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Guide to good practice

based on the Initiatives taken in the context of the Transnational Woodland Industries Group project

TWIG

TRANSNATIONAL WOODLAND INDUSTRIES GROUP

Sustainable Woodland Management and Local Added Value to Woodland Products

Recite II

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Contents

Contents

1. Introduction

a. The TWIG project

The Transnational Woodland Industries Group - TWIG - is a multi-national partnership, of which the aim is to promote sustainable management of woodlands, and added value to woodland products. It is focused on four particular regions, but aiming to provide ideas that may have wide value in Europe. The project is part-funded by the European Commission, through the Recite II programme.

The TWIG partners are based in Trier, west Germany; Thüringen, east Germany; the Chilterns, England; and Evia, Greece. These regions need to bring new life to their woodlands through sustainable management, and to add value to their woodland products.

Within the project, which has run for three years 1999 to 2002, we have sought to promote sustainable management of the forests and woodlands in our regions; to pioneer innovative ways to use timber, resin and other woodland products; to promote forest-based enterprises of all kinds; to enhance the skills of those involved in woodland management and in wood-based industries; and to highlight the benefits of woodlands to local people. We have organised seminars, forest fairs and other events in each of the four regions.

General information about the work on the project may be found on the TWIG Website, http://www.twig-project.net or by contact with the TWIG partners - see addresses at the end pf the Guide below.

b. The Guide to Good Practice

This Guide draws upon the experience in the TWIG project, to offer ideas to all who are concerned with the sustainable management of woodlands, and added value to woodland products, throughout Europe.

The Guide is structured by reference to five main themes, which formed the basis for intensive multi-national exchanges during the project. These themes are;

- Sustainable woodland management - chapter 2
- Product diversity and innovation - chapter 3
- Business development and marketing - chapter 4
- Capacity building - chapter 5
- Public awareness - chapter 6

Sources of information related to most of the specific initiatives described in this Guide are given at the end of the relevant section.

The Guide is available on the TWIG Website - *www.twig-project.net* - and in a CD-Rom.

We will welcome reactions to this Guide – see contact addresses at the end of the Guide.

Meeting of the TWIG partners at Hofgut Imsbach.

a. The concept, and the challenge

A key issue for the TWIG project is how to achieve sustainability in forest management and in the use of forest products.

The concept of sustainable forest management is not new. Already in the Middle Ages some European forests were managed by the rule that the yield should be based on harvesting the interest (the annual growth of the forest stock), and not the capital (the whole forest).

Of course, the early focus was on the yield of timber and firewood. In recent decades, concern has broadened to cover the full range of goods and services provided by forests, which include wood and timber, non-timber products such as resin, recreation, hunting, aesthetics, soil and watershed protection, shelter and carbon sequestration, to name but a few.

This change has been accompanied by increasing conflict over the relative priority to be given to different forest values where the management has been for 'multiple uses'. The interest and involvement of different 'stakeholders' has increased, and there is continuing effort around the world to develop a shared understanding of sustainable forest management and how it can be implemented in practice.

The 'Earth Summit' at Rio de Janeiro in 1992 sharply increased public and political awareness of the concept of sustainability; and also placed a strong focus on the fate of the world's forests, in the light of what was seen as the grossly **un**sustainable exploitation of the rain forest and other great forest areas. The 'Forest Principles' agreed at the Earth Summit stated:

> *"Forest resources and forest lands should be sustainably managed to meet the social, economic, ecological, cultural and spiritual human needs of the present and future generations."*

A European perspective was applied at the Ministerial Conference on the Protection of Forests in Europe meeting in Helsinki in 1993, where a set of Guidelines for sustainable management was agreed which included the following:

> *"... for the purpose of this resolution, 'sustainable management' means the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regenerative capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems."*

These definitions show the breadth of the concept of sustainability. It is clear that three major aspects must be considered in sustainable forestry - are ecological stability, economic viability and social desirability. If these criteria are not kept in balance, sustainability will not be achieved.

It is relatively easy to agree principles for sustainability at a national or state level. All European countries or states have adopted the Helsinki Guidelines and have put legislation, protocols or support systems in place to facilitate sustainable forest management. The greater challenge is to apply these principles at forest level, where most management decisions are taken, so that sustainable management is actually achieved. This chapter is concerned with how that challenge can be addressed.

Landscape in Evia.

b. Sustainable woodland management in the TWIG regions

Throughout Europe, and certainly within the four regions of the TWIG project, forests have had human management for centuries, and even for millennia. The result is that the forest is not 'natural': its well-being depends upon continued human stewardship. But that srtewardship will only be sustained if people get real benefits from the woodlands. If the woodlands lose part of their economic function and become neglected, the other benefits which they bring may be compromised: they will become less sustainable.

The TWIG regions offer examples of recent change in the historical pattern of use of wood and other forest products, which has reduced the economic viability of the forests and poses a threat to their social and ecological sustainability.

In the ***Chilterns,*** for example, the highly valued landscape and ecological quality is dependent on the presence of broadleaved high-forest with a major component of beech. The great beechwoods used to be maintained and managed to produce timber for the furniture industry. That industry is now mainly using imported material, and no longer needs the beech. So, the beech trees are standing beyond their useful life; the woodland owners have lost their financial return and are no longer actively managing the woods; and the landscape and ecological quality are therefore at risk.

In ***Thuringia,*** a change of management practices to restore more natural pure broadleaved forest as opposed to mixed conifer and broadleaved, together with a lengthening of the rotation for beech, has resulted in the production of timber with characteristics for which a market does not currently exist.

In the ***Rhineland*** around Trier, forest characteristics and management practices have not changed, but a change in building practices is threatening the market for spruce timber for construction and therefore the economic viability of management.

In ***Evia,*** the sound management of the pine woods, including their protection from fire, depended historically upon the production of resin. The fall in the price of resin, because of competition from China and elsewhere, has reduced the resin-tapping activity and the income and employment from the forests. This means that there is less human presence of workers in the woods, and thus much greater risk of undetected forest fires. Thus the system is becoming unsustainable in social and economic and environmental terms. A new era of sustainable management depends upon finding a new viability for production of resin, timber and other goods from the forest. The attempts to achieve this are described elsewhere in this Guide.

It is thus clear that a revival of sustainability in the management of forests in the TWIG partner regions depends upon finding a new era of economic return from that management.

The TWIG partners visiting Öko fair in Trier.

c. Strategic management of Aleppo pine forests in northern Evia

Introduction

The region of Istiaia and Limni in the northern part of the Greek island of Evia is covered 57% by forests. 82% of these forests are Aleppo pine forests, of varied size, owned by the state and by private companies, communities or individuals. By law, each forest has a management plan, based on guidelines set by the Ministry of Agriculture. These guidelines embrace the principle of sustainability. However, these management plans do not suffice to meet the problems faced by the forests today.

Aleppo pine forests have long played a major role in the economy of northern Evia. They produce not only wood, which was used in construction, agriculture and shipbuilding and for household heating; but also a precious product, resin, which was processed to produce rosin and turpentine. The demand for wood and resin underpinned the management and use of the forests. For this reason, until thirty years ago, the forests were soundly managed and exploited. This created jobs and income for local people, and raw materials for the resin processing units, for sawmills and for wood-using industries. Moreover, the continuous presence of woodmen and resin collectors in the forests contributed to their protection, especially against fires.

From the middle of 1970s, however, the demand for the local wood started to fall, mainly because of cheap imported wood from Eastern Europe. The same happened to resin, because the resin derivatives from Evia could not compete in quality or price with those from north-east Asia. As a result, the management of the Aleppo pine forests became loose and intermittent.

The present situation

The situation now is that many of the forests are not managed. Even where the forests are managed, the harvesting of wood and of resin is not continuous. Thus there are now far fewer woodmen and resin collectors working in the forests; many of them work part time and supplement their income by working in other jobs; and very few young people enter these professions. So, the growth of trees and undergrowth is not controlled, and the continuous presence of workers in the forest has been lost. Thus, when a fire breaks out, there are no forest workers to act immediately to suppress the fire, and it may spread rapidly through the accumulated biomass. It is not by chance that forests of northern Evia have suffered many severe fires since the management became so weak. On average, more than 1% of the total forest is lost to fire each year: other areas are also lost to illegal clearing and encroachment.

How can this situation be improved? Can the forests regain their economic worth and their effective management? This was the major issue faced by the TWIG partner. They concluded quite quickly that the ownership of the forest was too fragmented to permit the problems to be solved through the many separate forest management plans. A broader approach was needed. A process was therefore launched to create a Strategic Management Plan, covering the forests of the whole region, in order to set broad aims and to propose effective measures.

Reforestation project in Evia.

Preparing the plan

The Plan was prepared by the classic process – survey, then analysis, and then plan-making. The survey, conducted by the National Agricultural Research Foundation, embraced the natural and socio-economic resources of the area, using data from all official sources and contact with organisations and enterprises in the area. The results showed that:

- The study area contains 98,930ha of land, ranging in altitude from sea level to 1,246 metres. It is mountainous, with many small narrow valleys and an extended plain in its northern part.
- The bedrocks include lake and terrestrial deposits, on which the more productive Alweppo pine forests are grown; plus dolomite limestones, layered limestones and ophiolite bedrocks.
- The climate is Mediterranean, which favours the maintenance and development of forests.
- The natural ecosystems of the area are in good condition, apart of those destroyed recently by fires. Main vegetation formations are the forests of Aleppo pine (Pinus halepensis), plus forests of oak, black pine, fir and evergreen broadleaves.
- Forest ownership is quite complex: co-ownership accounts for 49.8% of the total forest area, state forests 28.8%, community forests 5.4% and private forests 3.6%.
- The population of the area in 1991 census was 39,286, living in 48 settlements, most of which have quite modest technical and social infrastructure.
- The local economy is based mainly on agriculture, livestock-rearing, forestry, apiculture, sea fishing and tourism.

The survey showed that the Aleppo pine forests in the area, totalling nearly 50,000 hectares, would have a formidable capacity for production if they were fully exploited in a sustainable way. They could yield 3,343 tons of resin, 6,434m^3 of industrial roundwood, 7,723 tons of fuelwood. In addition, there was potential for producing 497 tons of charcoal each year from oak and evergreen broadleaved wood.

Strategic aims

Against this background, the Strategic Management Plan for the area states three main aims:

- To protect and maintain the Aleppo pine forests and other forest ecosystems.
- To apply continuous and sustainable forest management, in order to improve and develop the Aleppo pine forests.
- To boost the contribution of the forests to the tourist development and economy of the study area.

Aleppo Pine dominating other forest species.

Protecting the forests. In pursuit of the first aim, measures are proposed to reduce the damage caused by fires, grazing and land clearings. Measures against fire include the use of mathematical models for forecasting fires (developed by various researchers especially for the study area); construction of additional fire breaks, lookouts, water tanks etc; and taking proper silvicultural measures to increase the forest's resistance against fires. Grazing does not damage mature pine forest, but should be prohibited in areas of forest regeneration. To control land clearing and encroachment, it is proposed to complete the National Cadaster (map of land ownership) and to guard the forests better through strengthening the staffs of the District Forest Offices.

Managing the forests. In pursuit of the second aim, the Plan proposes a combination of financial and silvicultural measures. The financial measures are designed to create a satisfactory income for forest owners, woodmen and resin collectors. They include employing the resin collectors to clear the under-storey of the forests; compensating the resin collectors where their production is destroyed by fires or other factors; granting unemployment benefit; organising training seminars for woodmen and resin collectors; and distributing construction wood and fuelwood free of charge to local inhabitants.

The silvicultural measures are designed to increase the production of resin, timber and other forest products by maintaining and improving the vitality, productivity, regeneration capacity and biodiversity of the forests. The Plan places a particular focus on the sound management of even-aged stands which are regenerated naturally or after fire and are destined for resin tapping. For these stands, the following regime is proposed, over a period of about 90 years:

- 10 - 20 years – thinning is carried out every 5 years: mal-formed and sickly trees are removed, in order to keep a distance between the trees of 0.7 – 0.9 metres.
- 20 - 50 years – intense thinning is carried out every five years to increase the diameter and height of the stand: at the end of the period, 400 to 500 trees per ha are kept in the stand.
- 50 - 60 years – resin tapping begins: thinning is carried out twice every five years: the trees that will be felled are marked a year before the felling and are subject to exhaustive resin tapping during that year: at the end of the period, 200 to 250 trees per ha are kept in the stand.
- 60 - 80 years – annual resin tapping continues: every 5 years, the trees which are low in resin production are felled: at the end of the period, 150 to 180 trees per ha remain.
- 80 - 90 years – thinning is carried out every 5 years: the trees that will be felled are marked a year before the felling and are subject to exhaustive resin tapping during that year.
- At the end of the period, the cycle starts again: 40 to 50 old trees remain, in order to produce seed if a fire breaks out and destroys the young stand.

For those stands which are irregular, uneven-aged or below standard, it is proposed that every 5 years the trees that have been resin-tapped be removed and the homogeneity of the stands be pursued. The silvicultural measures mentioned above for the even-aged stands would then be applied as appropriate.

Throughout the forest, the under-storey must be periodically cleared, in order to reduce the risks of fire.

Recreational use of maple forest in Evia.

Promotion of tourism. In pursuit of the third aim, the Plan proposes to boost tourism to the area by creating proper conditions for developing eco- and agro-tourism. This includes the construction of paths, vantage points, picnic and camping areas; the establishment of a forest museum and information center (see page 73-74 section 6d); the creation of a forest village; improvements in the aesthetic forest of Saint Nicholas and in the wetlands of Small and Big Livari; and guided tours to enable tourists to see traditional economic activities like resin tapping, resin and turpentine processing and apiculture.

Contact: National Agricultural Research Foundation.

d. Resin-tapping: a remedy for forest fires in Evia

In northern Evia in Greece – one of the four TWIG regions – the forests of Aleppo pine are the major landscape feature. These forests have also historically been a major resource for economic activity, as sources of timber, of pine resin and of honey. Today, they are less used for these purposes, for reasons that are explained below. The result is that the forests are less actively managed than they used to be. This means that the undergrowth and older trees are not removed; and this makes the forests very vulnerable to forest fires, which now on average destroy over 1% of the forests each year.

A prime concern of the Greek partner in the TWIG project has been to strengthen the management of the forests, so that they are less vulnerable to these devastating fires. A large part of the answer lies in the continuity and revival of resin-tapping.

Resin Tapping on an Aleppo Pine tree.

Resin-tapping

Resin-tapping has taken place in Greece since 500 B.C., according to the "History of Plants" written by the classical botanologist Theophrastos. The practice has been pursued over the millennia. Until the 1930s, Greece was the fifth largest resin-producing country in the world. Today, resin tapping has sharply declined because the market value of pine resin has fallen, in the face of competition from China. Resin tapping still continues I rural and remote areas such as North Evia, in tourist districts such as Cassandra and the industrial district of Elefsina. The Greek Ministry of Agriculture provides a subsidy for resin-producers for their time spent in the forest while tapping trees. The main justification for this subsidy is that the presence of resin-tappers in the forest is a crucial safeguard against the spread of fires.

Even though resin-tapping activity is at an historical lowest point, it still provides some employment in these regions. But the financial return to the resin-tappers, even taking into account the government subsidy, is not great, and there is little incentive for young people to come into this activity. The TWIG partners therefore decided to explore ways in which the return from the activity might be increased.

How it is done. Resin extraction is done by tapping live trees, mainly by two methods. The old method, known as 'Kountouriotiki', makes incisions about 1.5 cm deep in the wood of the trunk and uses no stimulant substances. The new method, based on bark-peeling, removes only a slice of the bark about 1.5 cm wide without wounding the actual wood, and uses a stimulant paste to increase the flow of resin. Both methods are allowed under the present forestry regulation. According to research, mixing the methods increases the annual output of resin per tree, but is more labour-intensive.

Resin tapping normally takes place between April and October (hot season), on Aleppo pine trees with a diameter of 25 cm or more measured at chest height. Only one tapping face is permitted at this diameter. Two tapping faces are possible if the diameter is 32 cm or more. The width of each tapping face (the channel) may vary from 8 to14 cm, depending on the diameter of the tree: it is a common practice for resin collectors to open wounds of 11 to12 cm. Each face is extended upwards, reaching

up to 2 or 2.2 metres above the ground, within the reach of the resin worker. The tapping face may go even further up, with use of a ladder, where the resin yield makes it worthwhile.

