

Executive Summary

Supported by:



Timber
Industry
Environment
Trust

Implemented by:



Business Solutions Group
TRADA Technology Ltd
Tel: 01494 569600
Fax: 01494 565487

Disc

Disclaimer: While every effort is made to ensure the soundness of the advice given, TRADA Technology cannot accept any liability for loss or damage arising from the use of the information supplied.



FINAL REPORT

Executive Summary

UK timber waste: turning a blind eye – why?

Wood is a ubiquitous material in the UK. We barely give it a second thought; wood has been used by man as a material to furnish many needs since he first learned to use tools. Therefore wood has a unique status amongst the materials that are used to provide the literal fibre of today's post-industrialised society. It may be because of this unique status accorded wood that in the case of the timber we waste, we cannot see the wood for the trees.

Unlike other natural materials, wood is prized for its lack of uniformity and variance in appearance. In fact, wood is not uniform in its sources – it is the hardened growth of various families and species of plant whose only commonality is in their relatively large size, similar growth structures and lifecycles. Wood is also unique in that unlike other major material resources used in fabrication, wood is renewable – it can be harvested. Although there are emotional and genuine environmental issues concerned with the harvesting of trees, it is generally accepted that responsible forestry management means that timber is a ready source of material and should not eventually go the way of other resources, such as mined and quarried materials and fossil fuels, all of which are finite. This begs the question, why, when it is renewable, should we bother to practice careful husbandry of timber in the UK?

The answer is threefold: processing raw timber expends energy (transport, machinery, storage conditions etc.) that uses up other resources, some of which are finite; if timber is not re-used or recycled as much as possible, then it will either end up in landfill, a non-environmentally friendly and costly option, or be incinerated, which often falls into the same category; and, business could be effectively throwing money away if they view the wood remains of their processes as waste, rather than as a potentially revenue-generating resource.

This report will demonstrate that the majority of the UK timber using industries do not view such considerations as important, although some notable exceptions do exist. Overall, the UK turns a blind eye to the issue of wood waste minimisation.

Waste not, want not: sustainable development through punishment and profit

Waste, both domestic and industrial, is now a major issue for governments across the world, and the UK executive is no exception.

In the UK, recent Environmental Technology Best Practice Programme figures put overall cost of all waste to UK industry at £15 billion/year, or 4.5% of total turnover (1998 – presentation 'Waste minimisation pays'). Apart from the economic argument, there are



FINAL REPORT

also environmental and health issues to consider. A lot of our waste goes to landfill, which not only ties up potentially valuable land for a considerable period of time in a densely populated country where space is at a premium, but raises worries about harmful emissions through gas seepage. The other main means for disposal of waste, and one that applies particularly to wood, is burning. This is quite frequently done on a casual basis by individuals and organisations, and again causes concerns over potentially harmful emissions into the atmosphere.

To reduce our waste, the UK government is now committed to major environmental initiatives such as the resolves of the Rio Earth Summit and the Kyoto Protocol that prescribe approaches to sustainable development, prime amongst them reductions in pollution and reductions in the wastes that often cause pollution. To achieve these reductions, both the European Union and the UK government have turned to punitive legislation and taxation. These laws and taxes are applied to UK industry, not least the timber using industries. Landfill, hazardous emissions, and incineration purely as a means of disposal, are to be reduced, whereas waste minimisation, re-use, recycling and reclamation are to be actively encouraged and rewarded: punishment and profit. All current indications seem to be that the harshness and restrictiveness of the laws is set to increase, as are the levels of taxation. Therefore it is vital to the survival and well being of individual timber using organisations to conform to the legislation, seek to minimise both their waste and emissions tax burdens, and to maximise the opportunities to treat their wood-based wastes as resources.

Wasted time and effort

Aside from the cost of disposing of the material that is wasted, which is often perceived by industry as the only cost associated with waste, there are other factors in the production of waste that cause organisations further burdens. These hidden costs are:

- Raw material consumption
- Energy consumption
- Water consumption
- Effluent generation
- Packaging
- Time involved in dealing with waste disposal.

