 75% of that in 1995
- By 2013 to reduce BMW landfilled to 50% of that in 1995
- By 2020 to reduce BMW landfilled to 35% of that in 1995

The Landfill Directive targets only refer to municipal waste rather than waste in general. Since the majority of wood waste comes from the commercial and industrial waste streams and only a small proportion comes from the municipal waste stream, principally Civic Amenity (CA) sites, the Directive has limited relevance here. However, the Directive's targets will be the stimulus for a large increase in the amount of recycling and composting activity, which will have some synergies with the wood recycling industry. Once some of the other wastes are removed from the municipal waste stream Local Authorities will increasingly be looking to address wood waste, which is biodegradable. Box 2 shows the overall statutory targets for Local Authorities for the municipal waste stream. Each authority has a specific target based on historical recycling rates for that Authority. The early emphasis by Local Authorities has been on any recyclable material but the emphasis is shifting towards green waste collection and composting activities in order to fulfil the Landfill Directive.

Box 2: Statutory targets for Local Authorities

- To recycle or compost at least 25% of household waste by 2005
- To recycle or compost at least 30% of household waste by 2010
- To recycle or compost at least 33% of household waste by 2015

The Strategy Unit has produced a paper called *Management of Wider Wastes* (i.e. non-municipal) which is on their website at www.strategy-unit.gov.uk/2002/waste/downloads/wider.pdf . Although there is a target for the reduction of commercial and industrial waste in *Waste Strategy 2000*, there are currently no statutory targets. Policy for 'wider wastes' is likely to develop further in the future.

The £140 million Waste Minimisation and Recycling Fund is being used to deliver additional recycling and waste minimisation capacity to Local Authorities in 2002/03 and 2003/04. Private interests would need to be partnering Local Authorities in some way to access the Fund. The Strategy Unit has recommended that the Fund continues and that opening it up to the private sector is considered but no decisions have yet been made about this. There is also a £50 million New Opportunities Fund (a lottery fund) for community sector recycling. Envirowise is a government programme dedicated to helping companies become more competitive and more profitable by reducing waste at source. However, as

WRAP is targeting wood waste as one of its priorities, most knowledge and experience in this area is likely to be centred here.

The Waste and Emissions Trading Bill will set up the system of tradeable landfill allowances for biodegradable municipal waste. The incentive to reduce biodegradable waste should be a driver for the development of different options for processing or disposing of municipal waste, including timber waste, and the wood waste industry may piggy-back on those. This may lead to the market for recycled wood having surplus supply in the short term.

Another major driver behind increased recycling is the Landfill Tax. The tax is currently on line to reach £15 per tonne but the Government has announced that it will consult on a proposal to raise the escalator so that it would go up by £3 per tonne a year, reaching £35 per tonne by 2016. Landfill Tax is used to fund the Landfill Tax Credit Scheme that can be a source of funding for recycling activities. The scheme is currently being reformed. Although about 80% of those consulted about the scheme wanted to keep it as it was, most also recognised that it was not delivering strategically targeted funding of waste management and there is no mechanism for evaluating what effect the funding has had to date. The proposed changes would mean that one third would remain as a fund for environmental projects while the other two thirds would be used to fund sustainable waste management. What this will mean in effect is still to be finalised.

Another European Directive that is acting as a driver for waste management is the Packaging Directive. The Directive is currently under review and targets for the period 2002-2008 are under discussion but the Environment Council reached political agreement on a Common Position in October 2002. This envisages, among other things, a material specific target for wood packaging of 15%. The review of the Directive is expected to conclude in 2003.

The Waste Resources Action Programme aims to create markets for recycled waste and has a crucial role to play in promoting recycling. The speaker from WRAP will elaborate on its work.

Energy can be recovered from wood waste using advanced conversion technologies. Anaerobic digestion is not particularly good for processing wood but there is more potential for pyrolysis and gasification. How widespread these become depends on what sort of value can be added to wood waste in other applications and how quickly the technologies are introduced. The Government's policy on incineration is that it is an acceptable form of disposal if properly controlled. However, government would like to see incineration used for residual waste after recycling and composting are maximised – so where useful applications for wood waste are found these should take priority over incineration.

Waste and Resources Action Programme's wood recycling programme

Liz Morrish, Waste and Resources Action Programme (WRAP)
The Old Academy, 21 Horsefair, Banbury, Oxfordshire, OX16 0AH

The Waste and Resources Action Programme (WRAP) was launched in November 2000 with the first staff in place in January 2001 and the first business plan launched in June 2001. WRAP has been established to promote sustainable waste management, with a particular focus on creating stable and efficient markets for recycled materials and products. WRAP is a not-for-profit company in the private sector.

WRAP has substantial government funding, with £40 million from DEFRA, the DTI, the Scottish Executive, the Welsh Assembly Government and the Northern Ireland Executive. This funding is for an initial three-year programme till the end of March 2004. We have more recently been awarded further support from the Aggregates Levy Sustainability Fund. This is providing £15.5 million for a two-year programme from April 2002, allowing us to establish a specific aggregates programme as part of our work.

Sustainable waste management is one of the biggest challenges faced by our modern economy. Britain currently produces more than 400 million tonnes of waste each year and the majority of this is sent to landfill for disposal. The Government has recognised that this isn't sustainable and has introduced a set of demanding targets to reduce the amount of waste we produce and to increase recycling and reuse. WRAP has a key role to play in helping to meet these targets. Our aims are to promote sustainable waste management, achieve a step change in recycling, create stable and efficient markets for recycled materials and products, and return secondary resource materials back to the productive economy. WRAP operates on both the supply and demand sides of the market in order to create market confidence, create a critical mass of demand, improve the economics of recycling and deliver sufficient high quality materials to recyclers. Five of our programmes are focused specifically on material streams – paper, glass, plastic, wood and aggregates. In addition to these we have three more generic programmes of standards and specifications, procurement and financial mechanisms.

Now to look in more detail at WRAP's wood recycling programme. Current activities include a series of research and development projects which are key to developing markets for recycled materials and products. Six projects are being funded including a project with the British Furniture Manufacturers Association. This work is evaluating the recycling options available to furniture manufacturers for the wood waste they generate. A good practice guide will be produced so that furniture manufacturers can identify the options for recycling, in terms of costs, types of wood waste produced and so on.

One of the first pieces of work we commissioned was a wood market study and standards review. This work was to provide a picture of the wood recycling industry in terms of amounts and sources of wood waste, barriers to increased recycling and markets for wood waste. This work consists of three reports. The first is by Excelar looking at amounts of wood waste in the municipal waste stream. The second is by TRADA and has looked at sources and volumes of wood waste, current and emerging end markets and barriers to greater levels of wood recycling. The third report by BSI, the British Standards Institution, focused on whether standards and specifications relating to wood and wood-based products discriminated against the use of recycled and reclaimed wood. These reports are nearly complete and will be published within the next month or so. The reports will be available free of charge from the WRAP website.