Frequently used today in Greece is a technique of tapping which involves peeling the bark of the pine near the ground; affixing a special polythene bag to collect the resin at the bottom of the wound; applying sulphuric acid on the wounded area; and repeating the procedure of peeling the bark (going upwards) and applying sulphuric acid to the new wound every 15 to18 days. These steps are repeated year after year. When the resin in a tapping channel is exhausted, a new channel is opened in the same routine until the tree yields no more resin.

A forest road runs through Aleppo pine stands.

Removal of resin from the plastic bags, clearing of foreign elements.

The importance of forest management

The continuity of resin yield from the forest depends upon a forest management regime. Those trees which are being tapped for resin are excluded from felling. Marked for felling are the trees which have been exhausted by tapping or where tapping has stopped because the yield is too small; and some young trees which are thinned so that the remaining trees can grow well. In well-managed forests, this felling of trees is supported by the regular clearing of the under-storey, which is a fire hazard, and the maintenance of forest roads, pathways and fire-break zones. Research indicates that the average wood-stock volume should not exceed 61 cubic meters per hectare: any higher accumulation increases the risk of fire.

This management of the forest is beneficial for the resin tappers, because it requires the opening of pathways and roads in the forest which they and their equipment can use. It can improve the average yield of the trees not felled, reduce the labour involved in tapping, and safeguard the jobs of the tappers because the forests remain healthy and robust. Moreover, the resin tappers can themselves undertake tree felling in the autumn and winter, to complement their resin-tapping activity in the spring and summer. This combination of activities, which may also include bee-keeping based on the Aleppo pine, can ensure better income for resin producers, while providing them with a voice and role in the management of the forest. It also, crucially, means that they are present in the forest for a large part of the year, and can thus be alert to the threat of fire and can act quickly to extinguish any fire that does occur.

Innovative actions in the context of TWIG

In the context of TWIG, the Evia partnership took initiative in four main ways to support the continuity of resin-tapping.

Capacity building for resin producers. The first focus was on increasing the skills of the resin-tappers. A series of seminars were organised. A practical guide to resin-tapping techniques was produced, addressed to resin-tappers, foresters and trainers. Researchers from the Forest Research Institute in Thessaloniki and Athens, and foresters from the Forest Authorities, helped with the provision of technical advice, in capacity building seminars, and in discussion of resin-tapping techniques.

Resin-tapping guide.

Experiments in forest utilisation. Four separate lines of experimental research were conducted, with the aim of increasing the yield of resin or other forest products. These four strands were:

- Phenotypic selection of best trees for genetic improvement in multiple uses, such as timber, resin, honey, etc. Experimental plots have been designated and experiments are being carried out. 3,500 pine trees have been identified, marked, and tapped. Another 579 pine trees are being assessed for their potential for honey production. These experiments are producing short- or mid-term results, to be applied in Evia.
- Laboratory tests and observations on the value of 84 different stimulant pastes for resin tapping. Tests are being conducted both indoors (laboratory tests) and outdoors (field trials), in a short-term experiment.
- Research on the potential to produce poles from resin-depleted pine trunks, for use in farming. 132 resin-depleted pine trees were felled, and their trunks were processed in sawmills, producing about 1350 poles. These poles were then given to farmers who produce outdoor tomatoes and vines, for field trial. This is a mid-term experiment.
- Experimental thinning on selected plots, in order to assess the possibility that pine trees can grow faster to the critical trunk diameter levels needed for tapping. This is a long-term experiment, in several phases.

Strategic Woodland Management Plan. In the preceding section of this Guide, we describe the major survey and study undertaken by the National Agricultural Research Foundation to establish aims and priorities for the sustainable management of the Aleppo pine forests, and to state proposals for specific measures to be taken.

Innovative resin by-products. In Chapter 3, we describe the feasibility study undertaken by the National Technical University of Athens, in collaboration with other project partners, to develop innovative end-uses of resin by-products, especially turpentine.

Conclusion

Management of the Aleppo pine forests is essential, in order to protect the forests against fire and to secure the sustainable use of forest resources. Such management can help to sustain the resin-tapping activity, and the employment that goes with it. In turn, the continuity of resin-tapping maintains the presence of people in the forest, which is a vital safeguard against forest fires. Cost-benefit studies have shown that the cost caused by fire in an unmanaged forest can be 28 times the cost of the proper management of a forest.

That is one major reason why strenuous effort and continued public expenditure should be put into maintaining resin-tapping as part of the sustainable management of forests in Evia and similar areas. Resin-tapping is a significant source of employment; it offers a resource which is capable of enhanced added value in local economies; and it provides a living example of an ancient forest management archetype which is part of our European heritage. In this wide perspective, resin-tapping may be seen as what it is, a valuable tool for the protection and management of the Aleppo pine forests and for the well-being of the landscape, the ecosystem and the local economy.

Contact: Forest Research Institute - Thessaloniki, National Agricultural Research Foundation.

Tree felling in Evia.

e. Sustainable management of beechwoods in the Chilterns

The Chilterns are a range of hills, about 800 km² in extent, lying to the north west of London. In 1965, they were designated as an Area of Outstanding Natural Beauty (AONB). They form a major stretch of beautiful countryside in the middle of a densely populated part of England. About 100,000 people live within the area, but about 8.5 million people live within 40 kilometres. Thus the Chilterns is a major resource for open-air recreation, and is estimated to receive nearly 52 million visitors each year.

The main land use in the area is farming. But about 20% of the land is in woodland, which makes this one of the most heavily wooded areas of England. Moreover the woods are a major part of the landscape, and also the setting for much recreation. The health and good management of the woodlands are therefore vital to the conservation of the AONB.

The woodlands themselves are quite diverse, with a strong hardwood element. In particular, the area is renowned for beechwoods. They include the most extensive area of native beech in England. All the native beechwood types of Britain are present, from dry beechwood on acid soils, through oak-beech on heavy clays to those on rendzinas. Nationally important extremes of the beech wood series, yew and box, are also present. Some of the woods are designated Special Areas for Conservation under the European Habitats Directive.

The Chiltern beechwoods used to be managed to produce timber for the furniture industry. That industry is now using mainly imported material, and no longer needs much beech. As a result, many of the beech trees are standing beyond their useful life; the woodland owners have lost their financial return and are reducing their active management of the woods; and the landscape and ecological and recreational quality of the woods are therefore at risk.

The AONB managers wish to find a new solution for the long-term and sustainable management of the beechwoods. As part of the TWIG project, they therefore commissioned three pieces of research, two by Oxford Forestry Institute and one by Buckinghamshire Chilterns University College.

Ecology of the Chilterns woodlands

The Oxford Forestry Institute was asked to examine the ecology of the Chilterns woodlands. The aim was to see how far the natural regeneration of trees could be used to improve the structure and the economic potential of the woods, without reducing their ecological and amenity values. For this purpose, the Institute sought to produce a form of ecological site classification, in which areas are graded according to their suitability for various tree species. A particular focus was to judge the likely success of achieving natural regeneration of beech and ash. This classification could help land managers and foresters, particularly those who are less familiar with the Chilterns, to judge where natural regeneration is likely to succeed, and also to assess the potential of sites which are not now wooded.

The research focused on four easily measured features of the land, namely the soil nutrient regime, soil moisture, topographical aspect or orientation, and gradient of the slope. These variables formed the basis for modelling the potential yield, in terms of mature tree height and yield class (m³/ha/year), and the potential for regeneration measured on a scale from 0 to100.

The outputs of the model have considerable practical value. The site classification can be used in woodland management to aid the production of high quality timber. It can identify the species that will grow well on a site, and suggest whether restocking by natural means can be achieved. For those woodland owners who are more interested in diversity of tree species than in producing timber, the site classification can be used as a guide to choosing species that will grow well and regenerate. It is also useful in planning new or extended woodlands. The UK habitat action plan for lowland beech and yew woodland proposes an increase in area of 3,000 ha (including 450 ha within the Chilterns) by the year 2010. The model can indicate whether a site is actually suitable for producing new woodland of the desired type.

Potential to improve the quality of timber

The second task for the Oxford Forestry Institute was to examine the potential to improve the quality of timber produced in the Chilterns woodlands. To do this, they assessed the quality of the current standing timber, the reasons why this quality may have been compromised in the past, and the potential to produce higher quality. On this they based an estimate of the maximum sustainable timber production from the woodlands, and of its quality and potential value.

The Institute estimated that a total of between 70,000m³ and 80,000m³ of hardwood could be produced in the Chilterns woodlands each year. This was based on the harvesting of 112ha of woodland each year, which is the sustainable maximum: this action would rapidly normalise the age distribution of the woodlands and allow this amount of timber to be produced indefinitely. But the present quality of timber is such that only 8% on average (or 24% in the best-managed woods) is likely to be of first grade. Most of the felled timber would be suited only for use as pulp or fuelwood.

The quality and value of timber are strongly related to the number of straight, clean logs that can be cut from the stem; and to the diameter of the stem, which must approach 60cm at breast height before it is of real value as saw timber. In the Chilterns now, most of the larger trees are in the 40 to 50cm diameter range, mainly because the stands have not been sufficiently thinned. Some species, notably beech, can put on considerable diameter growth in response to thinning, even as mature trees of 100 years or more. Thus selective thinning to favour the best trees in a stand can still enhance the final value of the beechwoods.

Beech woodlands in the Chilterns, with great trees dying for lack of use and management.

Beech woodlands in the Chilterns.

However, there are no quick ways to increase the quality of standing timber in the Chilterns. Growing high quality timber is a long-term process. It is vital to plant the trees, or allow them to regenerate, at high enough densities to force competition between the seedlings, and to enable the forester to select the best final-crop trees. High initial densities can also improve growth habit and reduce the number of low branches, helping to keep the stem free of knots. The German forester J. Krahl-Urban wrote in 1963 that beech may well be planted at 10,000 trees per hectare, for these reasons; yet the minimum planting density used in Britain until recently was only 1,100 trees per hectare.

The Institute focused also upon a key problem affecting the quality of trees in the Chilterns, namely damage caused by the grey squirrel (Sciurus carolinensis). Beech and sycamore are the species most at risk, particularly in young plantations. Squirrels tend to strip the bark at the base of the stem or around the growing shoot: this can induce the trees to fork or become 'witch's brooms', with catastrophic effects on their future timber value. Planting beech trees is not advisable unless squirrel numbers can be reduced to, and maintained at, less than half their present level. The present practices to control squirrels are not achieving this. This means that it may be better to plant species that are more resistant to squirrels, such as ash and cherry.

Forest policy development

Buckinghamshire Chilterns University College was asked to report on the policies that may be needed in order to achieve sustainable forestry in the Chilterns. The Chilterns AONB has had specific local forest policies since 1971, but these need updating and refining to meet the enhanced requirements of sustainable management. The University College was asked to take a broad view of sustainability, to include ecological stability, economic viability and social acceptability. The high importance of the Chilterns landscape and ecology, and its high value for recreation, meant that the social and environmental aspects of sustainable woodland management were seen as paramount.

The research done by the University College had a strong focus upon the pattern of woodland ownership, the attitude of the owners and the views of the general public.

Woodland ownership. The analysis showed that, of the total woodland area of 17,400 hectares, about 12% is owned by the state or by local authorities, about 12% by voluntary bodies, and the rest by private owners, although details of about 13% are unknown. Over 80% of the woodland area is held by 118 individuals or organisations who own more than 20 hectares: they include the Forestry Commission and National Trust, each with over 1500 hectares, and two private owners who each have about 550 hectares. Of the woodland that is of greatest value for nature conservation, 68% is privately owned and 81% by people who own more than 20 hectares. This type of information allows much better policy development by enabling clear targeting of initiatives.

The views of woodland owners. A questionnaire survey was conducted among the owners of Chilterns woodlands. This showed that most owners see woodland ownership and management as a source of pleasure but not profit. Most owners have multiple objectives in mind, except for a few who own small woods simply for their personal recreation. Among the aims of management, landscape protection and nature conservation are most frequently reported; private recreation is of great importance for the private sector, whatever the size of ownership; and sport and timber production are of importance for many, particularly on the large properties.

About 87% of the woodlands are subject to informal public access though the existing rights-of-way network: a limited number of private landowners are willing to accept further informal access, and even fewer to provide formal recreational facilities.

In pursuing these aims of management, owners said that the major constraints were the cost of managing the woods, the lack of time and the impact of pests. For those owners who aim at timber production, the lack of markets and low timber prices are key constraints. 60% of the owners, representing 75% of the woodland area, were interested in the production of high quality timber. As aids to improving this quality, they would welcome financial support and practical silvicultural advice. Many would welcome the development of initiatives for pest management, establishment of demonstration woods, and promotion of co-operation between woodland owners. The owners of the larger woodland properties tended to be more aware than the smaller ones of the national guidance that is available on conservation of nature and of landscape. Over 70% of the respondents would welcome the development of guidelines specific to the Chilterns.

The views of the public. The views of people living in the Chilterns were sought by a variety of surveys, of which the most effective was a direct mailing of questionnaires to randomly selected addresses. The results showed that rural dwellers are more interested in woodland issues than urban. The attractiveness of the landscape is the most important reason for living in the Chilterns, closely followed by proximity to place of work. Two-thirds of the respondents said that they have considerable interest in woodland issues, mainly for reasons of landscape and nature conservation. Concern was expressed about the impact on the landscape of clear felling and the choice of tree species. The most popular recreational pursuit in the Chilterns is walking, and more facilities for walking would be welcomed. Three-quarters of respondents would support timber production from the woodlands, provided it did not adversely affect the landscape or nature conservation. There was little support for the purchase of locally produced wood products. 60% would support the control of pests, while only 6% would oppose this.

Policy recommendations

The University College completed its work by submitting policy recommendations to the Chilterns Conservation Board. These included the adoption of silvicultural systems focused upon site-specific native species and the use of natural regeneration, particularly within woodlands of high importance for nature conservation; support for the conversion of coniferous woodland to native broadleaves; provision of advice and financial support for silvicultural practices to produce high quality timber; and greater publicity for the need for pest management. It was proposed that the public be made more aware of the public access within woodlands which is provided by the existing network of footpaths and bridleways.

Action to follow through these reports now lies with the Chilterns Conservation Board. The reports are included in the TWIG CD-Rom.

Contact: Chilterns Conservation Board (see address at the end of this Guide).

Ancient beech wood, Chilterns.

f. Beechwoods in Thuringia

Beech is one of the main native trees in the eastern states of Germany. Its natural area covers half of the territory. But commercial planting of conifers over the last century has reduced the beech forests to only 7 % of the land area. There is a strong case for maintaining these beechwoods and again increasing their area, because beech is among the most stable tree species in this part of Europe.

In Germany, some of the remaining beech woods have been historically managed on a communal basis, whereby the villagers had rights to use the forest to gather free fuelwood, litter and structural timber. For the last 250 years, much of the east German beech forest has been managed on the basis of selective cutting, which may be seen as an early version of sustained yield management.

If this method of management is compared with the more modern method of large-scale clearing and replanting, it can be seen to have some advantages. It is more resistant to forest diseases and to wind-blow. It provides continuous cover to the soil, and thus the best conditions for regeneration. No new saplings need to be bought, and the young trees do not need costly weeding. The permanent tending of individual trees can yield valuable veneer timber.

However, there are disadvantages. This type of forest management demands experienced foresters and contractors, and intensive planning of the forestry regime. The cutting and logging are more expensive than in more commercial forests. Moreover, the trees do not put on growth as quickly, and there is a high proportion of crown timber in them. Other less valuable species, such as oak, maple, ash, elm and lime may appear among the beech.

If beech forests are to be re-established, they will need continuous protection over long periods of time: it may take well over 100 years to create a new beech forest. A good start is to under-plant beech in conifer woodlands. Wildlife, particularly deer and squirrels, must be controlled. The health and vitality of the plants must be monitored. Only beech saplings of local origin should be planted.

