

## Out of the Woods

# Reducing Wood Consumption to Save the World's Forests

### INTRODUCTION

The UK is one of the world's largest consumers of timber and paper products. Each year we consume about 50 million cubic metres, double that used by India. Our per capita consumption is one of the highest in the world yet only 15 per cent is produced domestically. Consequently, the UK is one of the world's largest importers of wood products from the temperate and boreal forests of North America and Scandinavia, as well as the tropical rainforests.

As a result of our overconsumption of timber and paper, diverse natural forests are under threat. In Canada and the United States, the last remaining temperate rainforests are being cut, whilst in Sweden less than five per cent of the old-growth forest survives. Having exhausted supplies of cheap timber and wood for paper elsewhere, international companies have now begun clear-felling vast tracts of previously untouched boreal forests in the former Soviet Union.

### PRIMARY WOOD CONSUMPTION IN THE UK

The UK is a large consumer of primary wood products (ie timber and paper made from virgin wood fibres). In 1990, per capita consumption stood at:

	GNP Per Capita (\$)	Consumption Per Capita (Cubic Metres)
<b>World</b>	4,200	0.32
<b>Developing Countries</b>		0.10
<b>Developed Countries</b>		1.04
<b>Mozambique</b>	80	0.06
<b>India</b>	350	0.03
<b>Argentina</b>	2,370	0.15
<b>Korea,Rep</b>	5,400	0.41
<b>UK</b>	16,100	0.91
<b>USA</b>	21,790	1.83

The UK's share of per capita wood consumption in relation to the developing or world average has been increasing rapidly. In 1980, it stood at 0.62 cubic metres per capita compared to the global average of approximately 0.33 cubic metres per capita.

Friends of the Earth has estimated that the ecological capacity (ie the sustainable supply) of the world's forests in 2010 will be approximately 2.3 billion cubic metres. This falls below current forecasts of world demand by the same year - 2.7 billion cubic metres. Assuming that each person has the same right to an equal amount of this production, UK per capita consumption in 2010 would be only approximately 0.3 cubic metres assuming a world population of seven billion by 2010.

Agenda 21 - agreed by governments at the Earth Summit in 1992 - clearly recognizes that a major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and it emphasizes the need for industrialized countries to change - ie reduce - demand.

An established principle of sustainable development is that there should be an equitable distribution of raw material consumption. If everyone in the world demanded the same per capita consumption as the UK, current annual global production would need to be approximately 4 to 5 billion cubic metres of wood raw material (in 1993 it stood at about 1.6 billion cubic metres).

There is clearly a requirement on the UK to decrease its consumption of primary wood products. This could be achieved by consuming less, switching to secondary wood products (such as recycled paper and timber) and the greater use of agricultural fibres, especially by-products.

Friends of the Earth believes that a target of a 65 per cent reduction in primary wood consumption from 1990 levels is achievable by 2010. This will be partly dependent on concerted action from government and industry to progress new technologies and greater resource efficiency.

There are clearly benefits that can be obtained from reduced consumption of primary wood products in the UK:

- Lower demand will assist in achieving the management of forests for multi-purposes - such as soil and water conservation, recreation, climate change amelioration as well as wood production - by deintensifying the management of the global forest estate;
- Since most of the UK's timber and paper products are imported, a 65 per cent reduction could decrease the UK's annual import bill by as much as £4 billion.
- The possible creation of up to 10,000 jobs (net increase), saving money from the public purse. Indirect job creation may increase this figure several times. Friends of the Earth estimates that job gains would be achieved, for example, through greater reclamation, reuse and recycling, waste minimization (including more use of neglected woodlands) and the use of non-wood fibres.
- The establishment of local sustainable industries (whether non-wood fibres, tree planting, greater use of neglected woodlands etc) will

provide community benefits in local rural areas. By producing locally, transport needs are reduced thereby conserving fossil fuels, decreasing the needs for roads and cutting down on pollution.

## **Current UK Primary Wood Consumption by Sector**

This can be roughly broken down as follows (in descending order of consumption with approximate percentages):

Sawn timber: Construction with joinery (50%), DIY (16%), packaging and pallets (11%), other (23%).

Plywood: Construction (48%), furniture (16%), transport (11%), other (25%).

Paper and paperboard: Packaging (40%), printing and writing (32%), newsprint (20%), other (8%).