However, another substantial hidden cost is that of the lost potential revenue from the re-use, recycling or selling on to a third party for reprocessing of the waste. Where waste cannot be minimised or avoided at process source, it can be minimised by being recognised and used as a potentially valuable residue.

This report intends to encourage and inform UK timber using industry in particular and society in general to change its attitudes to wood waste and to embrace the waste hierarchy: avoid; reduce; re-use; recycle; reclaim.



FINAL REPORT

Wood waste minimisation: a project with web-wide scope

This research project has sought to characterise and quantify the current use or otherwise of wood waste in the UK, and to understand industry attitudes towards wood waste minimisation. It has mapped out the major flows of timber material in the UK, and gone on to chart the flows of wood waste for individual sectors. Where possible, it has quantified these flows.

The work has also addressed the nature of the UK wood reprocessing industry, and examined both its strengths and weaknesses, and considered the various factors that will shape its immediate and longer term future, such as market forces, legislation, and industry attitudes.

In the course of the work, it has been possible to collect sufficient material to create a website resource that will aid the UK timber industries to reduce their waste and go some way towards achieving the full resource potential of what remains. The website is titled the Timber Recycling Information Centre (TRIC), and is located at www.recycle-it.org. It consists of a mixture of relevant news stories on the latest initiatives in wood waste, legal obligations and advice, an education sector aimed at offering the next generation of timber consumers an understanding of the issues involved, a library of online and hard copy resources, (including an online, sectionalised version of this report), and a set of waste minimisation and resource maximisation toolkits. This web site, and the major findings of this report will be publicised through a roadshow that will involve a series of waste minimisation seminars and workshops for the UK timber using industries.

Methodology

A process of review and questioning produced this report. The review process involved a desktop survey of available printed and electronic (web-based) resources concerning the production, treatment, markets for, and ultimate disposal of wood waste in the UK. There was also a review of major international influences, to compare and contrast approaches to wood waste minimisation with the domestic situation. The review involved over 3000 separate resources, of which over 1000 have been used to in compiling this report, including private and government research figures and papers, reports on specific waste reduction initiatives, case studies, magazine articles and commercial brochures on items made from wood-based waste.

The questioning process involved contacting individuals from some 600 organisations during the course of the research, from the timber using industries themselves, universities and colleges, trade and industry research bodies, trade associations, UK wood re-processors, the Community Forests, local authorities and central government. These individuals were asked to provide figures on waste where possible, comment on current attitudes to waste production and disposal, and to highlight best waste practice and under-exploited uses for wood waste and residues.



FINAL REPORT

Findings

Overall, the project's desk research and interviews with those directly and indirectly concerned with wood waste issues revealed the following three key findings:

- There was no single source of information of waste management and recycling for timber product residue and waste materials
- There is a need to raise the profile of waste and recycling as a positive key business issue that can aid profitability
- There was a demand for help in better use of their residues and waste from the timber using industries.

The UK: a major consumer of timber – still

The UK is one of the world's major economies, currently the fourth or fifth largest in terms of gross domestic product (GDP) depending on which figures are used. Despite the recent slowing up of the world economy, the UK continues to buck the trend, and grow steadily. The UK's economic health is reflected in its annual consumption of timber products, which reached 48 million cubic metres Wood Raw Material Equivalent by the end of 2001. The UK is one of the world's largest consumers of timber, yet its forest resources are one of the smallest in Europe. The quantity and fitness for purpose of domestic timber does not meet domestic demands, and, given current trends, is unlikely to do so for many years to come. To meet this shortfall in material, the UK imports substantial amounts of timber products annually – some 70% of our needs in 2000.

This increasing in consumption with attendant timber using industry activity means that potentially, the amount of UK wood waste will increase unless there is a change in attitude by industry towards production and disposal of these wastes.