Another area of the current programme is the grant funding competition. A competition was launched at the end of 2001 and applications were invited from the wood recycling industry. Two areas were targeted - firstly the panel board industry, as the largest user of wood waste, and secondly other applications, for example the production of animal bedding and mulches. Applications were received and assessed and

contracts for this support are currently being negotiated. The support will increase wood recycling levels in the UK by increasing the reprocessing capacity and developing higher value end markets.
A final area of our current programme has been a feasibility study into the supply chain for recycled wood products. This study was to design a marketing initiative to incentivise demand for recycled wood products particularly targeting the public sector and the construction industry.

I would now like to look at the future strategy of the WRAP wood recycling programme. During summer 2002 we consulted with representatives of the wood recycling industry in order to evaluate its current status, identify the barriers for developing markets for wood waste and to develop WRAPs future activities.

The UK wood recycling industry is still relatively young and is currently developing and expanding. We have estimated that that approximately 750,000 to 800,000 tonnes of post-consumer wood waste was recycled in the UK in 2001. Ninety percent of this material was used by the panel board industry. Other end markets include production of animal bedding, mulches and surfacing products. These are seen as higher value end markets with the material attracting a much higher price per tonne. For example, a retail animal bedding product could get £300 to £400 per tonne in comparison with approximately £20 to £30 per tonne for wood waste supplied to the panel board industry. WRAP wants to see overall wood recycling levels increase and envisages that a lot of this growth and expansion will be in the higher value end markets. Through the consultation we have done and the work we are currently delivering, we have been able to identify a range of barriers to increasing wood recycling levels and developing markets for wood waste.

- *Dominance of lower value end markets* Nearly 90% of wood waste that is recycled in the UK is used by the panel board industry. This is clearly an extremely valuable and important end market for wood waste but isn't currently high value. This means that once the collection and processing costs and the price paid for this material are taken into consideration, it isn't always possible to recycle wood waste economically.

- *Limited availability of end markets* There are only a handful of end markets available and they need to expand to enable higher levels of wood recycling to be achieved.

- *Transport costs and collection and reprocessing infrastructure* These barriers are linked to the previous two. Some areas of the UK lack adequate services and facilities for wood recycling, for example there are many collectors and reprocessors in the north-west due to their closeness to the panel board mills but areas in the south-east are not as well served.

- *Lack of end markets for treated wood* Most wood waste that is recycled will be clean packaging wood. There is currently a lack of options for treated wood such as railway sleepers.

- *Lack of consumer knowledge and positive interest in recycled wood products* From the feasibility study we have done it is clear that consumers aren't aware of the availability of recycled wood products and aren't currently purchasing these products.

- *Limited supply infrastructure for added value recycled wood products* There is a concern that if demand increases significantly for recycled wood products the industry would not be able to meet this in the short term.

- *Demand principally focused towards wood packaging* Most of the wood waste that is recycled is clean packaging wood but many other types of wood waste aren't collected and recycled to the same extent and we will still be heavily reliant on landfill.

- *Wood waste as a source of renewable fuel* With new government legislation requiring energy producers to source a proportion of their energy from renewable sources, this has resulted in increased interest in biomass, and therefore wood waste, as a renewable fuel. There is a concern within the wood recycling industry that in the short term this could have a negative impact on wood recycling levels. This is due to sources of collected and processed wood waste being utilised as a fuel source rather than being recycled.

- *Reclamation sector.* It is thought that a great deal of wood reclamation occurs but the sector consists of many, small organisations operating in their local area. Many producers of wood waste aren't aware of the opportunities to reclaim wood and these possibilities need to be promoted.

- *Specific wood recycling target.* At the current time there isn't a specific wood recycling target in the Packaging Waste Regulations. Many believe that if there was a specific target then wood recycling levels would increase, as has happened with other materials.

From identifying these barriers we have developed our vision for wood recycling in the UK in future years.

- We want to see higher value markets established, growing and sustainable. These will include current markets such as animal bedding and mulches as well as emerging markets such as wood-plastic composites. These markets will be in addition to the panel board market that will continue to provide a crucial market for wood waste.

- We want to see a more comprehensive collection and reprocessing infrastructure. This will ensure wood waste can be collected and processed from all areas of the UK.

- We want to achieve an increased and sustained demand for recycled wood products. With an increased demand there will need to be an increased supply, ensuring wood recycling levels increase.

- We want to see the industry and supply chain become more efficient and sophisticated, in terms of trading relationships, processing techniques and so on.

We are proposing the following actions to achieve this vision.

- Our grant funding support will help to increase reprocessing capacity for wood waste in the UK.

- The research and development projects we are funding will provide information on new uses and markets for wood waste as well as enabling current markets to grow and expand.

- We want to carry out more targeted technical and market research, for example assessments of the higher value end markets and specifications to supply material to these markets. This will help businesses make informed investment decisions.

- We hope to deliver a marketing and promotional initiative to help incentivise demand for recycled wood products. Linked to this is a chain of custody and labeling system for recycled wood products.

- We will continue to work closely with the industry, for example the Wood Recyclers Association and the Wood Panel Industries Federation, assisting the industry to develop and grow stronger. We also hope to develop data and information collection systems to enable accurate and reliable information to be available on wood recycling in the UK.

SESSION 2 - USES FOR WOOD WASTE

Using wood waste in chipboard manufacture

Richard Coulson, Kronospan Ltd
Chirk, Wrexham, LL14 5NT

Kronospan Chirk is one of 24 companies in the Kronospan group and has an annual turnover of more than £1 billion. The company's products include chipboard (both standard and furniture/superfine grade), tongue and groove flooring, various grades of MDF and melamine-faced panels. It has a 40 ha site that has various facilities and in 2002 it used in excess of 1 million tonnes of timber, both sawmill residues and recycled wood fibre (RWF). In 2002, approximately 250,000 tonnes of recycled wood fibre were used. Recycled wood fibre refers to clean white softwood chips with a chip size of approximately 50 mm. There must be less than 5% fines, that is material that will pass through a 3mm screen, and a moisture content of less than 25%. There can be no contaminated timber or MDF and all material received must be free from foreign bodies such as metal, stone and plastic.

The process of recycling begins with the recycled fibre entering a cleaning plant. Kronospan has spent approximately £10 million on various plant to clean the waste wood before it enters the production process. The cleaned wood is then chipped, dried and sifted to produce the appropriate size chip for the core layer of the board. The RWF is then mixed with various additives and sandwiched between two layers of sawdust before entering the chipboard press. The material is subject to high pressure and temperature within the press that results in the ratio of the initial material entering the press to the final end product being eight to one.

There are a number of problems with using RWF. The quality of the starting materials varies enormously and there are serious problems with contamination. Kronospan has invested heavily in cleaning technology. However, there is a need for further education at the bottom of the recycled wood supply chain and it is important to work with suppliers to get a better quality starting material. MDF cannot currently use recycled fibre as quality cannot be guaranteed.