The TWIG partner in Thuringia believes that the sustainable approach described above is the right thing for the region. It has therefore used TWIG events to encourage the planting and management of beechwoods in Thuringia. It has held meetings with private forest owners, and promoted the use of beech wood at fairs and exhibitions. To illustrate this, we describe in chapters 3 and 5 initiatives to promote the use of red-hearted beech in furniture and interior design.

Contact: Umweltzentrum des Handwerks Thüringen (see address at the end of the Guide).

Forest experts of different countries in the "Buchenplenterwald" (selection forest) in Thuringia.

g. Application of forest certification systems

Introduction

At the beginning of this chapter, we described the rise in public and political awareness of the concept of sustainability, and of the dangers posed by the exploitation of the world's forests following the Earth Summit at Rio de Janeiro in 1992.

The result of this heightened awareness is that governments, environmental groups, timber processing companies and end-users of forest products increasingly expect conclusive proof of sustainable forestry. Forest certification is the method by which this proof is given. It relates not only to forest management, but to the whole chain of supply from raw material to finished product. It can be used as a marketing instrument, to promote the use of wood as a renewable and environmentally-friendly material and to strengthen the reputation of forestry.

Forest certification systems are not yet widely applied in Europe. Two systems - PEFC and FSC - are being advocated. The TWIG partners have explored how these systems relate to each other, and what impact they may have on forests and wood industries in their regions. They have focussed, in particular, on the use of PEFC in Thuringia, and of UKWAS (a variant of FSC) in the Chilterns.

Pine forest in Thuringia.

The Pan-European Forest Certification system - PEFC

The Pan-European Forest Certification (PEFC) Council was officially launched in Paris in June 1999, following months of intensive development work. The PEFC scheme, a voluntary private sector initiative, is designed to provide assurance to the customers of woodland owners that the products they buy come from independently certified forests which are managed according to the Pan European Criteria, as defined by the resolutions of the Helsinki and Lisbon Ministerial Conferences of 1993 and 1998 on the Protection of Forests in Europe. The scheme provides an internationally credible framework for forest certification schemes and initiatives in European countries.

About half of all German forests - over 5 million hectares - are certified in accordance with PEFC. This shows the confidence that thousands of forest owners have in this certification system, as a guarantee of ecological, economic, and social sustainability.

Thuringia was one of the first regions in Germany to receive the PEFC conformity certificate. More than 300,000 hectares of forest in the region have received PEFC certification, and interest in the system is growing among forest owners, wood processing plants and consumers. Experience in the region suggests that forest certification can furnish credible proof of sustainable forest management. It offers the chance to improve the public image of forestry and of wood-related industry. It can be used in marketing, with a focus on wood as a renewable raw material. The highest demand for wood from PEFC-certificated forests in Germany is from the paper industry.

On the basis of a regional approach, PEFC is cost-efficient. It applies to every size of forest and form of ownership and considers the interests of small and medium-sized enterprises. Inspection by independent experts guarantees that forests are managed according to high standards.

Forest owners who wish to join the PEFC system can do this making a formal written commitment to observe the 1993 Helsinki criteria for protection of forests in Europe. These relate to preserving, and where appropriate improving:

- the silvicultural resources and their contribution to global carbon cycles

- the health and vitality of forest ecosystems,
- the productiveness of the forest for wood and non-wood products
- the biological variety in forest eco-systems
- the forest's functions in the protection of soil and water
- other social-economic functions and conditions.

The current emphasis in the application of PEFC in Germany is on the 'chain-of-custody' certificates for timber companies. These certificates relate to the flow of the wood through the supply chain, so that the end-user can be assured that the product he is buying does indeed originate from woodlands with PEFC recognition.

The chain of custody certificate registers every link of the chain. Wood suppliers must mark wood from PEFC-certified forests on their bills or delivery notes. Wood-processing enterprises must ensure, in their storage and processing, a physical separation between wood from PEFC-certified forests and that from other sources. They must show on their products the percentage of the raw material that comes from PEFC-certified forests: where that percentage exceeds 70%, the wood products may be marked as PEFC Conformal. They must guarantee that third parties can verify the observance of these rules. The end-user must be able to recognize certified goods by the PEFC-seal.

30 enterprises with such certificates have already received a user licence from the association PEFC-Deutschland, and their numbers are growing rapidly. The main emphasis is still on sawmills: for example, the company Rettenmeier, which has a large sawing mill in Ullersreuth in Thuringia, received the 'PEFC-Chain-Of-Custody' certificate last year. But certificates are increasingly sought by timber dealers.

The TWIG partner in Thuringia has promoted the PEFC system in meetings with private forest owners and through public exhibitions.

UKWAS

The UK Woodland Assurance Scheme (UKWAS) is a voluntary scheme for independent certification of forest management in the UK. It offers woodland owners in the UK a Certification Standard that is recognised by all major stakeholders and by the Forest Stewardship Council (FSC). The scheme has been developed by a broad partnership of forestry, environmental and social organisations in response to growing demand for products from certified forests. UKWAS does not offer a label.

The UKWAS was launched in June 1999 and represents the first ever consensus on a forestry performance standard at a national level. It was developed by a group representing a wide range of organisations including the national forest owners' organisation; the national forest industry organisation; environmental organisations such as the World Wide Fund for Nature and Friends of the Earth; trade unions; local authorities; and UK Government agencies for forestry and nature conservation.

The UKWAS Standard is thus recognised and endorsed by UK and international forestry, environmental and social organisations. The scheme is managed by a Steering Group, made up of representatives of all sectors and interested parties. This Group takes all its decisions by consensus: it will not act against the expressed wishes of any one of its members. The Forestry Commission (which is the government agency responsible for forestry and which helped in developing the scheme) provides administrative and financial support to the Group.

The application of UKWAS within the Chilterns is mainly confined to woodlands belonging to public or major voluntary bodies, namely Forest Enterprise, Woodland Trust and National Trust. It does not imply major changes in woodland management for such bodies, nor would it do so for other woodland owners if they already meet the UK Forestry Standard: however, they might need more supporting documentation and improved management plans.

Links between the certification systems

PEFC is open to other forest certification systems inside and outside of Europe, as long as these are credible, voluntary, and transparent and do not discriminate against forest owners.
By the end of 2001, ten independent national forest certification schemes, covering more than 42 million hectares, had been endorsed by PEFC. In March 2002, the UK Certification Scheme for Sustainable Forest Management - which uses UKWAS as its base document - received international endorsement from the PEFC Council, following an 8-month rigorous assessment process. Thus, timber coming from forests certified to UKWAS through the scheme with its associated Chain of Custody certificates now has access to the PEFC logo. This provides assurance to timber users that they are contributing to the promotion of sustainable forest management.

On a broader geographic canvas, there are significant differences of emphasis between PEFC and FSC.
The international standard of FSC has a strong emphasis on environmental (and to a lesser extent social) considerations: some timber growers and forest owners feel that it does not give due weight to economic factors. PEFC on the other hand is a collection of nationally agreed standards which are mutually accepted: it may thus be seen to be only as good as the poorest national scheme. Some environmental bodies complain that PEFC is led by timber growers and forest owners, and does not give due weight to the interests of other stakeholders or to the environment. There is still significant work to be done to reconcile these two approaches.

Contacts: Information on PEFC may be found on website www.pefc.org

For information on UKWAS, contact: Mike Render, Forest Products Research Centre, Buckinghamshire Chilterns University College, Queen Alexandra Road, High Wycombe, Buckinghamshire HP11 2JZ, England.

Beech trees in a PEFC-certified forest.

h. Chilterns Woodland Award Scheme

Aim of the scheme

The aim of Chilterns Woodland Award Scheme is to promote and reward high-quality woodland management. It is particularly targeted at small broadleaved woodlands, which are the main type of woodland in the Chilterns and in many parts of the TWIG partner regions. Many of these woodlands have lost their economic base, so that essential woodland management is not being undertaken. The scheme aims to highlight the management needs of small woodlands, particularly to encourage timber production and other economic use, while maintaining sustainable forestry practices.

The Scheme was publicised through:

- a special promotional leaflet, of which nearly 500 copies were distributed in the region: copies were sent directly to woodland owners, consultants, land agents, local authorities and environmental organisations;
- a press release, sent to local newspapers and radio stations;
- promotional articles in the Chilterns Area of Outstanding Natural Beauty newsletter (10,000 copies) and the Chiltern Woodland Project newsletter (1,000 copies); and
- announcements at regional conferences and meetings of environmental organisations.

The Scheme was sponsored by a national firm of woodland valuers, John Clegg & Co., which is based in the Chilterns region.

Winners of the Chilterns Woodland Awards, 2000.

Response to the scheme

In the first year, 2000, a total of 11 entries were received, which was considered to be a good number. In 2001, only 6 entries were received, because of constraints imposed by the national outbreak of Foot and Mouth Disease.

The entry form asked applicants to describe the size and nature of the woodland and the primary aims of management. The owners were then contacted to arrange the visit by the judges: they were asked to meet the judges and give them a tour of the woods. Two days were reserved for visiting and judging woodlands in August. This timing enabled the award to be presented at the annual Conference of the Buckinghamshire Woodland Forum, in September. The judges were therefore visiting woodlands during the peak holiday period, which was not ideal.

The judges. The judges for each competition were all expert foresters, with experience of working in both public and private woodlands and of advising the owners of small woodlands.

One judge was from the state forestry service. Another was an expert from the Forestry Institute of Rhineland Palatinate: this brought in knowledge from the Trier partner and assisted dissemination of the approach in Germany.

A schedule of visits was prepared allowing 40 to 90 minutes for each visit, depending upon the size of the woods, which varied between 5 and 250 hectares. In 2000, two long working days were needed to visit all 11 entries, even though they were fairly close together. In 2001, all 6 woodlands were visited on a single day. The judges walked through the wood, on a route which allowed them to assess the full character of the wood and to see management undertaken within the previous three years.

Criteria. The judging was based on a schedule of criteria agreed at the beginning of the process. A score was assigned to each aspect of management, and the wood with the highest score was declared the winner.

The judging criteria were:

	maximum score
Does the site have an up to date management plan ?	10
Is there an approved Woodland Grant Scheme ?	5
Does the owner have clear management aims for the short and long term?	10
Is there clear evidence that the wood is being managed to achieve its aims?	20
Are the species appropriate to the site and to the management aims?	5
Is the site management giving sufficient weight to nature conservation, landscape and amenity considerations?	10
What provision is being made to encourage community and educational use of the wood?	10
Has the owner integrated the management of woodlands with surrounding countryside?	5

Following the judges' visits, the organisers contacted the overall winner and the owners or managers of up to four other woods which received Certificates of Merit. The awards were presented at the annual conference of the Bucks Woodland Forum.

A press release, with photograph of the manager of the winning woodland and a representative of the sponsor, was issued to local newspapers and national forestry journals.
An announcement was made in the Chilterns Area of Outstanding Natural Beauty newsletter. As part of the award scheme, the managers of the overall winning woodland were invited to visit woodlands and meet with expert foresters in the region of the Trier partner, in order to exchange ideas and share experience, particularly on the management of beech woodland. This was seen as a way to ensure continuing benefits beyond the end of the TWIG project.

Conclusion

This award scheme was successful in the Chilterns, and may offer a model for other regions as a way to promote high-quality woodland management, particularly in small broad-leaved woodlands. It helped to persuade the owners of small woodlands that they need to manage these woodlands.

The award scheme attracted sufficient entries - including some from well-known woodland owners and professional woodland managers - to raise the profile of the awards among woodland owners and managers generally in the Chilterns. The quality of woodland entered was very high in some cases: this enabled the scheme to promote examples of good practice.

The good publicity generated by the scheme has encouraged the organisers and sponsors to continue with the awards in future years. Several woodland owners and managers have said that they will enter other woodlands in future.

The promotional literature and media campaign enhanced general public awareness of woodland management as a local economic and environmental issue. A public visit to the winning wood has been arranged in the spring following each award. This will allow the owner and manager to explain what management they have undertaken, will promote good practice to other owners and managers, and will publicise the next year's award scheme.

The participation by a judge from a partner region, and the visit of winning foresters to Trier, have encouraged exchange of knowledge and experience. It is hoped that these links will be maintained beyond the life-span of the TWIG project.

The total cost of the Award Scheme in 2001 was 1650, plus six days of staff time. The costs related to design and printing of the promotional leaflet and entry form; postage; judge's expenses; awards and the Award ceremony.

A full report - 'Chilterns Woodland Award Scheme' - is available, in the form of a guide to managing such schemes. It will appear in the TWIG CD-Rom

Contact: Chilterns Conservation Board (see address at the end of the Guide).

a. Introduction to the theme

As stated earlier, a major problem in many European regions is that the traditional uses of forest products have declined, so that the economic viability of the woodlands is threatened. One major aim of the TWIG project was to search for ways in which this economic viability could be restored by developing new uses for forest products, or new methods for reviving the use of or demand for traditional products.

In this chapter, we describe:

- The growing interest in the idea of adding value, in the local economies of particular rural; regions, to the forest products from those regions.
- The use of timber in building, with examples of modern approaches to structural timber in Thuringia and to timber cladding in Trier.
- The growing interest in modern wood-based heating systems, with examples in Thuringia, Trier and the Chilterns.
- The initiative in Evia to add value to the traditional product of pine resin.
- The promotion of added value to products of small woodlands in the Chilterns, through on-site saw-milling and air-drying of timber.

The chapter ends with a summary of a wide range of woodland initiatives in the United Kingdom, many of which aim to add value in local economies to woodland products.

Wood used in house building.

b. Adding value to forest products

Throughout Europe, in past centuries, forest products were used for firewood, and for making domestic utensils, farm tools and equipment, carriages, houses, boats and many other necessities. This use had the effect of creating jobs in the forest and in the trades and crafts which processed the forest products. Moreover, a high proportion of these jobs were based in the region within or near the forests, because transport systems were limited.

During the last century, however:

- the growth of commerce, and the arrival of cheap mass-produced utensils and building materials, greatly reduced the demand for wood products;
- electricity and other sources of energy largely replaced the use of firewood;
- the processing of timber largely moved away from rural areas into large saw-mills, paper factories etc., often located in distant cities or even in other countries; and
- many of the non-timber products from woodlands were no longer used.

The result of these changes has been to remove or weaken the demand for some forest products, and to move the value-added from the rural areas into the cities. This process, plus the mechanisation of much of the work in the forest itself, has greatly reduced in many regions the number of jobs which are directly or indirectly sustained by the forests. Moreover, it threatens the level of management and of sustainability in many forests.

Revival of interest

However, there is now revived interest in adding value to forest products in Europe, for the following reasons:

- the rural areas need new jobs, and increased income for farmers and others;
- there is growing demand for products made of wood, such as high-quality furniture;

Hurdle-maker at the Chiltern Wood Festival: adding value to woodland products.

- the concern about excessive use of non-renewable energy is prompting renewed interest in wood and other biomass as renewable sources of energy; and
- concerns for the environment are prompting demand for sound management of woodlands, on a sustainable basis.

So, many initiatives are now being taken in Europe to add value to forest products.
Examples from the TWIG regions are given in this chapter.

c. Use of timber in building

Building with wood and timber has a long tradition. For millennia, wood was used for the structural components of houses, churches, bridges and other buildings. Wood was indeed the dominant building material in those regions which were not rich in stone or clay.

From this use of timber has come much of the richness of regional building styles in Europe, for example the log-cabin and timber-frame structures of Scandinaivia or the half-timber traditions of eastern England or central Germany.

During the last two centuries, however, other materials – notably iron, steel and reinforced concrete – have often been given preference over timber, particularly for very wide or high buildings.

Modern technologies, however, offer new potential to use wood again for the structures of even the largest buildings. Among these technologies, lamination has a leading role.

Displays of timber building at the Öko fair

d. Laminated wood for structural use

Lamination allows timber of limited dimensions to be turned into beams and other structural components of great strength, size and dependability. This is of high importance for those who wish to design buildings of wood, a natural and renewable building material that looks good and radiates warmth. It also brings benefit to those foresters whose timber is of limited dimensions or strength, since lamination can ensure a market for that product.