Where waste occurs – construction et al

There are many final markets in the UK for timber: construction, domestic/office/garden furniture, joinery and carpentry products, flooring, fencing and timber walls, decking, horticultural products (decorative mulches), architectural decorations, shopfittings and exhibition stands, landscape and garden buildings, bridges, pilings, telephone poles, boiler fuel, animal bedding products, pallets and packaging, toys and decorative craft items, decorative veneers for cars and other transport furniture, boat and ship building, railway sleepers, charcoal, and saw logs for domestic burning. Each of these markets produces some wood waste, but the relative size of these amounts, their nature, and the attitudes towards them varies considerably.



FINAL REPORT

The primary consumer of timber products in the UK is the Construction sector. Until recently, the Construction industry had a poor reputation for waste management. The prevailing attitude was that allowance was made for waste in pricing, and that therefore the only business issue revolved around disposal. Skip hire was considered a relatively cheap option, and all waste and excess materials were thrown away together, so making sorting for re-use or recycling an uneconomic option. However, through the work of such DETR/DTI initiatives as the Construction Best Practice Programme (CBPP) and CIRIA's Construction Industry Environmental Forum, attitudes and practice have begun to change. In the case of timber, similar work by the Timber Best Practice Programme (TBPP) has promulgated responsible attitudes to waste management in the construction-timber supply chain. As part of the supply chain, timber companies attitudes perforce will need to change if they are to become the sort of suppliers demanded by the larger Construction companies' waste management policies.

Elsewhere, the internal perceptions of other timber using sectors, such as furniture, shed and landscape building manufacturers, and other timber manufacturing sectors, is that the waste they produce is minimal, and therefore has little potential value, and is not worth measuring or managing more effectively.

Another major consumer of timber in the UK is pallets and wood packaging. Annually, 20 million pallets 'disappear' in the UK – although repair and re-use levels are high and increasing.

Each sector visited had the potential to improve its waste management and add to its profitability by realising the full potential of its residues. This was reinforced by the project's findings in relation to international work carried out into wood waste minimisation and finding markets for residues.

Education, education, education

The outputs of this project include lesson plans and other educational support material, available through the TRIC web site. The wealth of material on the site encompasses subjects and courses at every level of the UK educational system, from primary school through to Further, Higher Education and even Adult Education schemes. Specific subject and course relevancies have been identified by the report, and material tailored to meet the needs of these areas.

The creation and maintenance of the Education Zone online offers a huge resource to teachers, other educators and students alike, which will help to foster a society in which attitudes and actions towards waste in general, and wood waste in particular are coloured by the considerations of resource best use.



FINAL REPORT

Conclusions

Within the UK timber-using industries, there is generally:

- a poor understanding of waste and environmental management methods
- scant knowledge of best practice in waste minimisation
- ignorance of the potential for the use of timber residues
- a poor understanding of the concepts of sustainability and mass balance (this applies to UK industry as a whole)
- poor knowledge about recycling and re-use of wood
- existing practices which ignore the issue of waste
- A clear need to take responsibility is not recognised. 'End of pipe' approaches and solutions to waste predominate as a result
- a cavalier approach to waste in both design and execution, with the construction industry-timber supply chain the main problem – and the main opportunity
- Measurement of timber waste generation is negligible
- a lack of awareness of all their legal obligations with responsibility to waste and waste management.

The timber waste management industry in the UK faces problems:

- the Packaging and Waste Regulations limit competitiveness. Packaging Recovery Notes (PRNs) revenues and the PRN market are contentious issues within the wood recycling market.
- low prices of timber residues limits competitiveness.
- initial investment in recycling is high, relative to initial returns.
- landfill is often perceived as the only method of disposal
- the timber residue market is immature - relatively large volumes of timber residues are produced, but often in small quantities by many different businesses.

Government and Industry are not fully addressing key areas:

- standards of conformity remain informal - product quality and acceptability is currently left to agreement between the supplier and the customer.
- energy generation offers vast potential - biomass fuelled energy generation offers the largest alternative possible growth market for timber residues in the UK.
- timber residues can be used as a means of import substitution - development of energy generation from renewable sources is likely to reduce the dependency upon imported energy materials.