In conclusion, RWF is not a clean material. Although the company has produced specifications for the material it needs consistency is not guaranteed. Kronospan has made a considerable investment in RWF and has the capacity to use more but the quality of the starting material must improve.

Questions
There were many questions to the speaker. The issue of the Packaging Recovery Note value, which is currently realised by Kronospan rather than the timber recycling companies, was raised. A question on hardwoods revealed that Kronospan can accept about 20% hardwood in the waste wood, but it increases wear on the machinery blades. Questions were raised on the maximum amount of waste wood that Kronospan can use; currently, the company uses 250,000 tonnes, but the machinery could process up to 350,000 tonnes. The main factor is the amount of board that can be sold, but also the issue of cleanliness of the recycled material. At present, 60% of the raw material for chipboard is recycled wood; this could be increased to 70%, but no further because otherwise the product would lose the Forest Stewardship Council label. There is no technical reason why chipboard could not be made from 100% recycled wood, but there is quite a way to go to achieve this. The next stage would be to move on to using recycled wood fibre in MDF.

Timber recycling at a small to medium-sized recycling company

Barrie Marshall, Huntingdon Recycling
Woodhatch Farm, Thrapston Road, Ellington, Huntingdon, Cambridgeshire PE28 0AE

Huntingdon Recycling is a small concern that recycles wood waste at a site at Brampton Woods. It began by buying and selling timber through a tree surgery business. It then started to chip brushwood and from that developed a horticultural side that produces compost that is sold as a soil improver. Three years ago the company recycled 1,000 tonnes of green waste. In 2002 it recycled 8,000 tonnes of green waste including 1,000 tonnes of wood waste.

The timber that is processed comes mainly from the packaging industry (pallets, crates, etc) and from local authority sites, though in the latter case this is often 'dirty' wood such as fence posts and old furniture. A lot of the material is shredded and sent out for chicken and turkey litter and to the board industry.

There are a number of problems with the processing of timber. The incoming material must be shredded and any nails or other contaminating items removed. There is currently a real problem with metals damaging the processing machinery and it is important that suppliers are educated about this issue. It is also important that revenue from PRNs should go to the recyclers rather than just the end users of the woodchips. It is also felt that there will be a problem of overproduction in the next few years. This will mean having to cut the price for taking recycled material. The use of recycled material for turkey and chicken litter is potentially lucrative. There are also outlets for 'dirty' timber which can be used for horse race tracks and dog kennel runs. Sawdust from 'dirty' wood can also be used for cattle bedding. This has become more valuable since the price of straw has risen rapidly in the last year.

Looking at the future, there is some opposition to recycling from within industry. In particular, skip companies are reluctant to spend time sorting out timber in skips. It is vital that new markets for recycled timber are found because the price of recycled timber will inevitably drop. The fact remains that millions of tonnes of wood is still going into landfill.

Questions
In response to a question about the scope of the market for "dirty" wood, the speaker pointed out that there was a lot of competition from other materials (e.g. shredded rubber tyres) in the suitable markets.

Making mulch from wood waste

John Jardine, County Mulch Ltd
The Watering Farm, Creeting St Mary, Ipswich IP6 8ND

County Mulch has been in existence since 1985 and has its roots in the farming sector. It is a privately owned company and produces bark and woodchip products for the landscaping industry at two sites in Suffolk. Raw material for bark products may come from as far afield as Spain and Estonia. The company also composts organic and green waste and reprocesses wood packaging.

County Mulch's composting operation takes place at its sites at Stanton and Creeting. At Stanton it processes 25,000 tonnes of waste a year and works in association with St. Edmundsbury Borough Council and Forest Heath District Council. At Creeting it processes 10,000 tonnes of green waste and 5,000 tonnes of packaging waste each year. In 2003 the company aims to process 45-50,000 tonnes of green waste at both sites. It is trialing the use of the resulting compost for the cultivation of mushrooms. Bark products are used as surface mulch, soil conditioners, growing media and playground materials. Timber that arrives at County Mulch is sorted by hand which is a laborious but necessary process because of real problems with contamination. No demolition timber is accepted for reprocessing. The material is stored and then chipped. County Mulch also takes in sawdust, woodchip and tree surgery waste. The main end product is landscape mulch that is worth between £5 and £30 per cubic metre. It can be used for golf course pathways, horse arenas and trails. County Mulch produces 150,000 cubic metres of mulch for the landscape and amenity markets and is a major national supplier of bark products and its Greentop range of recycled products. The company plans to increase the use of recycled materials as a substitute for traditional ones.

Questions
In response to a question on "dirty" wood, particularly from Local Authority Civic Amenity sites, the speaker responded that the company could deal with dirty wood, and he believed that there was a large market for compost, with the agricultural sector having an important role to play.

SESSION 3 - MAKING TIMBER RECYCLING WORK

Recycling timber at Civic Amenity sites

Mark Shelton, Cambridgeshire County Council
Shire Hall, Castle Hill, Cambridge CB3 0AP

Cambridgeshire County Council has been undertaking a trial looking at the recycling of timber and wood waste. The trial was started as a result of the tough recycling targets that are currently in place. The Government target set for Cambridgeshire was 28% recycling in 2003/4 but the Council decided to go for a Public Service Agreement so the target increased to 33%. This was broken down into targets of 25% recycling for District Councils (which includes both doorstep collections and bring sites) and 65% recycling at Household Waste Recycling Centres (HWRCs), giving an average of 33%. A Waste Analysis survey was conducted by AEA Technology to establish the types and amounts of waste, including timber, taken to HWRCs. For the analysis, waste was collected from 50 visitors at two sites (the county's busiest and least busy sites were chosen) on a weekend and a weekday in June and November. From this it was concluded that timber made up 12-20% of material at HWRCs while garden waste accounted for 19-28%.

The county's HWRCs are run by contractors and, while the previous contracts included a flat rate fee for every tonne recycled, we have recently put in place new contracts with incentives for more recycling. If less than 55% of the waste is recycled, a penalty is incurred by the contractee. A recycling rate of 55-60% generates a bonus, whilst a recycling rate of over 60% earns an enhanced bonus. Driven by these contracts, the Council was asked by the contractors running HWRCs to investigate possible new recycling initiatives. Cambridgeshire County Council is keen to recycle anything it can find a market for at a reasonable cost. We received a speculative approach from a company called Pallets Unlimited, who were seeking new sources of recycled timber and we jumped at the chance! We decided to run a trial using Pallets Unlimited who provide recycled woodchip for chipboard manufacture. At the same time we discovered that one of our compost contractors, Huntingdon Recycling, were taking pallets from local companies and they were also keen to run a trial. They were using recycled timber largely for animal bedding such as turkey litter with some being composted. So we decided to run a trial using these two companies. We felt a trial was necessary to assess potential costs, ascertain likely tonnages, see if the material specifications could be met and see if the markets were sustainable. In particular we were unsure whether we could collect the right quality timber from the public or whether we would get a lot of rejected loads. A problem is that the general public see HWRCs as rubbish tips rather than recycling centres and occasionally centres have to be closed because of this.