The region of Thuringia, where one of the TWIG partners is based, offers a major example of a firm that produces structural components out of laminated wood – namely LVL Plants Hess, based at Hermsdorf and at Miltenberg. Hess has been renowned for more than a century for its technology and high quality in timber construction. It has the know-how and the technical equipment and facilities to design, make and (if necessary) install laminated timber elements to suit the specific needs of architects, structural engineers and building clients. It can handle projects from advice at the planning stage to the topping-out ceremony.

A visit to the Hess factory at Hermsdorf shows the scale and versatility of the enterprise. The ***input*** is of the simplest raw material – wood, in the form of thin planks or strips, of varied length; and glue. The wood is usually spruce: but pine, fir, larch, Douglas fir, southern pine, western hemlock, and yellow cedar can also be used. The glue is modified Melamin resin, which creates pale-coloured joints.

The ***output*** is a wide variety of beams – up to 50 metres in length, straight or curved, rectangular or T-shaped in section – arches, bridges, pillars and other components. Creating these are machines which sort the planks or strips of wood into piles of even width; cut the end of each piece into wedge-shaped teeth so that it can be spliced to the next piece; apply liquid glue to the face of each extended plank and add it to a matching pile; and then place this pile in a press where the laminated beam is formed. This press can be so set as to create a straight or curved shape, which is then held permanently in shape by the glue.

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The millennium tower on the "Bundesgartenschau" 1999 in Magdeburg - the most famous example of the work of the HESS enterprise.

e. Timber cladding, Trier

In many regions of northern Europe, buildings have traditionally been clad in local timber. Trier is one such region. But fashions change, and some people have come to regard timber houses as 'old hat' and as easily inflammable and short-lived. Partly for this reason, some modern architects have turned away from wood, to use other materials.

The TWIG partner in Trier decided to help in reviving the image of wood as a material for constructing and cladding buildings, by supporting enterprises which combine modern design with the use of wood produced in the region.

One such enterprise is the building firm Annen KG, based in Farschweiler near Trier. This firm believes that timber cladding and wooden construction elements carry great advantages in technical, ecological and design terms.

From a technical point of view, wood excels through its high stability, flexibility and firmness; and its high resistance against warping or cracking, when gluing techniques are used. With lamination and other modern techniques, timber can be used to cover large spans (see the preceding section on lamination). If properly treated, wood can cope well with fire: unlike steel, wood keeps its stability even at high temperatures, so timber structures do not collapse as quickly as steel ones.

The Rollinger office building in Walferdange, Luxembourg.

A sustainable material

From an ecological standpoint, timber cladding stands out positively. Timber is a renewable raw material. It can provide a healthy interior climate for buildings. Unlike steel, it does not consume much energy in its production. If produced and used within the same region, it uses little energy in transport. It adds value to the products of local woodlands, and generates income and employment within the regional economy. In all these ways, it can contribute to sustainability.

In terms of design, wood stands out because of its versatility. Facades with wood cladding can radiate warmth and comfort. If combined with other materials, wood cladding can have a striking effect. An attractive example is the Rollinger office building in Walferdange (Luxemburg), where timber elements alternate with rows of glass windows, giving the building an interesting and transparent facade, so that it certainly does not look 'old hat'.

Wooden facades have a natural appeal, and can fit into the landscape with greater harmony than a building of steel and glass. A good example is the Hunsrückhaus, sited near the Erbeskopf mountain in the Trier region. This building is remarkable in two respects. It uses timber cladding in an innovative way; and it serves as an environmental information and training centre for wood-processing enterprises and for the general public. Its architectural design helps to alert a large public to many aspects of environmentally friendly construction.

Conclusion

From these reasons, TWIG concluded that the market for timber cladding was a rewarding area to work on. It therefore invited Alois Annen from Annen KG to speak at the conference to promote wood-related networks at Hofgut Imsbach (see page 43 section 4c), and at the final conference of the TWIG project in Athens in June 2002. Annen KG were present with a stand at the Öko 2002 fair (see page 72 section 6c); and timber cladding was presented as one innovative possibility during the workshop on marketing of regional wood held at that fair.

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f. Wood as a fuel for modern heating systems

Wood was probably the first fuel used by mankind. For thousands of years, Europeans have used firewood for heating and for cooking, and this tradition continues in many northern and alpine regions of Europe. However, the hard physical work involved in gathering, cutting, transporting and storing firewood, plus the cheap alternatives of coal, gas and electricity, have prompted many people to move away from this renewable fuel.

In the last century, however, wood-based heating systems have lost ground to those which use oil, gas or electricity and which involve less work for the householder.

Now, there are strong signs of a revival in wood-based heating systems. People are increasingly interested in the use of renewable energy, rather than depending on the finite supply of fossil fuels such as oil and gas. Moreover, wood-based heating systems are evolving fast into forms that are economical and do not demand heavy work by the householder. The high-efficiency stoves which burn logs (such as those produced by Jotul) are now being supplemented by more modern systems which burn wood chips or wood pellets. These systems are clean and easy to handle.

Moreover, these modern wood-based heating systems do not depend upon energy imported from far away. The chips or pellets can be made from locally-grown timber, and even from the thinnings or branches which are a by-product of forestry activity or from the offcuts of industries which use timber to make furniture and other products. This brings added value to local wood in the local economy, and supports the local supply chains. It is environmentally friendly, in that it does not demand long-distance transport. The fuel is energy-efficient: for example, production of wood pellets takes about 7% of the energy that they yield when burnt.

These advantages point strongly to a renaissance of wood as a fuel. The TWIG partners see this a potential major contributor to the added value that is needed in order to achieve sustainable management of woodlands. They have therefore sought to promote the idea of wood-based heating systems among planners, architects, suppliers and customers.

Bio-mass energy day in Thuringia

On 22 May 2001 was held in Jena the Bio-Mass Energy Day. This was designed to prompt trade representatives to think about the promotion of modern, comfortable, reliable and environmentally-friendly wood-burning heating systems. Several systems were displayed. Exhibits showed how such systems can be planned and installed in a new house, or during renovation of an old house; and how new and old heating systems can be connected to each other. The advantages of wood, as a renewable resource, were explained, and its costs were shown to compare favourably with systems based on oil or gas. The legal regulations, such as those related to storage of biomass and to control of emissions, were explained. Systems of financial support were described.

A booklet on that event, "Thermische Verwertung von Biomasse", in German only, is available from the Umweltzentrum des Handwerks Thüringen. Its contents include:

- Promotion of bio-mass systems in Thuringia
- Bio-mass for energy purposes
- Wood-burning heating systems for small enterprises
- Legal provisions for control of gases, smoke, noise and smells
- Latest developments in wood-burning heating systems
- The experience of various enterprises in using these systems.

Public view of a modern wood heating system.

About 70 visitors from Thuringian enterprises were present on the Bio-Mass Energy Day. The event ended with an excursion to the bio-mass heating power plant in Jena.

Contact: Umweltzentrum des Handwerks Thüringen (see address at the end of the Guide).

g. Promotion of wood-based heating sytems

The TWIG partner in Trier, the Saar-Lor-Lux-Umweltzentrum, has taken several initiatives to increase professional understanding of modern wood-based heating systems.

- It has developed advanced training modules, related to the use, installation and management of wood-based heating systems. These are aimed at architects, who need to consider heating systems when they design houses, and others such as craftsmen.
- Similar training is offered to communal decision-makers, since they have responsibility for heating of public buildings and even for building of wood-based power stations. Moreover, they may own the raw material, in the form of communal woodlands.
- The training concepts were also integrated into modules of the further education programme for 'energy counsellors for buildings within the crafts'. The modules include topics like energy and environmental technology and heating installations technology. They offer knowledge related to different sources of energy, assessment of alternative uses of energy, and the characteristics of different heating systems. The TWIG partner worked with the Centre for Environmental Management of the Crafts Chamber of Rheinhessen to offer a seminar on 'Wood burning systems – installation, use and maintenance'.

The wood chip bunker serving the heating system at Hotgut Imsbach.

Display of wooden pellets at the Öko Fair.

Consumers also were alerted to the issue. The first wood pellet fair in Rheinland-Pfalz was held within the framework of the environmental fair 'Öko 2002' (see page 72 section 6c). This fair included a display of several different heating systems, and also a specialists' symposium for crafts-businesses and other professions. During this event, experts described the production of wood pellets, different heating systems, building of chimneys and the combined use of pellets and solar energy. The displays and the symposium attracted a lively response.

By these means, the foundations were laid for a wider diffusion of wood as an energy source in the region of Trier. Other regions, especially those with a strong resource of woodlands, are recommended to promote the use of such modern wood-based heating systems, by encouraging the creation of regional supply chains for wood pellets or wood chips and by training regional crafts-businesses, architects and others.

Contact: Saar-Lor-Lux Umweltzentrum des Handwerks (see address at the end of the Guide)

h. The potential supply of wood for heating systems in the Chilterns

While the Trier partner was concentrating on the demand side of the wood-heating market (as described above), the Chilterns partner decided to look first at the supply side – i.e. how much wood, suited to burning, might come out of the Chilterns each year.

Three potential sources of wood-chips suitable for energy generation were examined – material from tree surgery operations, waste from wood-using industries and virgin wood from Chilterns woodlands.

A survey of tree surgery companies operating in the region indicated that the potential production from their cut material is probably in the region of 750m³ of wood chips per week, say 39,000 m³ per year.

Most of the waste from wood using industries is already used for heating purposes, so no surplus can be assumed.

The annual growth of standing timber in the woodlands of the Chilterns is estimated to be at least 87,500 m³, assuming an annual growth rate of about 5m³ per hectare. However, only about 38% of these woodlands are managed with timber production as a primary aim, and a further 32% with that as a secondary aim. This implies a total available product of about 61,250m³ of solid wood from woodlands which are managed with timber production as a primary or secondary aim. Of this, about 20% is of first or second quality, too good to use for fuel or pulpwood. The remaining 80%, about 49,000m³, might be available for wood-chip production.

Tree surgery display at the Chiltern Wood Festival

The governing factor will however be the price that the fuelwood market is prepared to pay. It may be safe to assume that prices of fossil fuels (oil, gas and coal) will remain broadly static over the next 10 to 20 years. To compete with oil and gas, wood for fuel will need to be delivered to the customer as wood chip at 40% moisture content for no more than 5 per gigajoule, which equates to 15/m³ for hardwood chips or 10/m³ for softwood chips.

If production costs can be kept to a minimum, particularly through efficient large-scale chipping systems, and transport distances kept to less than 20 km, it may (at the above prices) be possible to provide payment to woodland owners for standing timber equivalent to or higher than is available from existing markets. The economies of scale that would be required are unlikely to achieved in small woods, but may be possible for owners of more than 50 hectares. Properties with over 50 hectares include 88% of the woodland managed with timber production as a primary aim, and 74% of that as a secondary aim. On these figures, a realistic evaluation of the annual supply Chiltern woodlands of solid wood suited to chipping is about 40,000 m³.

Overall, the potential for production of wood-chips from tree surgery operations and woodland management in the Chilterns amounts to the equivalent of 470 terrajoules of energy. To put this in perspective, the baseload heating needs of a secondary school may demand between 2 and 3 terrajoules per year. The Chilterns partner in TWIG will use these findings to promote and encourage wood-based heating schemes, initially within public sector buildings and developments. Woodland owners and tree surgery companies will be informed about the potential market for their products, as and when these markets do emerge. The report on the study appears in the TWIG CD-Rom.

Contact: Mike Render, Senior Lecturer in Forestry, Forest Products Research Centre,
Buckinghamshire Chilterns University College,
Queen Alexandra Road,
High Wycombe, Buckinghamshire HP11 2JZ, England.
e-mail mrende01@bcuc.ac.uk

i. Resin - its collection, processing and added value

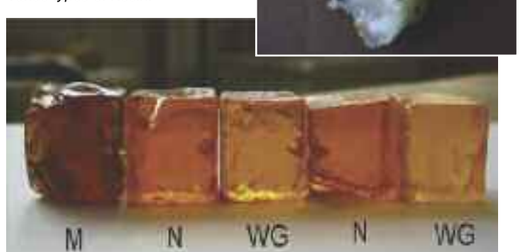
As stated earlier (page 8 section 2c) the forests of one of the TWIG regions, Evia, are composed largely of Aleppo pine. This tree has historically been used for tapping of resin. For this reason, a principal aim of the TWIG project in Evia has been to sustain the resin-tapping industry there, and also to find ways to add value locally to the resin that is gathered. To that end, the TWIG partner commissioned research into the collection and processing of the resin, as practiced in Greece and in other countries.

Pine resin (sometimes called oleoresin or 'naval stores') is a very abundant renewable resource, the products from which have a wide variety of domestic, industrial and other uses.

Crude resin obtained by tapping living pine trees is a thick, sticky but usually still fluid material. It is opaque (due to the presence of occluded moisture), milky-gray in colour, and inevitably contains a certain amount of forest debris (pine needles, insects, etc.) when it is collected from the trees.

Crude resin.

Varius types of Rosin.



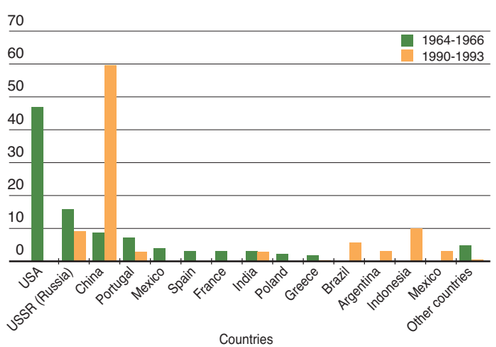
Processing the resin

Once resin has arrived at the factory, it is steam distilled to furnish the two co-products, rosin and turpentine. Typically, crude resin comprises 70-75% rosin, 15-20% turpentine and 10% foreign matter (pine needles, bark, insects, etc.) and rain water.

Rosin, or colophony, is the major product obtained from pine resin. It remains as a residue after distillation of the turpentine. It is a brittle, transparent, glassy solid, insoluble in water but soluble in many organic solvents such as alcohols and ethers. It has many uses. The end-products from rosin and rosin derivatives include, for example, adhesives, paints, floor polishes, pharmaceuticals, fertilisers, dental products, cosmetics, chewing gum, ink, polymers and paper sizing.

Turpentine is the volatile oil distilled from pine resin. It is a clear, flammable liquid, with a pungent odour and bitter taste. It cannot be mixed with water and has a boiling point above 150 C. It is a mixture of organic compounds, mainly terpenes, and its composition can vary considerably (more so than that of rosin) according to the species of pine from which it came. This greatly influences its value and end-use. The end-products from turpentine include insecticides, cosmetics, perfume, fine chemicals, solvents and wood treatment products.

Figure 1. World production of rosin



The effect of world competition

The world production of resin has remained almost stable, between 1.1 and 1.2 million tonnes per year, over the past 20 years. The producing countries are shown in Figure 1. This reveals the overwhelming dominance of China, where production of rosin has increased from 9% of the world total in the early 1960's to 60% in the early 1990's. Over the same period, production of rosin has virtually ceased in America, and has fallen heavily in Europe. The only countries in Western Europe which are now producing rosin are Portugal, Spain and Greece. France, which still has large areas of suitable pine, does not carry out resin tapping.

According to the Ministry of Agriculture of Greece (1997), the present pine resin production of Greece is about 6,000 tonnes per year. This compares more than 25,000 tonnes/year in the 1960's. This reduction was caused by the sharp fall in the price paid for raw resin, which demotivated the resin tappers. The revival of the sector is desired not only for the contribution of the tapping and resin processing activities to the rural economy but also for the protection of the forest area, since the tappers act as natural protectors of the forests.

Chapter 2 of this Guide describes the activity of the Greek partner in TWIG to produce a strategic management plan for the Aleppo pine forests, including the silvicultural measures which would boost the yield of resin, and financial support to the resin producers; and to provide technical help and skills training to those producers. In addition, the TWIG partner commissioned a feasibility study to examine the potential for innovative pine resin products. The aim of this study, undertaken by the National Technical University of Athens, in collaboration with other project partners, is to find ways to add value to the resin by-products and thus to the resin itself.