A meaningful reduction in wood consumption will require action targeted at these particular sectors. By way of illustration:

- The average new house consumes about seven cubic metres (approximately 14 cubic metres raw material equivalent) in construction and joinery.
- Approximately 15-20,000 trees are cut down to produce every edition of the Sunday Times, despite a recycled content of about 25 per cent (1990 figures).
- If the annual total quantity of printing and writing paper was stacked onto an average sized football pitch, the resulting column would be approximately 600 metres tall (three times the height of the Post Office tower in London).

## **PRIMARY INDUSTRIAL WOOD CONSUMPTION REDUCTION IN THE UK**

Friends of the Earth has identified a number of ways in which the UK's consumption of primary wood can be reduced.

### **The Prevention, Minimization and Recycling of Pre-consumer Primary Wood Waste**

**Thinnings:** Wood from the UK's forests is generally

used efficiently. However, the urban (non-forest) tree resource is significant. In London alone, there are some 6 million trees and 65,000 stands and woods. Waste produced in the management of this resource - mainly thinnings but also including whole trees - is largely disposed to landfill. The London Borough of Croydon however has developed a thriving tree station. All green wood waste in its authority area is delivered to the station. Considerable potential exists to recycle the UK-wide waste from such sources, some into fencing, rustic furniture and sawn timber (thus replacing existing primary wood) but also into mulch, charcoal and firewood.

### **Aspects of Primary and Secondary**

**Processing:** Preventing (ie reducing) waste - through increased efficiency, new technology, effective utilization of timber or consuming less - is the priority consideration in the 'waste management hierarchy' (ie reduce, reuse, recycle). Large quantities of waste residues are generated from sawmills (primary processing). However, most is currently recycled into the board industry (producing secondary 'items' such as medium density fibreboard and particleboard). Prevention would lead to a decline in current raw material feed to the board industry. However, this shortfall could be met from non-wood fibre sources, and the recovery from secondary processing and post-consumer waste (see below). Less efficient utilization is made of waste residues from secondary processing, for example in the furniture industry, much of which is currently disposed (estimated at 500,000 tonnes annually). Some scope exists to reclaim and recycle these timber residues either as a source for paper pulp and/or raw material for particle board (perhaps in conjunction with tree/wood stations at local authority level).

### **Reclamation, Reuse and Recycling of Post-Consumer Primary Wood Waste**

**Timber:** The quantities of post-consumer waste are believed to be approximately 3 to 5 million tonnes annually (mainly from construction and demolition but also including furniture and other industrial sources). However, post-consumer recycling is often more difficult and costly than pre-consumer waste; it occurs in dispersed and temporary locations, in fairly small amounts and could be contaminated.

The present state of the building industry suggests that it is unlikely to embrace wholeheartedly or be able to adapt to the concept of recycled timber because of supply reliability and price. However, the construction industry is a large generator of wood waste which is at present uncollected but could be recycled either as a source for paper pulp and/or raw material for particle board through demolition

contractors, skip contractors and also in domestic waste. In the last few years, there has been increasing interest in commercial wood recycling and a number of companies have established a reliable supply of raw material for the manufacture of chipboard. However, these companies no longer collect timber from construction and demolition sites because of their temporary nature.

A small number of timber architectural salvage companies have also been established. Reclaimed and recycled softwood (pitch pine) has been used at various schemes such the Birmingham Urban Wildlife Centre and the recent refurbishment of Glyndebourne Opera House. However, its potential is again restricted because of a lack of ready supply.

It is often difficult to reuse timber directly (unlike for example, refillable bottles) because the product has to be re-applied in often different ways and applications. Notable examples of timber re-use include the pallet industry and reclaimed furniture.

**Paper:** Paper recycling is an established industry. Mill capacity is currently expanding. However, collection rates - particularly from the office and domestic sectors - is poor. Friends of the Earth estimates that up to a further 8 million cubic metres wood raw material equivalent (WRME) of paper and paperboard could be reclaimed and recycled annually in the UK by the year 2010.

### **The Potential of Non-wood Fibres**

Considerable potential exists for replacing primary wood with secondary, non-wood fibre alternatives; the most promising are agricultural by-products, for example straw, of which millions of tonnes are generated every year. In addition, a revival of traditional crops for textile manufacture - such as hemp and flax - would produce waste fibres as raw material for board and paper manufacture; for paper, such fibres could be used to add strength to recycled products.

**Straw:** It has been estimated that 11 to 13 million tonnes of cereal straw are produced annually in the UK. It is expected that, under current agricultural policies, the amount of available straw will remain constant. Since the ban on straw burning in 1993 farmers have been chopping and incorporating about five million tonnes into the soil, which it can be argued has benefits for the soil structure. There are several industrial uses for which straw is thought to be suitable, most notably, paper manufacture, energy production and board products. In the UK at the moment there are only pilot schemes for paper pulping. Considerably more progress has been made

in using the raw material for board manufacture.