The trial scheme was undertaken at two sites, Alconbury and Thriplow, starting in September 2001. Forty-cubic-yard skips were provided exclusively for timber. In both cases these were skips that were reallocated from general waste so there were no problems with extra space being required. A detailed material specification was provided to site managers and the scheme was publicised in the local press and radio. The Alconbury site accepted chipboard (in limited quantities), treated wood (e.g. creosoted), hardwood and softwood. The material from Alconbury went to Huntingdon Recycling for use in animal bedding and compost. The Thriplow site had a tighter specification for the material they would accept, taking primarily white softwood, including wood with some metal contamination such as hinges and nails. Material from Thriplow went to Pallets Unlimited for use in chipboard.

The material collected during the trial included fence posts and panels, bits of garden sheds, doors, DIY offcuts and broken wooden furniture. After one year, we had collected 104.22 tonnes of timber at Alconbury. The total cost of recycling the material was £3,367.35, or £32.31 per tonne, and we increased the recycling rate for the site by 2.9%. The cost of disposing of this material to landfill from Alconbury would have been £45.13 per tonne (£15.81 per tonne for transport plus £16.50 per tonne gate fee at the landfill site) or £4,733.04 for the 104.22 tonnes collected. Recycling the timber therefore saved

£1,336.10. At Thriplow, we collected 89.24 tonnes of material which cost £3,964.55 to recycle, or £44.43 per tonne, and we increased the recycling rate by 1.7%.
The cost for landfilling from Thriplow is £47.81 per tonne (£36.21 per tonne for transport plus £8.24 per tonne gate fee) or £4,266.56 for the 89.24 tonnes collected. Recycling the timber at Thriplow therefore saved £302.01. Overall, the results of the trial were that recycling the timber saved 27% in landfill costs and gave a nearly 3% increase in recycling rate.

The results from Alconbury were best since there was a less stringent material specification there and transport costs to Pallets Unlimited (who took the material from Thriplow) were rather high since the company is located in Hertfordshire. We only had one load rejected throughout the trial and there were no problems with markets at the time, although we have since heard that the chipboard market is getting squeezed. The staff running the sites got higher bonuses and we had no space problems, having reallocated a skip from general waste. Of course, if we had needed a new timber skip there would have been extra costs for skip rental.

The scheme has now been expanded to all nine of the County's Recycling Centres that are operated under standard contract (there is one more that is operated under a design, build and operate contract). We have negotiated gate fees with two composters, Huntingdon Recycling and Donarbon. Huntingdon Recycling produce animal bedding, chipboard and compost while Donarbon are trialling garden and foothpath material as well as chipboard and compost. We are planning more press releases to promote the scheme and to date have collected nearly 500 tonnes of timber. The plan is to increase the county's recycling rate by at least 3.0% through timber recycling. However, the AEA Technology waste analysis showed that around 12% of waste brought to HWRCs was timber but that recycling has only increased by a quarter of this. At the time we did not ask for a breakdown of timber types and so we will ask for another analysis of the types of timber being discarded at HWRCs to see if there is further scope to increase timber recycling rates.

Questions
In response to a question, the speaker clarified that a £4 million grant recently awarded to Cambridgeshire County Council was specifically for kerbside green waste collection. Speaking about the analysis of material brought to Civic Amenity sites that the Council had undertaken, the speaker said that they had not recorded the type of timber items that were brought to the site in this study, but that this would have been useful information to collect.

The Brighton and Hove Timber Recycling Project

Richard Mehmed, Brighton and Hove Timber Recycling Project
Units 32-36, Municipal Market, Circus Street, Brighton, BN2 9QF

The Brighton and Hove Wood Recycling Project was set up in 1998 with the aim of rescuing and reusing as much wood waste as possible. It is a not-for-profit company that is low tech and low capital intensive. Prior to this scheme no wood recycling was carried out in the area. There was not even any reliable information on how much wood was potentially available for recycling. It was clear, however, that there was a huge amount of wood packaging waste generated by the commercial sector, a great deal in the domestic waste stream and a large amount produced by the building industry.
The working practices of skip companies meant that it was not cost-effective to sort wood waste once it had been put into a skip and mixed with other rubbish - it is cheaper to landfill it than separate it. The Project set out to collect wood directly from building sites, charging less than the equivalent cost of a skip. This way, builders had the financial as well as environmental incentive to recycle. In other words, the Project provides the cheapest form of wood waste disposal – it has to compete.

The material collected from construction sites is sorted by hand and graded. Grade 1 is large pieces of clean, sound timber such as long lengths, sheet materials, doors and window frames and anything potentially useful for DIY. Grade 2 is also sound timber but perhaps too short or small to be easily used for DIY. This, however, could be used for making a whole range of wood products and the Project has developed the wood "Marque". This symbol could be placed on all items made from recycled wood and would help raise awareness amongst consumers. Grade 3 is poorest quality timber, such as broken pallets and offcuts. Representing the largest part of the wood waste stream, the Project's long-term aim is to see Grade 3 wood used as a fuel. This would result in only the most contaminated wood being sent for landfill. Early on, it was clear that there was a market for recycled timber, so the Project opened the WoodStore, the country's first, and still the only, timber merchant selling only recycled wood. The store has been a great success and now takes between £1,500 and £2,000 per week. Many local woodworkers are using Grade 2 timber to craft all sorts of items and the Project also sells a large amount of firewood/kindling in the winter so much of the poorest quality timber is already being diverted from landfill. In fact up to 85% of the incoming wood is successfully reused.

Apart from a few small setup grants the Project is entirely financially self-supporting. The entry costs for this kind of project are very low, making it good for the community sector. It brings many benefits by reducing waste and saving resources, creating relatively low skilled but highly worthwhile jobs, providing a source of low-cost wood for the community and by having a low environmental impact. The project currently has a turnover of £120-130,000 a year and employs six people. Since its launch, 3,000 tonnes of wood have been recycled but the most exciting thing is that the Project is fast becoming a model for similar schemes around the country. Several have already set up and our aim is to help many more over the coming years. That would result in a lot of resources saved, a lot of jobs created and a lot less wood ending up in landfill.

Making timber recycling work – opportunities and barriers

Toby Beadle, Urban Harvest Ltd
Featherstones, Tunstall, Wolsingham, Co. Durham, DL13 3LX

Urban Harvest Ltd. is a marketing company specialising in the recycled sector. We establish recycling operations for clients throughout the UK and develop and launch recycled products. Our experience includes working for WRAP in the design of a recycled wood marketing initiative and also liaising with multiple retailers. We are also currently working for the Forest Stewardship Council on revising their protocols and labelling regime for products that have up to100% recycled content.