Selection of the Application Field. The study has involved research and laboratory tests. Initial results suggest that the products of turpentine could be proven more attractive in our attempt to produce innovative, high value-added products in N. Evia region. The main advantages of the utilization of turpentine are:

Resin by-products: Rosin & turpentine stored in alluminium barrels and silo tanks respectively, at a plant in Evia.

- The availability of turpentine in big amounts since it is not exploited at the moment. The value added turpentine products is more likely to have a positive effect on the income of pine tappers since turpentine is not exploited from the already existing resin processing companies. On the other hand the development of a high value added rosin product is more likely to profit the existing industries causing the increase of rosin importation, instead of the augmentation of the local production.
- The possible exploitation of turpentine as it is, without further processing, in wood protection-cleaning-coating preparations, containing also other renewable raw materials.
- The capability of high value added product manufacture (e.g. flavor and fragrances) using relatively simple processes.
- The possible exploitation of turpentine derivatives as repellent or insecticides in local agricultural activities, replacing the petroleum based preparations, which are already in use.

The pros and cons of the three main application fields of turpentine are presented at the following table:

	Pros	*Cons*
WOOD TREATMENT	▶ Simple production process ▶ Local production consumption ▶ Easy to promote products ▶ Turpentine is the only organic solvent which is considered as environmentally friendly	▶ Lower additional value in comparison with the other two
INSECTICIDES	▶ New trends in insecticides ▶ Utilization in local activities ▶ Multiple utilization of the same product (flavor or insecticides)	▶ Time consuming biological experiments ▶ More complex production process ▶ Necessity of cooperation with a big company
FLAVOR AND FRAGRANCES	▶ High value addition ▶ Versatile product development	▶ More complex production process ▶ More difficult promotion ▶ No possibility for local production-promotion ▶ Necessity of cooperation with a big company

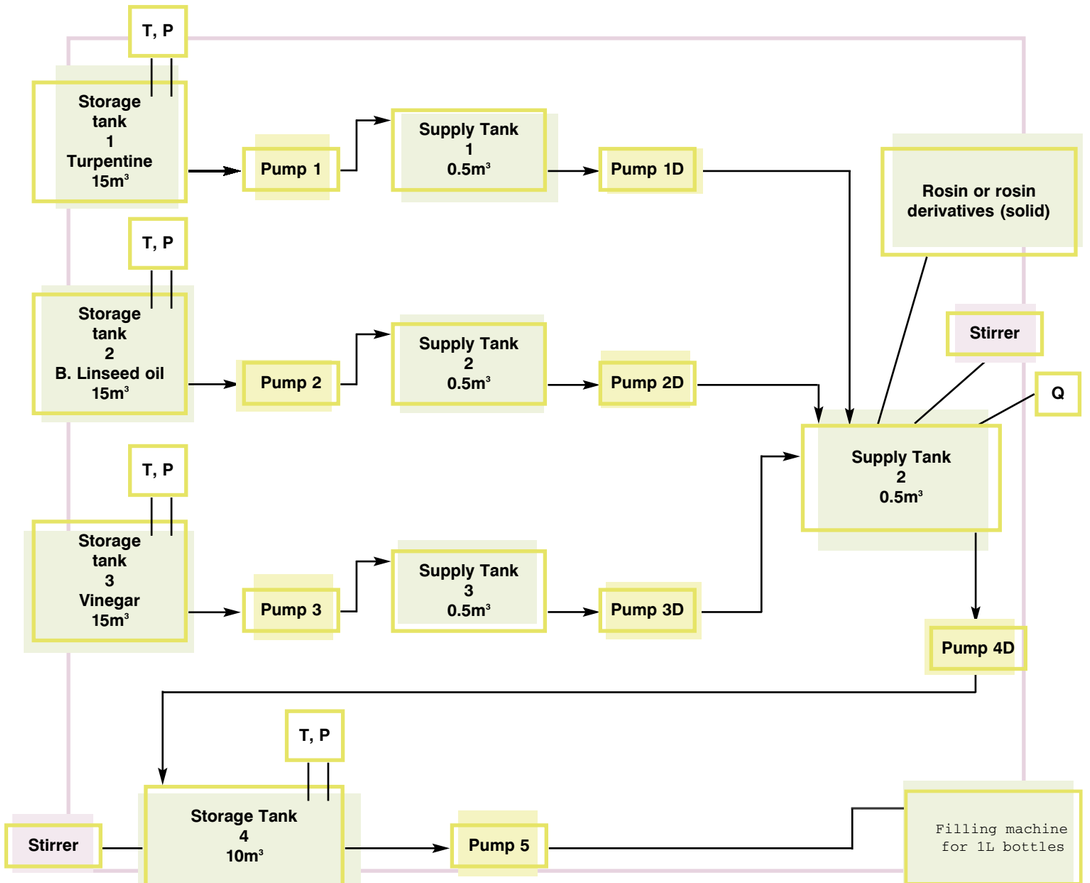
Taking into consideration the above table and the fact that making the further processing of turpentine feasible requires quite bigger amounts of pine oleoresin production, the wood treatment product category, which does not require further processing, has been chosen for the development of a new product range from pine oleoresin. The value, which will be added through these products to the pine oleoresin, will give motives to the pine tappers to increase their productivity. The augmentation of the produced pine resin not only could make the further processing of turpentine feasible but it would also contribute to the improvement of the role of Greek rosin processing companies in the global pine oleoresin market.

A brief review to the present literature and global wood protection-cleaning-coating market has shown that there are plenty of products, mainly considered as environmentally friendly, which contain turpentine in their recipe. Under the guidance of this knowledge and after laboratory experiments, a range of wood protection-cleaning-coating products utilising turpentine has been developed. Drying oils like linseed oil, vinegar and small amounts of rosin or its derivatives have been also used as ingredients of the produced preparations.

Contact: National Technical University of Athens (see address at the end of the guide).

Flow chart of the proposed pilot plant

The flowchart of the suggested pilot plant is presented at the following schedule:



j. On-site saw-milling, and air-drying, in the Chilterns

These days, most commercial timber is produced by large saw-mills, which depend upon large quantities of high-grade timber from large forests. Small woodland owners cannot sell their timber into this market. How then are they to make money from their timber?

The TWIG partner in the Chilterns decided to offer advice, to the owners of small woodlands in that region, on two techniques which could help to answer this question – on-site saw-milling, and air-drying of timber.

Planks stacked for air-drying after on-site saw-milling.

On-site saw-milling

A study of on-site saw-milling was carried out by Loren Eldred of the Chiltern Woodlands Project. He then produced an information pack to give practical advice to small woodland owners. The pack is not sufficiently detailed to enable owners themselves to use a mobile saw-mill, but it allows them to decide whether to hire a contractor to do the work for them.

The pack covers factors such as:

- the type of mobile saw-mill to choose
- the best season for felling and milling
- extraction routes, handling and stacking sites, and areas of hard standing
- presentation of timber for milling
- use of the milled timber
- legal considerations, and health and safety issues.

The pack also contains a directory of local contractors who can undertake on-site saw-milling, and of suppliers of equipment; and a bibliography for further information.

A key issue for woodland owners is how much extra value they can add to the timber by milling it themselves. The Chilterns partner organised a demonstration. This showed that, by converting timber on site, one can achieve profits of 200% to 300% on timber that will be sold; and even higher rates of return where the timber will be used by the woodland owner, because he would otherwise have to buy the timber at retail price.

The pack has been well received throughout the UK, even though only local contractors are listed. More than 350 copies have been distributed. We cannot say how much extra timber has been converted in the Chilterns as a result, but the initiative has certainly increased the interest and knowledge of owners in this simple way of adding value locally to their woodland products.

Air-drying of timber

Having converted your trees to planks, beams or whatever, the next way to add value is to dry them ready for final use. There are many uses for 'green' or freshly cut wood: but most interior uses will require timber to be dried before it is used. There are two main techniques for drying timber - kiln-drying and air-drying. Kiln-drying is more rapid and controllable, but it demands more capital and equipment. Air-drying, which is a technique available to all woodland owners, takes more time (a minimum of 18 months, and for some timbers a longer period), but can yield valuable economic returns for a small capital outlay.

A study by the Chilterns partner showed a wealth of information about kiln-drying on the internet, but very little information on air-drying. To rectify this, and to complement the on-site saw-milling pack, the Forest Product Research Centre at Bucks Chilterns University College was commissioned to write a guide to the air-drying of timber. This has been published in the form of an information pack.

The pack details the main principles and methods of air-drying, particularly those suited to timber that is grown and harvested in the Chilterns. It is aimed at woodland owners and timber processors who wish to dry small volumes of timber.

Timber that has been air-dried is often referred to as 'seasoned'. Correctly seasoned timber can command a much higher price than green timber, because the buyer can use it immediately. To maximise the profits, one must minimise the wastage that can occur during drying. For example, there is little point drying a consignment of wood for 18 months if 50% of it will be rejected by the potential buyer because of drying defects such as end-splitting, twisting or staining.

The pack explains why it is important to dry the timber, how to construct a drying stack and how to avoid defects. A detailed financial analysis of air-drying gives a guideline cost (for 2002) of about 27 (44 euro) per cubic metre. The financial return can be significant. For example, green oak beams in the Chilterns are being sold at 636 (1043 euro) per cubic metre, whereas air-dried beams fetch 883 (1448 euro) - an added value of 400 euro per cubic metre.

The two packs mentioned in this text are available from Chilterns Conservation Board:

'On-site Saw-milling and Timber Conversion Information Pack'
'Air drying of Timber Information Pack'
Both packs are included in the TWIG CD-Rom.

Contact: Chilterns Conservation Board (see address at the end of the Guide).

Demonstration of on-site saw-milling, Chiltern Wood Festival.

k. Woodland initiatives in the United Kingdom

The United Kingdom is blessed with a multitude of woodland based projects which, between them, cover just about every conceivable aspect of promoting woodland management from advising growers to training furniture makers, and every stage in between. It is not possible here to do justice to the work of all of these projects, or even to thoroughly look at any one. However, each project has, through its individual approach and circumstance, produced unique insights into specific aspects of promoting woodland management.

The main purpose of most of the initiatives highlighted below was to develop the concept of 'adding value' locally to woodland products, as a counter to the problems of reduced profit margins and currency fluctuations in a global market faced by the mainstream forestry industry. The ideas generated and illustrated by these initiatives can offer real alternatives to the high volume/low value market.

The table below summarises the main area of work of some of the most significant woodland initiatives. The table gives contact details, web site addresses and the like for those wishing to know more about the findings of a particular initiative. TWIG invites you to make contact with them and to learn from the wealth of individual experience generated by these projects.

Initiative	*Aims*	*Areas of Experience*	*Contact*
Anglia Woodnet	Woodland business development in East Anglia.	Certification; wood for fuel; woodland + wood-based enterprises.	Anglia Woodnet, 25 Turbine Way, Swaffham, PE37 7XD, UK., Tel.: +44(0)1760 724500 www.woodnet.uk.com
Chiltern Woodlands Project	To promote the sustainable management of woods in the Chiltern Hills.	Advice to woodland owners; workshops; events; newsletters.	CWP, 8 Summerleys Rd., Princes Risborough, HP27 9DT, UK. Tel.: +44(0)1844 271315 www.chilternsaonb.org/cwp
Coed Cymru	Greater economic and biological diversity in Welsh woods; optimum use of wood in the local economy; reduced dependence on imported hardwoods.	Providing impartial help, advice and training; promoting co-operation between woodland owners, contractors and timber users; developing hardwood timber products and markets.	Coed Cymru, The Old Sawmill, Tregynon, Newton, Powys, SY16 3PL, UK. Tel.: +44(0)1686 650777 www.coedcymru.mid-wales.net
Cumbria Broad-leaves	To reintegrate woodlands with the rural economy by active management.	Farm and woodland advice; training; business support; coppice.	Cumbria Broadleaves, Rayrigg Meadow, Bowness on Windermere, LA23 1BP, UK. Tel.: +44(0)15394 88802, e-mail only: cumbria@broadleaves.freeserve.co.uk
The Green Wood Trust	To support native British woodland and encourage continuation of traditional coppice crafts.	Teaching traditional coppice crafts and woodland management skills; production of greenwood landscape furniture.	The Green Wood Trust, Station Road, Coalbrookdale,Telford, TF8 7DR, UK. Tel.: +44(0)1952432769 www.greenwoodtrust.org.uk
Heartwoods	Support for the wood supply chain in the West Midlands Region.	Sustainable woodland Heartwoods, management; supply chain; marketing & promotion; product development.	Forestry Commission Offices, Whitcliffe, Ludlow, SY8 2HD, UK. Tel.: +44(0)1584 878322, www.mwi.org.uk
The Lancashire Woodlands Project	To co-ordinate the activities of local woodland owners and the local timber supply chain in Lancashire.	Management plans; branding and chain of custody; woodland owners' co-operatives; marketing local timber. Bowland Initiative - 'Added Value Project, '99 - 01'.	The Lancashire Woodlands Project, Lancs. County Council, Preston, PR1 8RD, UK. Tel.: +44(0)1772 263917 e-mail only: paul.bullimore@env.lancscc.gov.uk
Oxfordshire Woodland Project	To foster a secure future for Oxfordshire's small woods by adding value to timber and maintaining biodiversity.	Information & advice; facilitating market activity; education through field events, workshops & publications; Community Coppice.	Oxfordshire Woodland Project, Park St., Woodstock, Oxfordshire, OX20 1SN, UK. Tel.: +44(0)1993 814140 e-mail only: owp@oxfordshire.gov.uk
The Silvanus Trust	To develop the viable and sustainable management of woodlands in the South West Region.	Economic programmes such as 'Working Woodlands' and 'Woodworks'; Social programmes such as 'Tap Routes', 'Connections' & 'Our Trees'.	The Silvanus Trust, Kyl Cober Parc, Stoke Climsland, Callington, Cornwall, PL17 8PH, UK. Tel.: +44(0)1579 372100 www.silvanustrust.org
Small Woods Association	To bring together those with an interest in small woods. To inform and motivate management of small woods and encourage understanding.	Training courses, conferences & seminars;woodland publications; influencing national policy; co-ordinating woodland initiatives.	Small Woods Association The Old Bakery, Pontesbury, Shropshire, SY5 0RR, UK. Tel.: +44(0)1743 792644 www.smallwoods.org.uk
Weald Woodnet	To link growers of wood with users of wood around the High Weald area	Developing networks to address market failure in the local wood supply chain; 'Woodlots'; development of sweet chestnut products; Woodland Enterprise Centre; Weald WoodFair.	Weald Woodnet, Woodland Enterprise Centre, Hastings Road, Flimwell, Wadhurst, TN5 7PR, UK. Tel.: +44(0)1580 879552, www.woodnet.org.uk
Wessex Coppice Group	To encourage the economic growth of the hazel coppice . industry	Greenwood training schemes; product development and marketing of coppice products.	Wessex Coppice Group, Vale Farm, Smugglers Lane, Monkwood, SO24 0HD, UK. Tel.: +44(0)1962 772030, www.coppice.org.uk
The Woodschool	To promote the use of Scottish hardwood and to make this available to the public at large.	Converting and supplying locally sourced hardwoods; creating fine furniture from sustainable sources; development of craft and business skills in designer-makers.	Woodschool Ltd., Monteviot Nurseries, Ancrum, Jedburgh, TD8 6TU, UK. Tel.: +44(0)1835 830740 www.woodschool.ltd.uk
Working Woodlands	To revitalise the timber and wood products industry in South West England.	Marketing strategy for development and delivery of wood as fuel. Equipment and processesfor adding value locally.	Working Woodlands, Barton Farmhouse, Dartington Hall, Totnes, Devon, TQ9 6ED, UK. Tel.: +44(0)1803 867891 www.workingwoodlands.co.uk
Yorwoods	Encouraging multi-purpose, sustainable woodland development to contribute to the rural economy in North & East Yorkshire.	Woodland advice; awareness raising; training; business development; capital grant aid; Yorkshire Woodfair.	Yorwoods, Aske Gardens, Aske, Richmond, DL10 5HJ, UK. Tel.: +44(0)1748 826519 www.yorwoods.co.uk

a. Introduction to the theme

If value is to be added locally to forest products, there must be enterprises within the region who have the ability to process or handle those products and to market them effectively. Moreover, these enterprises may need to be linked effectively with each other in 'supply chains' which cover the full sequence from the forest manager to the consumer of the finished products.