**Linseed/flax:** Linseed or flax (different varieties of the same species, *Linum usitatissimum*) is a versatile plant grown for seed, oil and/or fibre. Linseed varieties have high seed yield and fibre whilst flax varieties are grown for the fibre in its stem.

The plant is grown in the UK primarily for linseed oil - though a small acreage of fibre flax varieties is grown for textile (linen) production. Approximately 71,000 hectares of linseed was grown in 1994 and the seed harvested, leaving approximately two tonnes of straw per hectare. Flax consists of fibre bundles (30 per cent) and woody material or 'shiv' (50 per cent). The fibre is potentially a suitable raw material for paper or low grade textiles and the shiv has been used elsewhere in Europe to produce particleboard. Linseed straw, being fibrous and difficult to chop and incorporate into the soil is allowed to be burnt but potentially could be utilized in the panel board industry.

**Hemp:** Growing of (low narcotic) hemp is currently enjoying a revival in the UK. Over 800 hectares were grown in the UK in 1994 for its woody core which is being used for luxury horse bedding. There is potential to increase the growing of hemp for its fibre which can be used for textiles. This would generate 'waste' in terms of hurds (core of the stem) and short fibres which could be used for paper or particle board.

**Oilseed rape straw:** *Brassica napus* is grown as food for animals and for its seed from which oil is produced. In 1993, 417,000 hectares of oilseed rape were grown in the UK. The estimated yield of straw from this area is two million tonnes. Presently, the straw is also incorporated back into the soil. Oilseed rape straw has been used successfully to manufacture boards in pilot schemes and research has also found that the crop residues can be used to produce a good sheet of paper.

Friends of the Earth estimates that non-wood fibres could contribute up to 8 million cubic metres WRME replacement for primary wood per annum by the year 2010.

## Longevity and Less Use of Primary Wood

**Timber:** Through better specifications, improved design and good practice, considerable advances in durability and longevity can be made to exterior joinery, particularly windows. Similarly, the use of construction timbers could be significantly reduced if the adoption of the new Eurocode Standard for timber

structures is adopted. Savings could be in the order of 10-20 per cent.

**Paper:** There are many examples of potential 'over use' of paper and paper board. In a public survey conducted in 1994, excessive packaging, unsolicited mail and office paper were viewed as sectors where paper was used wastefully or unnecessarily. Packaging and office paper are large end use sectors.

Reducing the amount of packaging waste through source reduction is possible and indeed is the focus of action in a number of countries (where reduction targets as high as 25 per cent by the year 2000 have been set). In the Netherlands, it is estimated that more compact packaging could lead to an overall reduction in food packaging (including paper and board) by some ten per cent. In Germany, it was found that 98 per cent of secondary packaging is unnecessary.

Reducing office paper intake is clearly possible, for example through less use, reuse, more recycling (technology now exists for reuse of photocopy paper to take place in the office by removing the toner), double-sided copying and printing and the introduction of information technology. The National Rivers Authority had a specific target to reduce paper consumption by ten per cent by March 1995 (from 1992/93 levels). Friends of the Earth reduced its in-house paper intake by six per cent between 1993 and 1994.

## KEY RECOMMENDATIONS

### The Government

- Introduce a waste management strategy (providing: it includes elements that encourage waste avoidance through source reduction; gives producers real responsibility to avoid waste and to reuse and recycle products; and it includes enforceable timetabled targets).
- Reduce all government departments' intake of paper by 25 per cent by the year 2005 (from 1990 levels); set targets and timetables for paper sorting and collection systems from government offices - 40 per cent recovery by 2000, 80 per cent by 2005.
- Set higher targets and timetables for paper and paperboard recycling from the domestic sector (see Local Authorities).

## Summary of Findings - Estimated Target Reductions to 2010

		Total Reduction (per annum)	
Increased pre-consumer 'waste' recycling (both timber and paper)	=	1.75 million m <sup>3</sup> WRME	(3%)
Increased post-consumer reclamation/recycling/reuse	=	8.0 million m <sup>3</sup> WRME	(20%)
Paper	=	2.0 million m <sup>3</sup> WRME	
Timber	=	2.0 million m <sup>3</sup> WRME	
Use of non-wood fibres (for both timber and paper)	=	8.0 million m <sup>3</sup> WRME	(16%)
Reduced Use of			
Paper	=	5.0 million m <sup>3</sup> WRME	(11%)
Timber	=	0.5 million m <sup>3</sup> WRME	
Longevity of timbers	=	None by 2010*	
Sub Total	=	25.25 million m <sup>3</sup> WRME	(50%)
Greater Resource Efficiency/New Technology	=		(15%)
Total	=		(65%)

\* By 2020, reductions in wood consumption would also be achieved through the longevity of better specified timbers and timber products.