Out first message is to counter the impression that the expansion of recycling in the UK is limited by lack of markets. This is not the case. What is limiting the expansion of recycling is the lack of marketing, defined as linking together supply and demand. It is obvious to all that there are endless markets for quality products and we have to stop thinking about recycling waste and start to think about creating quality products for established markets, possibly using waste as a raw material. As an example of expanding markets in the UK, that for horse bedding currently stands at approximately £90 million per annum and the use of peat is about 6.5 million cubic metres per annum. Both of these are examples of markets that can be penetrated by quality products made from recycled raw materials.

We never fail to be surprised at the amount of funding that is awarded to Local Authorities and other recycling operations without the inclusion of marketing as an essential element. The funding awarded to green waste collection is a good example of stimulating the supply end of a chain without any attention to where the products that are created will find a marketplace. Our proposal is that all funds awarded to recycling projects must include an element of marketing. The proposal submitted must include a marketing plan and 10% of the funds awarded should be allocated specifically to marketing.

Timber recycling is a diverse industry and includes products ranging from whisky barrels and sleepers in the garden through reused furniture, reclaimed demolition materials, reconstructed pallets and crates, wood chip for the horticultural industry, wood pellets for energy and green waste for compost. Recycling activities include collection, sorting, processing, manufacturing, marketing and delivery. However it is our firm contention that recycling is not completed until those products that have been collected and sorted have been processed into a product, sold, delivered and paid for. Too often these days recycling is confined to collection and possibly sorting with no attention paid to the manufacturing, marketing and delivery of the products.

Those involved in timber recycling may include Local Authorities, communities, charities, industry and partnerships of the above. Their motives include legal compliance, EU and government targets, community benefit and profit. What unites them all is the desire to increase the amount of recycling activity and the need to survive. Survival can be defined as achieving revenues that exceed costs. It doesn't matter if this is defined as profit or not, it is certainly essential to survival. Survival in the wood recycling sector today depends on a complete understanding of the economics of recycling. The sources of income are unusually diverse and include grants from such organisations as WRAP, the Landfill Tax Credit Scheme, the National Lottery and DEFRA.

Another source of income is gate fees that can be charged to those that wish to dispose of wood waste. Gate fees are usually set at a level that is just below the cost of landfilling the same material. The level of gate fee for wood waste in the UK varies considerably from zero to £20 per tonne. Cost for landfilling wood waste include landfill tax, currently at £13 a tonne, tipping fees and transport, and collectively these may exceed £40 a tonne.

A further and very important source of income are Packaging Recovery Notes, which can be claimed by those who are producing products and are registered with the Environment Agency as reprocessors. In 2002 the sale of wood PRNs peaked at £30 per tonne but it has recently dropped back to no more than £20 per tonne. Adding together fees and PRN revenues we have a positive income of £40-50 per tonne before the raw material is actually processed. Product sales income can vary from approximately £25 per tonne for woodchips delivered to chipboard mills, on which many do not receive PRN revenue, to £150 per tonne for added value products, to which PRN revenue can be added.

It is difficult to see how with such diverse sources of positive income any wood recycling operation can fail. However, fail they do, and a further look at the barriers and opportunities, both local and national, will help us to avoid such failures in the future.

Local barriers and opportunities in eastern England are of course geographical. The chipboard mills, which constitute 90% of the market for recycled wood chip, are mainly located on the western side of the country, which means that delivery from Eastern operations can be costly, as much as £15 per tonne from a total sales revenue of £25 per tonne. Furthermore, wood recycling activities in East Anglia are limited by the lack of large scale industrial or demolition activity. There are no large industrial conurbations to compare with Newcastle, Liverpool or Glasgow, each of which results in recycled wood volumes in excess of 100,000 tonnes per annum. The lack of wood recycling activity in itself restricts growth, in that momentum is not created nor is the awareness of wood recycling. Large-scale recycled wood consuming industry will not be attracted to East Anglia if the raw materials are not available.

The opportunities for local wood recyclers include the fact that added value markets, with higher sales revenues, can stand the extra haulage costs to distant markets. There are local added value markets in the agricultural and horticultural sectors, including compost, mulch and bedding products. There is a local gardening tradition and local gardeners are relatively affluent compared with those further north, so there are good local markets for compost and mulch. There is in East Anglia a local biomass energy market centred on available supplies of poultry manure. This has the capacity for expansion because of the availability of forestry and agricultural waste, to which can be added the much drier recycled wood waste, which improves the efficiency of the combustion operation. There is a local opportunity to join together with skip hire operators or pallet reclamation yards both of which have strong synergies with wood reclamation. There is also a local opportunity in the contract hire business for mobile wood shredding or chipping machinery. Such machinery can be hired out for approximately £1,000 per day, which makes it a good business to get in to.

Turning to national barriers and opportunities, supplies of raw material are limited by the fact that wood recycling is a relatively new activity without a lot of understanding in the manufacturing sector. Wood recycling suffers from low profitability, which is a result of over-dependence on the chipboard market. This market features falling prices, periodic restrictions on delivery, few written contracts and ever-increasing quality requirements, necessitating huge investment. Opportunities in this area include wood recycling operations working together to address nationwide issues such as retailing chains looking for a one-stop solution to the collection of their wood waste. Wood recyclers must also be aware of the distinction between being involved in producing a commodity product in high volumes, such as woodchips for chipboard mills, where the minimum weekly throughput must be at least 250 tonnes per week to justify a capital investment of over £100,000, and working at the high value, low volume end of the market.

Much of Urban Harvest's work is to achieve diversification for those who are dependent on the chipboard market. In seeking to add value, recyclers should go for quality and seek source separation, or separate as waste wood arrives at the plant. Added value products require quality raw materials. In order to overcome the insecurity in the chipboard sector recyclers should focus on negotiating contract commitments with the mills. Such commitments are available to the suppliers to the paper sector, where raw materials are

not dissimilar, and there is no reason why this security should not be offered to suppliers to the chipboard mills. Those who seek diversification into value added products should be aware of forthcoming campaigns to promote recycled products. These campaigns are being funded by WRAP and Becker Underwood, an American producer of colourants for recycled wood chips.

Turning to the barriers and opportunities generated by grants, fiscal effects and legislation, recyclers should attempt to maximise their opportunities, However, the grants are very complex and some have limitations, such as those from WRAP who will not support investment in the newly emerging biomass market. This seems a shortsighted decision.

A further barrier may be created by the fact that the Environment Agency is reviewing the exempt status of wood recycling under the waste management regulations. Any change in this status could result in vastly increased costs in meeting new regulations. This seems totally unjust, since wood waste presents no threat to the environment in being processed from solid to woodchip form. Wood recyclers should work together to lobby for change and to resist punitive legislation. This is best achieved by joining the trade association, the Wood Recyclers Association, which is locally based but has less than 18 members at present. Wood recyclers should prepare for the effect of the increases in the Landfill Tax, which will drive increasing volume, particularly poor quality demolition waste, into the recycling stream. Wood recyclers should negotiate hard for some of the PRN revenue achieved by the chipboard mills to be returned to the raw material suppliers and/or they should register as reprocessors with the Environment Agency to enable them to issue and sell PRNs for products created from packaging waste. It is worth considering paying more for packaging waste or at least reducing the gate fee for a product that has the potential to generate a positive income of £30 per tonne through PRN sales.