In some European regions, the enterprise involved in these processes are large and sometimes fully integrated – for example, major timber-supply companies or paper producers who own and manage the forest, undertake or contract out the process of felling trees, transport the logs to saw-mill or paper mill, and produce and market the finished products. They have the expertise and the resources to compete on the world market.

However, very many enterprises involved in wood-based commerce are small, and are focused on only part of the supply chain from forest to consumer. This is particularly true of the supply chains which exist – or, where they do not exist, are much needed – in the field of using the products of small woodlands or of innovation in the use of woodland products.

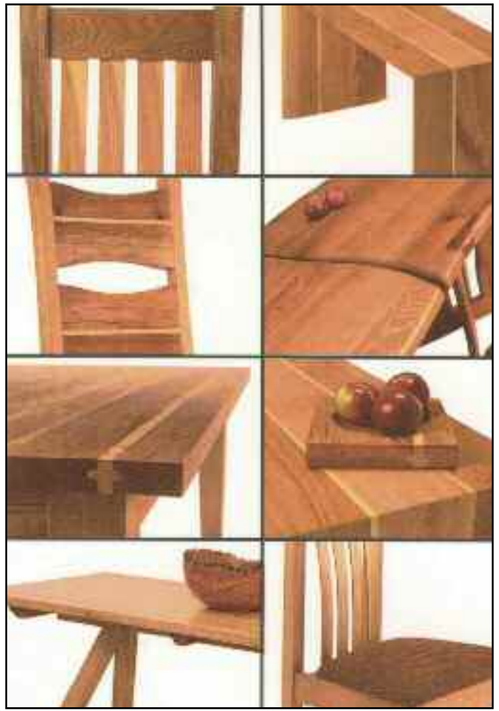
Such small enterprises may find it difficult to keep abreast of technical changes and new marketing opportunities in their field; and may, indeed, be unfamiliar with other parts of the supply chain of which they do, or could, form part.

TWIG initiatives

The TWIG partners have sought, in different ways, to support wood-related enterprises in their regions, with a strong focus on the promotion of supply chains and on marketing of wood-related products and services.

In this chapter, we describe:

- The trans-national activity and exchanges between the TWIG partners in this field.
- The promotion of wood-related networks in Trier.
- Two initiatives in the Chilterns, namely the Wood Industries Liaison Group and the Chiltern Wood Directory.
- Support for very small wood-based companies in Evia.



Scottish woodschool designs.

- The use of environment management audit systems (EMAS) as a stimulus to business development and marketing, with an example from Trier.
- The use of a quality concept as a marketing tool in Thuringia.
- A focus on quality in the marketing of charcoal produced in the Chilterns.

b. Trans-national exchanges in marketing and business development

The TWIG project was created and managed in the spirit of trans-national exchange. It gave opportunity not only to the partners, but also to many of their associates in each region including commercial enterprises, to visit other TWIG regions and to compare experinence in the management of woodlands and of enterprises based on woodland products. They were able to 'think trans-nationally, act regionally'.

International seminar

A milestone of the TWIG project was the international seminar on marketing and business development, organised by the Thuringia partner. This event, aimed at woodland owners and wood-processing enterprises, was held on 13 and 14 November 2001 at the hotel Radisson SAS in Erfurt. It attracted speakers and high-ranking representatives from all the TWIG partner regions.

The seminar focused on three main topics – marketing of timber and wood products; certification of these products within the PEFC framework; and business development for small and medium-sized enterprises in the wood-processing field.

It became clear that these fields are marked by similar problems in many European countries. Therefore, exchange of experience between specialists is a good investment. Personal contact between specialists remains important, despite modern means of communication. There is need for close co-operation between timber producers and wood-processing enterprises, so that they can reach their customers effectively. Many small enterprises need to sharpen their practice in marketing of wood products. Forest certification systems have a crucial role in achieving sustainable forestry and in serving the needs of both wood producers and wood-processing industries.

Alan Sherrard of Elmia (Sweden) addressing the International Seminar on marketing and business development.

The report on the seminar, entitled 'Documents of the International Business Development Seminar', is available at the price of 10 euro from the TWIG partner, Umweltzentrum des Handwerks Thüringen (see address at the end of the Guide). It will also appear on the TWIG Website and in the TWIG CD-Rom. It includes texts related to:

- Situation and tasks of woodland certification.
- How can woodland policy promote wood-processing SMEs?
- Prospects and tasks of woodland policy in Thuringia.
- Presentation of several marketing strategies and campaigns.
- Innovative marketing – techniques for small enterprises.
- Innovations in timber construction and new marketing methods.
- Experiences and solutions in the introduction of EMAS in wood-processing enterprises.

Contact: Umweltzentrum des Handwerks Thüringen (see address at the end of the Guide).

Trans-national exchange visits

The TWIG project has prompted many useful exchange visits between the four TWIG partner regions. For example,

- an expert from the Chilterns visited Trier to study the supply chain for wood fuel, with a focus on the wood-based heating systems
- the winners of the furniture design competition in the Chilterns visited Trier and Thuringia to study furniture making methods
- two furniture makers from Trier, and the head of the Trier-Saarburg carpenter's guild attended the Chilterns Woodland Festival and met local enterprises to exchange experience
- an exhibit of forest products from Evia was presented at the Chilterns Wood Festival.

It is hope that these contacts will continue after the life of the TWIG project.

The audience at the International Seminar on marketing and business development.

c. Conference to promote wood-related networks, Trier

In the region covered bythe TWIG partner in Trier, the Saar-Lor-Lux Umweltzentrum, the links within the supply chain from forest to consumer are not always strong. To promote those links, the Umweltzentrum organised a conference, working with the Saarländische Ökologie-Zentrum Stiftung Hofgut Imsbach.

This event brought together people from western Germany, and parts of Luxembourg and France, who are involved in forestry and woodland management, timber construction, marketing of regional wood products, crafts businesses and architecture. It enabled them to gain new know-how through lectures and workshops, for example about co-operation between local craft businesses and about innovative uses of wood; and also to exchange experiences and to make connections between different professional fields. For example, the joiners were able to explain to the foresters the character of the timber that they need: the foresters, in turn, could say whether they could produce that material. This connection between different interests was an important achievement of the conference.

The conference in session at the Hofgut Imsbach.

Initiatives

A number of significant initiatives were described at the conference. These included:

- The Saarbrücken Hochschule für Technik und Wirtschaft has, in cooperation with carpenters, developed the 'Saarholzhaus' - an innovative construction system combining wooden frame construction with 'passive house' characteristics. A 'passive house' is one which uses no fossil fuels for heating, gains its energy only from solar power and heat exchangers, and is extremely well insulated. It offers new marketing possibilities for carpenters, and its development has served to establish new co-operation among carpentry enterprises.
- Annen KG presented different building projects, where innovative techniques of timber cladding were used for insulation and weather protection.

- The forestry office in Nohfelden has been working on new local and regional product lines for wood. The direct marketing of timber for sheds and other small buildings was supported by different public relations measures, and local saw-mills gained new market contracts. Publicity was given to direct sales of local wood to joiners. Many joiners in the Saar region are now ready to use local wood, which will help to establish and maintain local supply chains.
- The joiners' guild of Trier-Saarburg (in cooperation with the Technologie Zentrum and the University of Applied Sciences, both based in Trier) has offered training to joiners in the use of multi-media applications. Crafts businesses need to keep in touch with new technologies, but small enterprises may not have the financial and personal resources to train their employees in the use of computers. This is where the project came in. Joiners were enabled to use intranet and internet for marketing measures, so that they can acquire new customer groups. The advice and training offered by the project is custom-made to the individual needs of small and medium enterprises.

Conclusion

The conference showed two things clearly. First, if wood products are to gain added value within their region of origin, there must be effective regional supply chains. Second, a conference like this can foster communication and co-operation between different professions and different enterprises. The continuing challenge is to build upon this co-operation so that self-sustaining networks are created, and regional supply chains become an operating reality.

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The conference in session at the Hofgut Imsbach.

d. Wood Industries Liaison Group, in the Chilterns

In the past, the management of woodlands in the Chilterns depended upon a supply chain. Those who produced the timber knew the people who would buy it and use it, including a multitude of small furniture workshops.

But the 20th Century saw a continuous shift of trade in woodland products from a local to a global marketplace. The furniture industry, which had been a major user of Chilterns beechwood, coalesced into fewer bigger factories, which increasingly used imported timber. Thus the local supply chain was broken: the wood-using industries lost their links to the woodlands which had supported their development.

Today in the Chilterns there are still many small companies, producing furniture, joinery, buildings, fencing, flooring and other wood-based products. Much of the wood that they use comes from outside the region. Could they be encouraged to use more locally-produced wood?

That question formed the starting-point for the Wood Industries Liaison Group. The aim was to rebuild the links between these companies and those who grow or cut or sell the local timber – namely the woodland managers, saw-millers and timber merchants – and thus to stimulate the renewal of a local supply chain.

The idea behind the Liaison Group is very simple - to bring representatives of all potential links in the local supply chain together in one room; to use speakers to stimulate thinking about common problems and to help the group to communicate; and then to leave them to 'network'. In this way, eyes may be opened to new, local, business opportunities.

Business breakfasts

What is the best timing for such a meeting, between people who may not know each other in advance and may not know what to expect? A 'Business Breakfast' format was adopted, with an early start and finish - 08:00 to 10:30 hours. This early start would leave most of the working day intact, and make it less likely that participants would have clashing arrangements. Moreover, it is an unusual time for a meeting in England and suggests something different.

Two such Business Breakfasts have been held. The first was on 17 May 2001 at High Wycombe Cricket Club. The agenda was:

8:00 - 8:30	Breakfast
8:25 - 8:45	Steve Rodrick, Chilterns AONB - The local wood supply chain in the Chilterns: strengths, weaknesses, opportunities and threats.
8:45 - 9:00	Jim Unwin, Supply Chain Advisor from the Government Department of Trade and Industry – Developing a supply chain: the benefits of trading locally: creating links between local suppliers and consumers: the value of co-operation in business expansion.
9:05 - 9:15	Phil Birtles, Bucks Chilterns University College – The Business Exchange Initiative.
9:15 - 9:30	Philip Koomen, furniture designer – A study in sustainable furniture design.
9:30 - 10:30	The next steps – Open discussion chaired by Gareth Ralphs, Economic Development Team Leader, Wycombe District Council. What are the current constraints on the local supply chain? What can we do to alleviate these constraints? What are the opportunities for local co-operation?

There were 35 delegates, representing more than 25 local companies from all sectors of the wood supply chain. Some indication of the success of the event is that, although all speakers kept strictly to time, informal discussion ran well past the 10:30 official end and several delegates were still 'networking' at 12:15. A short questionnaire survey was also carried out. This showed that:

- 100% of respondents thought that the event was very (87%) or fairly (13%) relevant to their interests.
- 100% of respondents indicated that the balance between formal input and discussion was appropriate. Almost 90% felt the overall standard of presentation was excellent or good.
- There was a wide call among the delegates for further meetings of the Industries Liaison Group, and for multi-disciplinary focus groups, for example on woodland regeneration.

Action programme

An action programme was drawn up during the meeting. A full report on progress against these actions was then presented to the second meeting held on 7 February 2002. 53 delegates came to this second event, again representing all sectors of the supply chain. The agenda reflected the action points raised at the first meeting, and also introduced several new business opportunities for discussion.

8:00 - 8:30	Breakfast
8:30 - 8:35	Introduction (Mike Furness, Chilterns AONB)
8:35 - 8:50	Progress Update (Gareth Ralphs)
8:50 - 9:10	Furniture Makers Update on Germany visit (Stuart Linford, Philip Koomen, Richard Williams)
9:10 - 9:30	Local Wood for Highway Structures (Mike Furness)
9:30 - 9:40	Break
9:40 - 10:00	Wood-as-Fuel Report (Mike Furness, Chilterns AONB)
10:00 - 10:30	Presentation of the Woodschool (Eion Cox : see page 66 section 5h)
10:30 - 11:00	Open Discussion

At the end of the meeting, a strong endorsement was given for continuing with the meetings in their current format.

Conclusion

The Wood Industries Liaison Group has succeeded in its main aim of encouraging communication between the various sectors of the local supply chain and providing a networking opportunity. The strong emphasis on action was welcomed by the business people taking part, and this stimulated a positive response.

Some immediate benefit to the local economy has been realised. For example, furniture makers have visited local saw-millers to discuss their respective needs and constraints. Other activities will take longer to realise. It will take time to rebuild a supply chain in the Chilterns. But more than 50 companies and individuals are now aware of the local market opportunity and are putting their expertise and experience into developing this. The challenge for the public sector is to continue to foster the Industry Liaison Group until it is sufficiently valued to stand alone in the private sector or is no longer needed.

Contact: Chilterns Conservation Board (see address at the end of the Guide).

Eion Cox, Director of the Woodschool, speaking to the Chilterns Wood Industries Liaison Group.

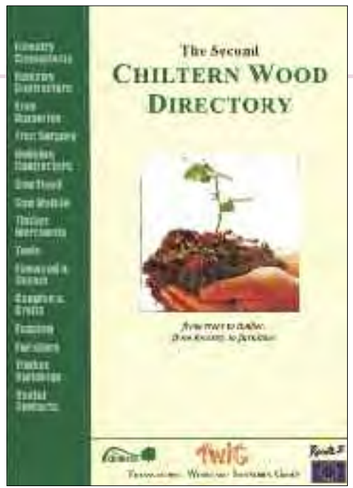
e. Chilterns Wood Directory

A key purpose of the TWIG project in the Chilterns was to make better known the skilled craftsmen in wood, the suppliers of wood and wood products, and other relevant organisations in the region.

The Chilterns Wood Directory was designed to assist that purpose. It was intended as a convenient reference source for both wood-using businesses and the buying public, enabling them to find, as easily as possible, timber grown in the Chilterns and wood products made there.

The Directory was first produced for distribution at the Chiltern Wood Festival (see page 75 section 6e), in order to target an interested audience in a relevant environment. The format was to be simple, clear and cheap to produce.

Contents. An illustrated full colour cover was printed to bind a black and white document which listed about 400 companies, organisations and individuals. Entries were divided into 14 categories - Forestry Consultants, Contractors, Tree Nurseries, Tree Surgeons, Hedging Contractors, Saws (Fixed and Mobile), Timber Merchants, Tools, Firewood & Stoves, Coppice & Crafts, Fencing, Furniture, Timber Buildings, and Useful Contacts. These categories reflect the local situation and the potential to use local timber: for example, furniture makers were included but joinery companies were not.



The Chiltern Wood Directory.

The first edition of the Directory was almost completely distributed at the first Wood Festival. Very positive reaction to the document encouraged us to produce a second, expanded edition about 6 months later. More than 2,750 copies of this edition have now been distributed.

Who uses it? The Directory is used by members of the public - particularly those with a specific interest, such as wood turners, owners of small woodlands or 'green' consumers - to find Chilterns products and services. However, it is clear that its main use is as a reference book for businesses, and for those who have a professional interest in wood or in woodlands. It is also much used by those in an advisory capacity in the public sector. Indeed, the Directory has been invaluable to TWIG in the Chilterns as a database, enabling us to make and maintain contact with the wood and woodland sector across the region.

Conclusion

Given this quite specific 'Business to Business' role, the content of the Directory is too broad for most users. Future editions may need to be less generic, and more focussed on the needs of particular sub-sectors in the local economy. Funding will continue to be needed: but the low-cost format has been well received, so costs can be kept to a minimum. The Directory has been placed on several web sites, and we have thought of producing the Directory as an e-document only. While this is cheap, it is not as convenient as a compact desktop reference book, which users seem to prefer. However, a web site version of the Directory has the key advantage that it can be kept up to date, bearing in mind that telephone numbers, addresses and personnel change with great frequency.