Environment Agency (EA) regulations enforcement is often toothless, as:

- EA flounders with its prosecution policy, and is not as effective as it might be



FINAL REPORT

- it has serious levels of non-compliance with own enforcement and prosecution policy
- prosecutions are taken for less than a quarter of the worst environmental incidents
- there is a lack of consistency in applying the law and penalties.

Other Conclusions are that:

- knowledge is not shared within the industry and sufficiently widely outside.
- research activity is insufficient – there is a lack of knowledge of research undertaken and indeed, a lack of well-funded new research and methods of dealing with timber residues and particularly treated residues.
- minimising waste is a downstream concern, as little thought is given to the planned identification of waste minimisation at the initial design/planning stages of many construction industry and other projects in the UK.
- waste management has a low public profile in the UK and timber waste management is particularly low profile.
- there are opportunities for using preservative-treated residues in energy generation in the UK.

Recommendations

Sustainable development relies on the conservation of resources, where practical, and the ongoing re-use and recycling of them. This is as true of UK wood waste and residues as for any other material resources.

Timber reprocessing market development

- The establishment of wood residue/waste networks across the UK is required.
- The development, through investment in new technology and training, of more efficient connectivity between residue producing businesses and wood recycling organisations.
- The increased development of composting activities across the UK, which incorporate wood-based residues.
- The development of a re-grading system for recycled or resued construction timbers, to encourage the use of recycled timber, particularly those valuable timbers such as tropical hardwoods.
- Best practice industry approaches to be further investigated and promoted extensively through a wood residue best practice programme, linking to other industry programmes.



FINAL REPORT

Market research recommendations

- Waste management processes in the timber using industries to be moved forward towards 21st Century approaches, through a national audit of wood residue resources and the development of targets for improvement in utilisation.
- Further research to be undertaken into construction and other products made from recycled timber developed outside the UK.
- Waste Resource Action Programme (WRAP) to encourage development of wood residue product development by funding research and development programmes in the UK.

Technical research recommendations

- Research programmes to be developed to assist the easy identification of treated timber materials in the waste stream.
- Government and local authorities to further encourage wood fuelled CHP developments in the UK, through the development and funding of demonstration projects.

Industry recommendations

- What is required for efficient waste management strategies to be undertaken for company-wide commitments to measure and reduce waste through goal setting.
- To institute effective waste management requires a change in outlook in the people working in any business.
- The timber-using industries need a better understanding of the potential magnitude of the impacts of employing effective waste management processes.

Government recommendations

- encourage the timber-using industries of the UK to adopt separation of residues at source, through tax incentives or by capital allowances for machinery installation.
- encourage publicly funded and part-funded projects to utilise recycled timber materials. Government to provide further tax and capital incentives for the increased uptake of local energy generation based on wood residues.
- investigate the impact of the PRN market place to ensure greater opportunities for re-processors/recyclers to benefit equally.
- increase energy taxation on the burning of fossil fuels to encourage the development of energy generation from more sustainable sources.



FINAL REPORT

- encourage the re-use, recycling and recovery of energy from timber residues by significantly increasing the cost of landfill of such materials.
- introduce a regulatory quality assurance regime, to ensure quality standards in wood residues, used for other products, e.g. animal bedding.
- encourage the development of third-tier organisations, not-for-profit/charity organisations, into the wood residue markets, providing incentives for local utilisation of residues.
- sponsor data collection needs to provide serious waste/residue analysis.
- encourage the development of increased wood recycling from solid waste and Civic Amenity sites in the UK.

Education recommendations

- develop education and training programmes, possibly delivered through on-line learning, for use across all timber using industries, which encourages, systematic utilisation of timber residues.
- timber using industry education programmes to be developed and disseminated on the actual rather than the theoretical costs of waste to the industry.
- architectural training and CPD programmes to be encouraged to incorporate waste minimisation plans for construction projects.
- training of workers in efficient materials handling and usage of wood.

The future?

It is clear that, dependent upon improved practices and the consistency and quality of the residues produced, there are opportunities in the UK timber using industries to:

- minimise the volumes of timber residue produced
- reduce the present substantial costs of disposal
- develop effective revenue generating practices through markets for wood waste.