Public perceptions may also pose barriers. Most people still regard recycling as somebody else's problem and consumers regard recycled products as low quality, second-hand and made from waste and that they should therefore be cheaper than new products. In other words there is no automatic green premium for recycled products. It is a common mistake that producers of recycled products expect them to sell, on the basis that they are recycled, without paying sufficient attention to the requirement for quality, sustainable supply and realistic pricing. It is often demanded that the public should be educated to undertake recycling or buy recycled products. I am extremely sceptical about such campaigns, remembering others such as the "Buy British" campaign, which had very little lasting impact on the general public. We should think very carefully about how long such a campaign should take, whether it will work at all and who would pay for it. I would prefer to see the enforcement of green procurement policies on government departments, public buildings and local authorities, where the desire to see more recycling is often expressed and there may even be recycling bins beside each desk. However, there is no enforcement of policies to purchase products with recycled content. Addressing this issue seems unnecessarily difficult.

Finally, I would like to look at four added value products as an example of what might be achieved. There are five manufactures of coloured mulches in the UK. They supply a market of currently 60,000 cubic metres per annum. There are two manufacturers of fuel pellets from wood waste in the UK with a total potential output of only 10,000 tonnes per annum yet the newly emerging biomass market for renewable energy has almost unlimited potential. There is one new manufacturer of wood plastic composites who is producing a decking product made from 50% recycled wood combined with 50% recycled plastic. This is a very large market in America and there is huge potential in the UK for decking material for canals and mariners and for car interior panels. There are no UK manufacturers of pre-formed pressed woodchip products, which are currently manufactured in Europe.

Taking coloured woodchip as an example of an added value product, it is possible to compare the commodity price for this with the price for woodchips delivered to a chipboard mill. The delivered value of chips at a chipboard mill is approximately £25 per tonne, from which must be deducted delivery costs of say £15 per tonne, leaving a net revenue of £10 per tonne for the basic woodchip. A similar calculation

applied to coloured mulch shows a revenue of £150 per tonne with an added £20 per tonne of PRN revenue, giving a total income of £170 per tonne. The cost of converting a basic woodchip into a coloured mulch is approx.£115.25 per tonne leaving a net revenue of £54.50 per tonne, something like five times the net revenue of selling to chipboard mills.

In conclusion, timber recycling is a relatively young industry with something like 100 operators scattered across the UK. There is much benefit to be gained from working together in terms of achieving influence, attracting grants, developing new markets and learning from one another. There are a number of available associations and sources of help, including the Wood Recyclers Association, TIMCON, the Community Recycling Network, WRAP, the Composting Association, LARAC, ENTRUST and the Timber Recycling Information Centre as well as, of course, FFI and Urban Harvest Ltd.

SESSION 4 - OPPORTUNITIES AND BARRIERS TO TIMBER RECYCLING IN THE EAST OF ENGLAND

There was an open discussion about issues raised during the meeting. A panel of Toby Beadle (TB), Richard Coulson (RC), Richard Mehmed (RM), Mark Shelton (MS) and Georgina Magin (GM) took questions from the floor.

GM gave a summary of the main issues and questions that had been raised by the presentations and discussions so far. It was clear that there were many opportunities as well as challenges. In particular there was a need for more markets, particularly those with added value. Chipboard was a successful market but more were needed. Contamination was a major problem and there was a need for education amongst collection agencies and a decision about what to do with 'dirty' timber. It was important to improve confidence about the quality of recycled products that could be done through good marketing.

MS highlighted an important issue relating to glass recycling that could have implications for timber recycling. The recycled glass mountain was now so large that alternative markets had been created, in particular for use as aggregates. This has led to an increased demand and a better price. The idea of an aggregate tax must be taken forward and in terms of timber it might be possible to promote the idea of a raw material tax on virgin timber. The idea of a packaging material tax was raised though it was pointed out that such taxes might be counter-productive as we are living in a global market. If a tax was imposed buyers might simply look to an alternative supply. Other possible financial mechanisms were discussed including exempting recycled timber from VAT.

TB raised the issue of the definition of 'recycled'. For example, what proportion of pre- and post-consumer waste does recycled include? That led to a discussion of the possible use of FSC labelling on recycled timber. The FSC label covers board materials and other products. The source would need to be verified and the chain of custody checked. There have been attempts in North America to draft various definitions of 'recycled'. There was however a concern about possible additional costs for small enterprises. In particular getting confirmation of the chain of custody would be very difficult.

There was a discussion about the current role of the demolition industry in timber recycling. RM felt that the industry was not helping by burning much of the wood that they produce, wood that could be salvaged and sold on. However, this view was disputed and it was pointed out that the industry salvaged at least 0.75 million tonnes of wood waste. It was important to work more closely with the demolition industry to promote recycling and reuse. RM felt that the industry was playing an important role in recycling and reuse but there were still many opportunities for wood to enter alternative markets.

The question was raised as to how the demolition and construction industry tackled the recycling issue in Europe. In Europe there is a four-year programme on timber waste management. It is a big issue that needs input from the construction and demolition industry. In The Netherlands recycling was driven by taxation and very strong legislation though in other countries the issue was not being tackled so effectively. A directive on demolition and construction was being prepared. MS stressed that the system was very different in Europe as it was possible to make greater investments in recycling costs because landfill costs are so much higher. It is important that the landfill tax be increased in the UK.

It was pointed out that there were problems over terminology. What was needed was packaging standards with definitions of recycling and reuse. MS pointed out that DEFRA was looking at a waste minimisation strategy and a definition of 'minimisation'. It was suggested also that the focus should be more on reuse rather than recycling. In the packaging industry the highest percentage of timber goes for recycling and the lowest for reuse. There is a high value market for reusable timber with hardwoods fetching up to £2,000 per tonne if of good quality. It was pointed out that much of the timber from demolition projects

was difficult to use because of associated ironmongery. TB pointed out that good quality machinery could sort out most of the contamination. RM commented that they sort by hand. It is a time consuming process but it does provide useful employment. It was also pointed out that pallets might also contain a lot of metal contamination.

It was agreed that education about recycling was paramount. This could focus on schools and there was also a role for the various trade organisations. Concerns were expressed about the Environment Act and the fact that wood may soon be included under this Act, which would limit the number of people who could handle it. It was agreed that it was important to try and get away from the idea of treating wood as 'waste'. There were problems with the over-enforcement of waste regulations and the fact that some wood waste was considered to be environmentally dangerous.