Contact: Chilterns Conservation Board (see address at the end of the Guide).

f. Supporting innovation in very small companies in Evia

In the Greek region of northern Evia, there are many very small companies whose activity is based upon wood and who are facing the need to adjust their activity to a changing market. How can they be helped to innovate?

Barrel making in Limni, Evia.

The IMT technique

There are, in Europe, well-established techniques for helping innovation. Most of the Innovation Management Techniques (IMTs) have been developed for SMEs which have more than 10 employees. But many of the companies in Evia are smaller than this. The TWIG partner in Greece therefore sought expert help in developing an IMT programme suited to these very small companies.

European experience in recent years suggests the following principles

- Technological innovation will produce most benefit when it forms part of an overall business strategy.
- Innovation management techniques should be introduced from the beginning of any project for technical or organisational innovation.
- Most small enterprises lack the knowledge to use IMT. That is why some member states of the European Union have introduced national or regional programmes to promote the use of IMT, with the strategic aim of increasing industrial competitiveness. The EU is seeking to strengthen these programmes.

The project in Evia

The IMT project in Evia was based on the belief that there is no "best" method for managing innovation in very small companies. The correct method is one that responds to the specific features of the enterprise and project, at the time the assignment is taken on. The need is to address the logic of the request for help, to identify the company's needs and to select the action that can meet these needs.

An audit methodology was adapted. This involved examining the company's activities from three different perspectives:

- Inward-looking, related to project management, design techniques, re-engineering, value analysis etc.
- Outward-looking, related to benchmarking, marketing, technology watch etc.

Barrels in the making.

- Forward-looking, related to creativity tools, quality management etc.

The method involved three steps, applied to each company:

- Business innovation diagnosis, including recommendations for the better development and progress of the company;
- Proposed implementation plan;
- Follow-up assignment, to monitor and support the implementation of recommendations over a certain period.

This approach has been successfully used in eight very small companies related to the woodland economy in North Evia. One example is described below.

A sample company

The company uses locally-produced wood to produce pallets, drums and wooden frames for the transport or packaging of heavy industrial products such as cement, aluminium or cables. The company was founded in 1984 by the current owner. It has a manufacturing plant (500 sq. m.), and a central office in the nearby village. It employs 8 permanent, and 3 to 5 temporary, workers. Its by-products include firewood and sawdust, which is used by a local factory.

The company has a production capacity of up to 5,000m^3 of wood per year. During the period 1990 to 1995, actual production reached a maximum of 4,000m^3. Today, however, production is down to 2,500m^3, due to market constraint. The market is limited to Evia and the nearby mainland of Greece. The company's customers have been 8 major factories operating nearby in aluminium processing, cement production etc. In recent years, the company has had to compete with suppliers in east Europe, including new plants established in Bulgaria. The prices of the end-products are now 17% less that they were 10 years ago.

Opportunities. The entrepreneur's intention, before the IMT audit, was to cut labour costs (about 14% of the company's total costs) and to increase production, in order to lower the unit cost of the end-product. However, during the audit, a number of opportunities for innovative action were identified, giving a different perspective to the company's future.

Through the IMT audit, all aspects of the business activities were evaluated, in an effort to identify the opportunities for better management, profit, and sustainable development. This included analysis, and extensive discussion with the entrepreneur, related to business management; the human resources available; marketing activities; competition; quality and diversification of products; and financial management. Throughout this process, the importance of the knowledge-driven economy, the market-driven economy, and innovation in the new global economy was emphasised.

The need to look outwards. It became clear that the company's main drawback was the inward-looking nature of its strategic actions. The entrepreneur, despite his abilities, spent all his energy focusing in the inside of the company, with no

attention to the market, the customers or the company's profile and environment. Therefore, in the report which followed the audit, most of the proposed innovations looked outwards to the opportunities which the company has:

- To expand the market by approaching new customers.
- To communicate with customers.
- To focus on satisfying the actual needs of customers.
- To improve, and constantly update, its knowledge of its field of operations.
- To diversify its production into alternative kinds of wood pallets (it currently produces only 3 out of about 50 different kinds).

A total of 11 innovative actions was proposed, aimed at increasing the sales and profit without major capital expenditure. The timetable, the means for implementing the actions, and other details included in the plan were fully discussed with the entrepreneur.

Pallets made from local wood at a wood processing plant in Evia.

Follow-up visit. Six months later, a follow-up visit took place to evaluate the company's progress, based on the 11 proposed actions. The entrepreneur was asked to make his own assessment of the progress. This evaluation showed that :

- the entrepreneur had implemented or embarked upon 8 out of the 11 proposed actions
- the negative trend of sales had been reversed
- the value of sales in sales in the first nine months of 2001 had increased by 10% compared with the previous year.

In the light of this evaluation, and of market conditions, a company development plan was prepared, charting action over the following 12 months. This proposed, among other actions

- Participation of the entrepreneur in trade fairs.
- Hiring of administrative personnel.
- Making use of Information and Communication Technologies (ICT).
- Developing a programme of public relations and promotion, focused on existing clients.

Conclusion

This pilot project in North Evia has shown that IMT can significantly help the financial viability of very small enterprises, provided that the technique is adapted to the specific character and needs of individual enterprises.

Contact: PRISMA - Centre for Development Studies (see address at the end of the Guide).

g. EMAS Certification: a means to promote the use of locally-produced wood

How can wood-processing firms be encouraged to use locally-produced wood? An initiative encouraged by the TWIG partner in Trier offers one answer – the EMAS Certification.

The EMAS Certification is an environmental management system which can be applied to any production process. It focuses on the impact upon the environment of all steps in the process, from choice of inputs to processing techniques, packaging etc. It aims to highlight ways in which this environmental impact can be optimised. It can also point to significant financial savings and technical improvements, and can contribute to the marketing methods and the image of a company.

Barrier free kitchen and cupboard of red beech, suited to use by handicapped people, from the Müller workshop.

Joinery company

Action taken by a joinery company in Trier, with the assistance of the TWIG partner, provides an example of the EMAS technique, and shows how the changes prompted by the audit can include the greater use of locally-produced wood.

Rudi Müller runs his joiner's workshop (Baubiologische Schreinerei Müller) at Gusterath near Trier. When he launched an EMAS audit, he resolved that it must include raising the ecological awareness of his employees because no far-reaching changes could be made without their involvement. He took an unusual approach : he appointed an apprentice as representative for environmental management. The apprentice, showing great commitment, was soon accepted within the workshop as an authority on environmental matters.

With the support of the TWIG partner – the Umweltzentrum des Handwerks Trier - all areas of the enterprise were assessed for their environmental impact. It was found, for instance, that the company was using many different materials for surface treatment of wood, from many different suppliers : this was causing waste of materials and excess opacity in the wood surface. As a result, the number of suppliers and of materials was greatly reduced.

The external auditor, who validates environmental management in the Müller workshop.

Locally-produced wood

A key finding from the audit was that the purchase of wood from outside the region was causing high environmental impact through the long-distance transport of this material. The company therefore turned to the purchase of locally-produced wood, which involves shorter journeys and less environmental impact. Moreover, it has proved to be no more expensive than the imported wood. The company moved into discussion with the suppliers of local wood, and the environmental philosophy is spreading along the supply chain to include more and more enterprises.

Rudi Müller's conclusion from the experience is that 'We have profited considerably from the introduction of the EMAS audit. The workers are knowledgeable on conservation and highly motivated. Moreover, we have gained an advantage in competition since our customers can rely on the environmental friendliness of local wood. We can prove to our customers that we not only offer them ecological furniture, like many other businesses, but also that these items of furniture are provably produced in an environmentally friendly way with local wood.'

Conclusion

This experience suggests that the environmental management system can prompt wood-processing enterprises to use locally-produced wood as an environmentally friendly raw material. The awarding of an EMAS certificate to an enterprise, in combination with marketing measures and public relations work, has a long-term sensitisation-effect. It can make other enterprises of the wood-processing industry aware of the environmental management system. It can bring the issue of environmentally friendly production including the use of locally-produced wood onto the agenda of customers and the general public.

Contact: Saar-Lor-Lux Umweltzentrum des Handwerks (see address at the end of the Guide)
Rudi Müller, Baubiologische Schreinerei Müller, Romikastrasase 90, D-54317 Gusterath, Germany.

Table of red-hearted beech made in the Müller workshop. It shows innovative design, with a kind of timber which normally does not attract customers.

h. Marketing through a quality concept in Thuringia

In a competitive and changing market, craftsmen in wood may need to pay strong attention to marketing.

A group of carpenters and timber construction enterprises in Thuringia, who specialise in extension of attic storeys on existing buildings, have formed an association to provide mutual support and to co-operate in marketing of their services. The association is called Dachkomplett.

In this part of Germany, the demand for carpenters' services has been changing. Within the building industry, the share of new houses has fallen and is expected to decline further, while there is increased activity in renovation and extension of old buildings. This also means that there are not so many large or repeat orders for work : each order may have to be gained by separate marketing.

Active marketing is therefore needed. The aim of the Dachkomplett association is to help its members to achieve that marketing. To this end, the association has created a quality concept, within the framework set by ISO 9000. The association has established its own rigorous standards for quality of products and customer service; and has developed compulsory training courses for its members, which they must take before they can use the 'Dachkomplett' trademark as a marketing logo.

Training

The training courses are in five modules, all of which must be completed by those who wish to use the trademark. The five modules are:

- Quality management and customers.
- Roof construction and structural engineering.
- Building physics.
- Components of roof construction.
- Details of roof construction.

The first of these modules is seen as vital. Strong emphasis is placed upon effective orientation to the needs of customers. Consultant Mr Horst-Sven Berger, specialist in marketing, explains how to get more orders by close attention to the needs of customers, while keeping costs low. He also offers a supplementary course related to finding new customers and business fields. He comments, 'The customer is the centre of activities and the customer's contentedness is the key to success'.

The training programme also includes seminars and special events for entrepreneurs, and training courses for market partners. The employees of member companies are offered training in the fields of engineering, calculation, laws, quality management and marketing.

Marketing

The association runs a comprehensive marketing programme, in order to find new markets within the building industry and thus secure the future of its members.

This marketing is based on the 'Dachkomplett' trademark and on a standardized concept for marketing and delivery. It includes production of booklets, sales brochures and exhibits; participation at fairs; and extensive public relations.

This marketing is at local, regional and national level. In 2001, the association produced a special supplement within a magazine for clients of the building industry; and an exhibition during the fair "Holz- & Ausbau 2000" (timber construction and extension). This year, they intend to set up an attractive website, including a databank of member enterprises, to run a photo competition, and to extend their campaign of newspaper advertisements and publications.

DachKomplett display at the Baufachmesse (a handicraft fair) in Leipzig 2001.

Contact: Rainer Kozieraz, Verbände des Zimmerer- und Holzbaugewerbes f. Mitteldeutschland e.V., Pittlerstrasse 26, 04159 Leipzig, Germany.

i. Marketing of high-grade Charcoal in the Chilterns

More than 50,000 tonnes of barbecue charcoal is sold each year in the United Kingdom. The raw material to produce this is about 300,000 tonnes of green roundwood. But nearly 95% of the UK charcoal market is supplied by imports. There is huge potential to increase the share produced within the UK. The Chilterns, in particular, offers a large under-used resource of low-grade hardwood. However, the charcoal produced there cannot compete on price with imported charcoal.

Charcoal Kilns in the Chilterns.

Comparative testing

The Chilterns TWIG partner therefore put in hand research in order to evaluate any qualitative advantages of Chilterns charcoal, which may be used as a marketing tool to promote the sale and production of that charcoal. They invited the other TWIG partners to submit samples of charcoal, produced in their own areas, to be tested in the same way. The main tree species involved were beech (Chilterns), hornbeam (Trier), olive (Evia) and eucalyptus (B and Q lumpwood, imported): the species of tree in the Thuringia sample and the Band Q briquettes could not be identified.

The samples of charcoal from the four TWIG regions, and a sample also from another English region (the Forest of Dean), were submitted to technical tests, in comparison to samples of imported charcoals from the B and Q supermarket. The tests were focused on the burn characteristics, and the ease of lighting, of the full set of samples.

Test results

Table 1 below shows the parameters of average temperature, maximum temperature and minimum temperature for the fullest of charcoal samples in the test. The charcoals are listed in order from greatest heat output down to lowest heat output. The quantity of lighting gel used provides some comparison in terms of relative ease of ignition.

The graph compares the burning temperatures over the 15 to 45 minute span for the Chilterns sample ('McLeod') and the two imported samples only.

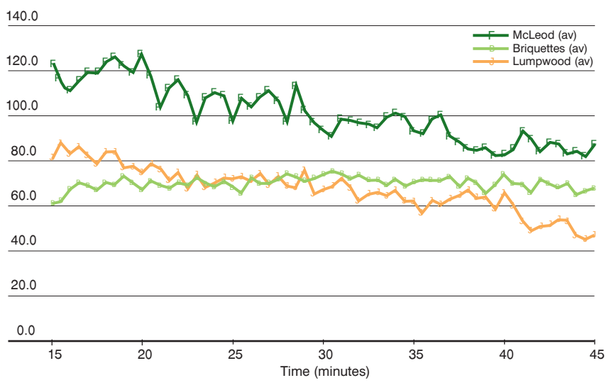
During the crucial 15 to 45 minute period of the test, the Chilterns charcoal produced the greatest relative amount of heat. The difference in burn temperature and heat output was greatest at the beginning of the test, showing that the Chilterns charcoal has a distinct advantage for those wanting a quick, hot barbecue. The Chilterns and Trier charcoals were the easiest to light, therefore demanding the smallest amount of lighting gel for ignition. These points may offer a marketing advantage.

Table 1 Temperature parameters from the charcoal burning studies (values refer to the 15-45 minute period)

CHARCOAL TYPE	AVERAGE TEMPERATURE (°C)	MAXIMUM TEMPERATURE (°C)	MINIMUM TEMPERATURE (°C)	Weight of Lighter Gel Needed for Ignition (g)
Chilterns[1]	101.3	127.8	82.2	5 - 10
Evia[2]	84.8	113.5	62.6	20
B&Q briquettes[1]	70.1	75.5	61.4	10
B&Q lumpwood[1]	68.2	88.6	45.6	15 - 20
Forest of Dean[2]	63.7	86.2	48.8	15
Thuringia[2]	62.0	84.5	30.9	15
Trier[1]	58.4	63.9	50.2	5 - 10

[1] *Values based on three replicate tests*
[2] *Values based on one test per charcoal type*

Comparison of burning temperatures over the 15 to 45 minute span



Don McLeod, charcoal burner in the Chilterns.

Contact: Chilterns Conservation Board (see address at the end of the Guide).

a. Introduction to the theme

The effective management of woodlands, and of wood-related enterprises of all kinds, has always depended upon skills. Many such skills have been handed on from father to son, or from master to apprentice, over the centuries. But as techniques develop and markets change, the skills need to be refreshed and extended.

The TWIG partners decided -in pursuit of their prime goal of sustainable management of woodlands and added value to woodland products – to compare the relevant systems of training and advice in the three countries. The focus was, first, on training and advice related to woodland management; and second, on training and support to people working in wood-related enterprises. The partners then took initiatives to supplement the existing systems, in order to enhance the relevant skills within their regions .

In this chapter, we describe;

- The systems in Germany, Greece and the United Kingdom for:
  – Training in woodland management
  – Advice to woodland owners
  – Training of craftsmen who work in wood.
- Mid-career training from professional wood craftsmen in Thuringia.
- Design competitions for students of architecture and interior design in Thuringia.
- Design competitions for students of furniture design in the Chilterns.
- A proposed support center for newly graduated furniture-makers in the Chilterns.
- A training course in wood-carving skills in Evia.

b. Training in woodland management

The survey by the TWIG partners shows that none of the three countries has a single system of training in woodland management; that the systems differ between the countries; and that there are, in all three countries, many people involved in woodland management who have had no formal training at all.

Germany

In Germany, preparation for a career in woodland management can take the form of an apprenticeship, or an academic degree. Some woodland owners have no professional training in woodland management. They and other owners may gain help from woodland owners' associations, which are not very expensive to join and which offer a broad range of training courses and advice. The State forestry services are also obliged to offer advice and support for woodland owners.