■ Ensure volume markets for high quality paper made from non-wood sources and recycled paper (or a blend of both). All public bodies such as Parliament and the Post Office, for example, should be legally obliged to use 100 per cent recycled (and/or non-wood fibre) paper.

■ Encourage the development of markets for recycled and reused timber products and non-wood fibre panels.

■ Implement a sustainable land use strategy that allocates land first to nature conservation and deintensified agriculture. Integrate the production of non-wood fibres into this strategy. Relax controls on the growing of hemp in the UK.

■ Provide more financial support for local authorities: to implement recycling schemes or establish wood/tree stations; to progress rapidly towards local implementation of Agenda 21.

### Industry and Commerce

The paper/board targets set out in the following industry recommendations are designed to balance collection rates with recycled content, consistent with reduced paper in circulation in 2010 and the target of a 65 per cent reduction of primary wood consumption by the same year.

■ The publishing industry and the office sector to

reduce their intake of paper by 25 per cent by the year 2005 (from 1990 levels); the packaging industry to achieve the same level of reduction by the year 2000 with similar targets for other materials. These reductions should all be at the expense of virgin wood fibres.

■ The packaging industry to increase paper/board recovery for material recycling to 80 per cent by 2000 (similar targets for other materials). Commercial, industrial and institutional offices to set targets and timetables for paper sorting and collection systems: 40 per cent recovery by 2000; 80 per cent by 2005.

■ The private office sector should use a minimum recycled content of 60 per cent in office paper by 2005. Public bodies, such as the Post Office, for example, should be legally obliged to use 100 per cent recycled and/or non-wood paper products (to come into effect immediately). The packaging industry should use a minimum of 80 per cent recycled content by 2000 (similar targets for other materials).

■ The newsprint industry to increase recycling content to a minimum of 60 per cent by 2000. Stabilize total paper intake at 1990 consumption levels.

■ Set targets and timetables for the collection and recycling of pre- and post-consumer wastes in the timber industry.

■ The construction and joinery industries to embrace immediately the opportunities for timber savings offered by new European Standards, and place emphasis on longevity of timbers and timber products though enhanced design and better practice.

■ The panel board and paper industries to maximize pre- and post-consumer timber waste intake (particularly the lower quality grades).

■ The panel board and paper industries should embrace immediately the opportunities and advantages of non-wood fibre products.

## Local Authorities

■ Establish wood/tree stations. Seek financial support from central Government (and also possibly local industry). Industry to supply pre- and post-consumer waste as potential raw material for sorting and feed. Chosen sites to coincide and connect, wherever possible, with existing recycling and reuse schemes.

■ Extend kerbside paper recycling collections to reach 80 per cent of all household dwellings by 2000. Similar targets for other waste streams.

■ Use secondary industrial products (including non-wood fibres) where ever possible in local council developments.

■ Ensure durability and longevity of timbers to minimize resource consumption in local council developments.

## What the consumer can do

Important natural forests the world over are disappearing because of excessive consumption of timber and paper products. You can help by:

■ Reducing your consumption of timber and paper. Wherever possible, reuse or recycle.

■ If your local council does not already have a recycling scheme for timber and paper, request that it sets one up. Similarly, for wood/tree stations.

■ Join Friends of the Earth and a local group in support of our campaign for reduced wood consumption in the UK.

Further reading from Friends of the Earth on the UK's consumption of wood products:

T361 *Out of the Woods: Reducing Wood Consumption to Save the World's Forests - A Plan for*

*Action in the UK.* 1995, Price £15.

L391 *The Environmental Impacts of Paper Manufacture.* available from October 1996, Price £1.

G124 *Recycling*; leaflet. 1992, Price 50p.

G385 *Waste*; leaflet. 1996, Price 50p.

T246 *Don't Throw it all Away. FoE's Guide to Waste Reduction and Recycling.* 1992, Price £3.45.

T384 *Paper, Wood & the World's Forests.* available from October 1996, Price 50p

L293 *Timber: The UK Timber Industry's 'Think Wood' and Forests Forever Campaigns.* 1993, Price 50p.

T392 *The Good Wood Guide (third edition).* available from November 1996, Price: £7.95

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