The issue was raised as to whether it would be possible to change the attitude that the general public were not prepared to pay a premium for 'green' products. TB felt that people were often too idealistic in this respect and it would not be possible to change attitudes within the whole population. It was more important to concentrate on products for niche markets. It was pointed out, for example, that the market for recycled paper had declined in the past 15 years. It is necessary for NGOs to relaunch recycling campaigns every 2-3 years. TB noted that no one NGO currently focuses heavily on recycling.

It was pointed out that education of waste management groups was important and was something that could be carried out through higher education establishments.

A question was raised about the use of hardwoods in the manufacture of musical instruments and whether it was possible to train people to identify the kinds of hardwoods that enter the recycling chain. RM commented that about 1% of the wood they receive is hardwood though they are not able to identify individual species of timber. There is enough wood to supply a significant amount to the instrument trade.

DELEGATES LIST

Lynn Arnold
Environment Agency
Cobham Road
Ipswich
Suffolk IP3 9JE
Tel: 01473 706761

Mark Bartholomew
Calders & Grandidge
194 London Road
Boston
Lincs PE21 7HJ
Tel: 01205 358866
Fax: 01205 312400
E-mail:Mark.Bartholomew@caldersgrandidge.com

Peter G. Baker-Brall
PJ Skip Hire
Cophall Wood
HailshamRoad
Polwgate
East Sussex
Tel:01323 488888
Fax:01323 488139

Toby Beadle
Urban Harvest Ltd
Featherstones
Tunstall
Wolsingham
Co. Durham DL13 3LX
Tel: 01388 529130
E-mail: beadle@talk21.com

Robert Blumsom
C. Blumsom Ltd
36-38 River Road
Barking
Essex IG11 0DN
Tel:020 85945175
Fax: 0208 5941089
E-mail: sales@blumsom.co.uk

Tony Bomber
Director Industrial Research and Intellectual Property
Anglia Polytechnic University
East Road
Cambridge CB1 1PT
Tel: 01223 363271 ext 2325
E-mail: t.bomber@apu.ac.uk

Peter Bramhall
Development Support Manager
Cleanaway Ltd
Ferry Lane
Rainham
Essex RM13 9DA
E-mail: PeterBramhall@cleanaway.com

James Cartledge
Letsrecycle.com
154 Buckingham Palace Road
London SW1W 9TR
Tel: 020 7823 4666
Fax: 020 78234111
E-mail: james@letsrecycle.com

Victoria Cormie
Leicestershire County Council
County Hall
Glenfield
Leicester LE3 8RJ

Richard Coulson
Kronospan Ltd
Chirk
Wrexham LL14 5NT
Tel: 01691 775383
Fax: 01691 776569
E-mail: r.coulson@kronospan.co.uk

Linda Cracknell
Old Time Timber
The Dutch Barn
Lodge Farm
Chiltern Street
Nr Clare
Suffolk
Tel: 01787 277390
Fax: 01787 278669

Mr A. Creecy
Hertfordshire County Council
Waste Management Unit
County Hall
Pegs Lane
Hertford SG13 8DN
Tel: 01992 556165
Fax: 01992 556180

Tim Cumine
Soundwood Consultant
Fauna & Flora International
Great Eastern House
Tenison Road
Cambridge CB1 2TT
Tel: 01223 571000
Fax: 01223 461481
E-mail: timburr@supanet.com

Paul Davidson
Crofton Pallets Ltd
Glege Road
St Peters Hill Industrail Estate
Huntingdon
Cambridgeshire PE29 7DX
Tel: 01480 450777
Fax: 01480 453044
E-mail:Enquires@crofton-pallets.co.uk

Ms Deidre Dudley-Owen
Norfolk County Council
County Hall
Martineau Lane
Norwich NR1 2SG
Tel: 01603 222259
Fax: 01603 222350

Barrie Edwards
Crendon Timber Engineering Ltd
Drakes Drive
Long Crendon
Aylesbury HP18 9BA
Tel: 01844 203805
Fax: 01844 201450
E-mail: Bedwards@crendon.co.uk

Mary Edwards
Friends of the Earth Eastern Region
4 Glisson Road
Cambridge CB1 2HD
Tel: 01223 516551
Fax: 01223 516550

Malcolm Filsell
Fuelsell
Willow Farm
Thorpe-next-Haddiscoe
Norwich
Norfolk
Tel: 01508 548 278
Fax: 01508 548 278

Stephen Filsell
Fuelsell
Willow Farm
Thorpe-next-Haddiscoe
Norwich
Norfolk
Tel: 01508 548 278
Fax: 01508 548 278

LP Fleckney
Larner Recycling
Lewes Works
Jute Lane
Enfield EN3 7PJ
Tel: 0208 804 1494
Fax: 0208 804 1164

Guy Foskett
GR Green
Little Springs Cottage
Lower Ufford
Woodbridge
Suffolk IP13 6DZ
Tel: 01394 461399
Fax: 01394 461250

Richard Gentry
Westside Joinery
Unit 5
Gills Hill
Bourn
Cambridge CB3 7TS
Tel: 01954 718959
Fax: 01954 718963

Nick Glover
Bywaters (Leyton) Ltd
Gateway Road
Leyton
London E10 5BY
Tel: 0208 558 1141
Fax: 02028558 5209

Steve Gould
HMYOI Portland
104 Grove Road
Portland
Dorset DT5 1DL
Tel: 01305 825733

Jim Heppel
Spitalfields Market Tenants Association Ltd
Office No6
Allen House
23 Sherrin Road
Leyton E10 55Q
Tel: 020 8556 1479
Fax: 020 8556 1033

James Hurley
Building Research Establishment
Bucknalls Lane
Garston
Watford
Herts WD25 9XX
Tel: 01923 664675
Fax: 01923 664786
E-mail: hurleyj@bre.co.uk

Joe Irwin
DW Archer (Travis Perkins)
Kiln Brooke House
Rose Kiln Lane
Reading
Berkshire RG2 0HL
Tel: 01189 311663

Camila Iturra
Global Programmes Assistant
Fauna & Flora International
Great Eastern House
Tenison Road
Cambridge CB1 2TT
Tel: 01223 579474
Fax: 01223 461481
E-mail: milly.iturra@fauna-flora.org

Gary Lee
Viridor Waste Management
2 The Square
Matlesham Heath
Ipswich
Suffolk IP5 3SL
Tel: 01473 620110
Fax: 01473 620114

John Jardine
County Mulch Ltd
The Watering Farm
Creeting St Mary
Ipswich IP6 8ND
Tel: 01449 721729
E-mail: john@countymulch.co.uk

Claire Lipop
Broadland District Council
Thorpe Lodge
Yarmouth Road
Thorpe Street
Norwich NR7 ODU
Tel: 01603 430607
Fax: 01603 701859
E-mail: claire.lipop@broadland.gov.uk

Don Lovelock
Ridgeons Ltd
Ashdown Road
Saffron Walden
Essex
Tel: 01799 583041
Fax: 01799 583039
E-mail: dlovelock@ridgeons.net

Simon Lupson
Woodwaste Services Ltd
Texmore Building
Radlett Road
Colney Street Village
St Albans AL2 2EN
Tel: 01923 855517
Fax: 01923 855304
E-mail: Slupson@wwsrecycling.com

Georgina Magin
Wood Waste Project Manager
Fauna & Flora International
Great Eastern House
Tenison Road
Cambridge CB1 2TT
Tel: 01223 579475
Fax: 01223 461481
E-mail: georgina.magin@fauna-flora.org

Barrie Marshall
Huntingdon Recycling
Woodhatch Farm
Thrapston Road
Ellington
Huntingdon
Cambridgeshire PE28 0AE
Tel: 01480 810431

Roy Martin
Bywaters Leyton Ltd
Gateway Road
Leyton
London E10 5BY
Tel: 020 8558 1141
Fax: 020 8558 5209

Paul Mathew
Global Trees Campaign Projects Manager
Fauna & Flora International
Great Eastern House
Tenison Road
Cambridge CB1 2TT
Tel: 01223 571000
Fax: 01223 461481
E-mail: paul.mathew@fauna-flora.org

Mr McEwan
Larner Recycling
Lewes Works
Jute Lane
Enfield EN3 7PJ
Tel: 0208 804 1494
Fax: 0208 804 1164

Hugh McCoach
Caledonian Shanks Centre
Drummond House (3rd Floor)
1 Hill Street
Glasgow G3 6RN
Tel: 0141 582 0450
Fax: 0141 582 0451
E-mail: h.mccoach@gcal.ac.uk

Terry McSweeney
Docherty Waste
Kiln Cottage
14 Main Street
Bourton
Dunsmore
Nr Rugby CU23 9QS

Richard Mehmed
Brighton and Hove Wood Recycling Project
Units 32-36
Municipal Market
Circus Street
Brighton BN2 9QF
Tel: 01273 570600

Simon Mickleburgh
Senior Conservation Researcher
Fauna & Flora International
Great Eastern House
Tenison Road
Cambridge CB1 2TT
Tel: 01223 579477
Fax: 01223 461481
E-mail: simon.mickleburgh@fauna-flora.org

C.R. Milner- Moore
Castlewood Holdings
The Sawmill
Wix
Manningtree
Essex CO11 2RS
Tel: 01255 870881

A.R. Milner-Moore
Castlewood Holdings
The Sawmill
Wix
Manningtree
Essex CO11 2RS
Tel: 01255 870881

Gary Moore
GM Haulage Ltd
Manor Road
Kempston
Hardwick
Bedfordshire MK43 9NT
Tel: 01234 851731

Liz Morrish
Waste and Resources Action Programme
The Old Academy
21 Horse Fair
Banbury
Oxon OX16 0AH
Tel: 01295 819900
Fax: 01295 819911
E-mail: liz.morrish@wrap.org.uk

Gordon Morris
Marlow and Co Ltd
Marlow House
Hollow Road
Bury St Edmunds
Suffolk IP32 7AP
Tel: 01284 772700

Dave Newell
Norfolk Environmental Waste Services Ltd
51 Norwich Road
Horsham St Faith
Norwich NR10 3HH
Tel: 01603 891892
Fax: 01603 891273
E-mail: news@norfolk-waste.co.uk

Sara Oldfield
Director Global Programmes
Fauna & Flora International
Great Eastern House
Tenison Road
Cambridge CB1 2TT
Tel: 01223 571000
Fax: 01223 461481
E-mail: sara.oldfield@fauna-flora.org

Derek Palmer
Clark & Kemp Joinery ltd
Units 8-10
Baddow Park Estate
West Hanningfield Road CM2 7SY
Tel: 01245 476667
Fax: 01245 474857
E-mail:
clark@clark-kemp.freeserve.co.uk

Vanessa Picton
Marshall Aerospace
The Airport
Newmarket Road
Cambridge CB5 8RX

Brigid Preston
Waste Strategy Division
DEFRA
7/E14 Ashdown House
123 Victoria Street
London SW1E 6DE
Tel: 0207 944 8122
E-mail: brigid.preston@defra.gsi.gov.uk

Eve Richards
Environment Agency
Kingfisher House
Orton
Peterborough PE2 5ZR
Tel: 01733 464417
Fax: 01733464438
E-mail: eve.richards@environment-agency.gov.uk

Jason Ripley
H. Ripley & Co
Apex Way
Hailsham
East Sussex BN27 3WA
Tel: 01323 440672
Fax: 01323 841282
Mobile: 07703 504701
E-mail: jasonripley@steelweb.co.uk

Paul Robinson
Vines Centre Trust
Vineswood House
Limehouse Wharf
Gas House Road
Rochester
Kent ME1 1PN
Tel: 01634 406245
E-mail: Paul.robinson@vinescentre.org.uk

Steven Sellars
Kendall Machinery UK ltd
Unit 6 Ham Lane Farm
Ham Lane
Slaynes Hill RH17 7PR
Tel: 01444 831008
Fax: 01444 831027
E-mail: stuart@kendallmachinary.freeserve.co.uk

Stuart Shee
Kendall Machinery UK ltd
Unit 6
Ham Lane Farm
Ham Lane
Slaynes Hill RH17 7PR
Tel: 01444 831008
Fax: 01444 831027
E-mail:
stuart@kendallmachinary.freeserve.co.uk

Mark Shelton
Recycling Officer
Cambridgeshire County Council
Shire Hall
Castle Hill
Cambridge CB3 0AP
Tel: 01223 717100
Fax: 01223 717103
E-mail:
mark.shelton@envtran.camcnty.gov.uk

Bruce Thomson
JBJ Pallets Ltd
Mushroom Farm
Hedingham Road
Wethersfield
Braintree
Essex CM7 4EQ
Tel: 01371 850035
Fax: 01371 850420

Trevor Thorogood
Thorogood Timber Plc
Colchester Road
Ardleigh
Colchester
Essex
Tel: 01206 233100
Fax: 01206 233115
E-mail: trevor@thorogood.co.uk

IngeVon Senger
University College Northampton
Park Campus
Boughton Green Road
Northampton NN2 7AL
Tel: 01604 735500
Fax: 01604 720636
E-mail:
inge.vonsenger@northampton.ac.uk

Mike Watson
Meldreth Landscapes Ltd
Merdreth Business Centre
Kneedsworth Road
Meldreth
Royston
Herts SG8 6LN
Tel: 01763 261150

Richard Williams
Clark & Kemp Joinery ltd
Units 8-10
Baddow Park Estate
West Hanningfield Road CM2 7SY
Tel: 01245 476667
Fax: 01245 474857
E-mail:
clark@clark-kemp.freeserve.co.uk

Andrew Wilson
Ridgeons Ltd
Ashdown Road
Saffron Walden
Essex
Tel: 01799 583041
Fax: 01799 583039
E-mail: awilson@ridgeons.net

Bob Wright
Gatecraft
E-mail: Gatecraft1@tesco.net