United Kingdom

Professional forestry training in the UK is mainly done through accredited training courses leading to Higher National Diploma or Degree qualifications. Master's Degrees are also offered by some universities, although provision is declining. There is no traditional apprenticeship route in forestry: however, 'Modern Apprenticeships', consisting of a mix of practical experience and formal training, are available in arboriculture. More widely available are National Vocational Qualifications which, whilst being based around on-the-job training, provide a structured framework for acquiring and recognising skills. Those professional foresters who use machinery are obliged by law to obtain Certificates of Competence, generally through short training courses.

Beech study day - Bradenham.

The training regimes described above are followed mainly by those who seek a professional csreer in forestry. They are less suited to the amateur woodland owner, and there is no requirement that an owner must have trained expertise. Woodland owners get little educational support from the national forestry service, the Forestry Commission. The woodland owners' associations do offer some training events: however, these tend to be about specific issues only, and there is no broadly structured woodland training available for woodland owners outside of the academic institutions. That is why the TWIG project in the Chilterns devoted much attention to the provision of advice to owners (see the next section of this Guide).

Greece

In Greece, most vocational education and training is delivered within the formal education system. Young people must pursue six years of primary education, and at least three years of lower secondary education, which has no vocational component. After that, they may seek employment as unskilled workers; or enrol in a lyceum, where they normally follow a three-year course, aiming to proceed to tertiary education; or go to a technical-vocational school, where they normally follow a two-year course, aiming to seek work at technician or craftsman level upon graduation. The technical-vocational schools operated by OAED (Manpower Employment Organisation) offer three-year apprenticeship programs, leading to the same qualification with that of the 2-year technical vocational school (TEE).

In addition, there are Vocational Training institutes which offer fast-track vocational training programmes related to specific occupations. In the Evia region, these include (for example):

- a one-month course for new farmers, forest workers and resin producers, focused on ecological and recreational aspects of forest management
- an 18-day course for the same types of people in nursery and afforestation works
- a longer course, with a heavy emphasis on practical training, in green-house farming, for unemployed people (both young and middle-aged).

A survey of training provision in the area of forest-related professions, carried out by the Greek partner in TWIG, showed that that there were a number of vocational training courses available to people in Evia. These included, for example:

- Courses for young farmers, seasonal forest workers, forest fire-fighters and others in fire prevention and protection measures, forest management and utilisation, re-afforestation, ecological and recreational aspects of forestry etc;
- Course for unemployed people in forest management, promotion of forest products, bee-keeping etc.

Those involved in these courses saw them as valuable and necessary for the development of vocational skills. They appreciate the subsidy which is paid to participants, especially the unemployed, and the fact that the courses are held in a number of different places, though this still means a good deal of travel for many of the trainees. However, there was criticism of the short notice that was sometimes given before the start of the course; and of the lack of effective assessment of skill needs, so that the courses were sometimes not well related to what the participants need. There should be more careful selection of participants, in order to ensure higher levels of motivation.

Looking to the future, those who responded to the survey asked for courses in specific subjects, such as improvement of the quality of trees for planting, improved methods of timber sawing, use of modern machinery, resin tapping, and processing of new resin products. One response to this request was the seminars for resin tappers organized by the Greek partner in TWIG, described at page.... Also requested were future training courses in problem-solving skills (especially in work situations), working with others, computer literacy, skills in seeking information that could advance their position in the labour market, and learning to live in a contemporary social and economic environment.

c. Advice to woodland owners

All the TWIG regions are facing problems connected with the economy and management of small woodlands, in the face of declining demand for the timber that they can produce. All the regions have large numbers of both private and public woodland owners.

Comparison of practice

A team of forestry experts from the Chilterns visited their three TWIG partner regions during summer 2001. The aim was to define best practice in delivering woodland management advice to owners of small woods by comparing the practice in each region. In each of the partner regions, the team met forestry authorities, forest workers, woodland owners and organisations in order to discuss the types of woodland management pursued by owners of small woodlands, and the forms of advice that were offered to them.

The team found marked differences in woodland management between all regions, reflecting climate, soils, cultural factors, national policies and the input of the local forestry service. Particularly striking was the very strong community involvement in woodland management in Evia and in Germany, which is in marked contrast to the lack of such community involvement in the United Kingdom.

In Germany and Greece, the forest management places emphasis on use of natural processes, notably natural regeneration; and there seems to be wider public understanding and acceptance of woodland management and related issues like hunting than there is in the UK. Hunting to control pest species, especially herbivores like deer, is evident particularly in Germany. Production of timber seemed to be a more important objective in the three German and Greece regions than in the Chilterns, where landscape conservation and countryside recreation are given stronger emphasis.

The pattern of organisations who offer advice to woodland owners varies between the partner regions. In Germany and Greece, the forestry authorities take a very active role, and there seem to be few other woodland management advisors. The forestry services in Thuringia and Saarland use mobile units to offer training to owners on their own ground. In the UK, by contrast, the Forestry Commission is less active in this field, and there are more private consultants and advisors, the latter supported through central and local government.

Woodland management grants are available in every partner region for undertaking different types of work, including fire prevention measures in Evia and the production of forest management plans in Thuringia and Rhineland Pfalz

Conclusion

A detailed report has been compiled, including several pages of detailed conclusions and suggestions. These suggestions were partly generic, with application to all regions, for example related to the wider benefits of sustainable rural tourism in woodlands; and partly specific to individual regions. For example, in Evia, there was seen to be scope to improve the provision of information; for more training opportunities for forest workers and owners; and for more use of olive-wood products. The Chilterns would benefit from greater use of continuous cover systems and improved pest management.

This document, entitled 'Report on best practice in delivering woodland management advice to owners of small woods in the UK, Germany and Greece, June 2001', can be obtained from the Chilterns Conservation Board.

Contact: Chilterns Conservation Board (see address at the end of the Guide).

d. Training for craftsmen who work in wood

Germany

The two German regions, Trier and Thuringia, have the same training systems. Young people who wish to be craftsmen usually finish their 9th or 10th school year, sometimes even their 13th school year complete with A-level examinations, and then they start an apprenticeship with a craft enterprise.

This apprenticeship runs for two or three years, depending on their prior education. During this time, they will broaden their practical skills by working within the craft enterprise, and will also spend time in school to gain theoretical knowledge. The school also enables them to use modern technology such as CAD and CIM, which some of the smaller enterprises do not have and which the apprentices must be able to use if they are later to compete on the job market. They finish their apprenticeship with an examination to become a journeyman. This examination is partly theoretical and partly practical, include a piece of work made by the apprentice.

After becoming journeymen, they have to work for several years before they can become masters. During this time, they may take full-time or part-time courses to extend their craft skills and to learn about business management (accountancy, staff management, marketing, business law, etc). To help in attending this course, they may under specific circumstances receive a state grant. They then take a masters' examination, which is very important because no craft enterprise can be opened without a master's title.

So, there is a solid base of knowledge within the German woodcraft industry. No additional training in fundamental issues is needed. However, as times change, new laws are developed, new technologies and new marketing techniques may be needed. It is not easy for SME's to keep their skills up-to-date in these matters: thus they may need support in mid-career training. An example of this is the training offered by the Craft Training Centre at Zeulenroda, described in the next section of this Guide.

United Kingdom

A similar arrangement exists in the UK for training provision for wood processors and craftsmen such as furniture makers and joiners. Training can be full time through a college or university, or via a 'Modern Apprenticeship' or National Vocational Qualifications. The owner of a craft enterprise owner is not obliged to have formal qualifications, although he or she may need this to become a member of a recognised guild or trade organisation.

Furniture makers, students and tutors working with TWIG have recognised that the UK education system does not currently provide enough training in business skills to permit an easy

Chairs designed and made by students at Ryecotewood College, Chilterns.

Furniture made by students at Ryecotewood College, on display at Chilterns Wood Industry Liaison Group meeting.

transition from college to self-employment. In the Chilterns, this is being addressed by a follow-up scheme to provide incubator units for newly graduated designer-makers under the title of Chiltern WoodWorks (see page 66 section 5h).

Greece

As described in the section about training in woodland management (see page 57 section 5b), Greece has a system of technical/vocational schools, which offer training to young people who choose to leave school after three years of lower secondary education. This training may be either in two-year courses at a technical/vocational school; or in three-year apprenticeship at a school operated by the Manpower Employment Organisation. In a region such as North Evia, there are no supplementary courses in craft skills offered regularly for unemployed young or older people. That is why the TWIG partner chose to initiate the training course in woodcraft design and wood carving described at the end of this chapter.

Conclusion

To summarise, the training systems are very different between the TWIG regions and it is not easy to transfer good practice from one region to another. The German system of formal apprenticeships followed by Journeyman and Master qualification appears to provide the most rigorous training and the best chance for establishment of successful small businesses. The UK and Greek systems are relatively unstructured, particularly for skills training, and lack the inherent quality check for new businesses which is required by the German system.

Wood carving of Byzantine style made by TWIG students in Evia.

e. Professional Training for Craftsmen, Thuringia

Throughout Europe, wood is used as a raw material by artists and craftsmen to produce furniture, sculpture and other objects.They need imagination and vision, but they also need very practical training.

The Craft Training Centre at Zeulenroda, in Thuringia, offers full-time courses in furniture-making, sculpture, stained glass and other crafts; and also mid-career training for people who have already started their professional career.

Colloquium for sculptors

As an example of the mid-career training, the Centre organised in 2001 a Colloquium on 'The Ecological Life of Materials'.This was designed to help small and medium-sized enterprises in the region, who are involved in production and installation of sculptures.The Colloquium focused on very practical issues, such as modern materials and techniques, the means of fastening sculptures to walls or ceilings, polishing of surfaces, and processing of minerals.

The participants - a total of 71 people – were also enabled to exchange experiences, and to visit the timber trade fair and the international technology fair in Nuernberg. Further training courses took place in June and September 2001 and in April 2002. All participants received training brochures and useful data on a CD.

The centre believes that such events should include skills, trades, and customs of daily life. During the colloquium, two beekeepers offered honey and other products and explained the production process. Special training was offered to married couples who run a business of their own, to encourage them to get involved together in projects outside their business as well: the men studied the processing of minerals and dry-stone wall building, while their wives studied the use of local herbs for cooking.

The seminar included intensive discussion of sustainable development. Participants agreed to a set of principles - that economic rules should be shaped in a way which promotes individual initiative and responsibility; that the market should be ruled by the price of goods and services, not by politics; that conditions of competition must be shaped in a way that permits long-term markets to function; and that the level of education must be raised in order to keep society productive and competitive.

Training in the use of wood-processing machines

The centre ran a series of courses in the programming and use of the CNC wood-processing milling machine, which is a sophisticated modern machine of great value to furniture makers and other craftsmen in wood. A total of 150 people have so far taken part in this training.

The training showed that students can readily learn to use the machine, provided that they have a solid knowledge in mathematics and geometry, plus skills in using computer software and some knowledge of CAD-software and technical drawing. The students had no problems in operating the machine, although some of them needed several exercises to lose their fear of it. Well-made training aids, sufficient time and examples are necessary to learn about numerical controls, and the contents of course should be repeated more often. Participants should refresh their knowledge and skills in technical drawing.

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f. Design Competitions for students in Thuringia

Architects and interior designers have a significant voice in decisions about the use of wood in buildings. If students can become familiar during theirt training with the potential of wood as a building material, they may be more likely to specify that material after they enter professional life.

The Institute for finished components and prefabrication in Weimar (IFF) is a research institution with close contacts to the building industry. It fosters co-operation with several technical colleges and universities, and is aware that teachers and trainers are open to – indeed, may expect – assignments from outside their institutions. Such projects can increase the motivation of students, especially when an award is offered. They permit, and may even demand, co-operation between the students and real-life enterprises, and thus help to prepare the students for professional life.

That is the thinking behind the two design competitions run by the IFF in the context if the TWIG project. The aim of these competitions was to:

- Sensitise tutors and students to the current problems of industry.
- Promote contacts between theory and practice, and between unbiased students and mature experts.
- Stimulate students to take an open-minded and creative approach to assignments (free of the influence of 'high' knowledge), and in particular to the use of wood.
- Offer long-lasting benefit to students, who may use the knowledge gained in their professional life, for example when using certain materials or techniques or promoting their use.
- Sensitise trade and industry to the role of technical schools and universities.
- Promote innovation, ideally through the actual production of designs produced during competitions.

Design of a building in timber

Students of Architecture in their fourth term at the University of Applied Science in Erfurt participated in this competition. They were asked to design a building for the Innovation and Competence Centre WOOD in Gera-Aga. They were told the site, and the desired size of rooms to be used for presentation, research and training; and were asked to design a building which would serve those uses, and would be an example of innovative carpentry. This project has a real background, though the funding must still be found to build and run this centre.

In the summer term of 2001, the assignment was given to all students of the fourth term in form of a compulsory project, lasting several weeks. At the end of term, from about 90 designs, 22 were accepted to take part in the competition: the students concerned were then given the chance to go over their work again.

The jury met in October 2001. It included Prof. Rautenstrauch of the Bauhaus University Weimar; Dr. Lützkendorf of the IFF Weimar; Mr Creter, president of the Chamber of Trade in East Thuringia; Mr Schulze, architect and representative of the national association "Wood"; and tutors from the University of Applied Science in Erfurt.

Wooden building

All 22 students had submitted designs. Three of them received awards (750 euro each), and three designs were bought (250 euro per work). The presentation of awards took place in November 2001 during the TWIG event and lecture on "Current Timber Construction".

All participants rated that competition as a positive project. It helped them to focus more intensely on the topic than they would otherwise have done. Having gained this experience in timber construction, they may - when they become professional architects - more readily consider wood as an alternative to other materials.

The results of that competition and their publication in form of a booklet is a good foundation for the realisation of the project.

Rycotewood table.

Interior design, using red-hearted beech

Trunks of beech trees get a red-coloured heartwood when they grow older. Though this colour has no influence on the quality of the wood, red-hearted beech wood is considered as being of lower quality and there is little demand for it in trade and industry. In Thuringia, as in many other regions of Europe, there are large quantities of such beech trees which are due to be felled in the near future.

The idea of a students' competition related to the use of red-hearted beech was proposed by the IFF to Prof. Schirmbeck, head of Interior Design at the Bauhaus University Weimar. The IFF was able to offer the co-operation of the German Beech Centre in Mühlhausen, which works on the issue of red-hearted beech. The Bauhaus University had already gained positive experience in a similar project on "nomadic offices" (designs for new office rooms), so the proposal was gratefully accepted.

Students, who had passed the preliminary diploma exams (from 5th term upwards) were admitted to take part in this competition. The IFF managed to find sponsors who were ready to realise and build the designs resulting from the competition, using local carpenters to build the prototypes where this was technically and organisationally possible.

The competition was announced to the students in October 2001. Designs were submitted in early 2002, and (as this Guide went to press) the joiners were building the prototypes. The jury will meet in June to decide on the winning ideas and designs.

The designs and pieces of furniture, which will be given on loan to the German Beech Centre Mühlhausen, will be put on public display there. The results of competition will be published in a booklet, designed to promote the use of red-hearted beech wood. We hope that some designs will later be produced in large numbers.

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g. Design competitions in the Chilterns

The aim of the design competitions in the Chilterns was to stimulate the use of locally grown timber for the manufacture of furniture, through an annual high-profile design event involving students from local furniture making courses.

The background to this effort is that the 20th Century saw a drastic reduction in the use of locally grown timber. A hundred years ago, the timber from the Chilterns woodlands was largely used by the furniture industry based in and around High Wycombe : money from that industry paid for the management of the woodlands, which consisted mainly of beech. But in recent years imported timber has increasingly replaced the home-grown wood; no other mass market has replaced the lost demand for furniture wood; the managers of woodlands have suffered a drastic drop in revenue; and the result is a sharp decline in the active management of the woodlands. The great old beech trees are standing unused; the woods are not bringing the benefit that they could bring to the local economy; and the quality of the woodland landscape is gradually deteriorating.

In this context, the TWIG partner - responsible for the management and well-being of the Chilterns Area of Outstanding Natural Beauty - wished to promote a revival in the use of Chilterns timber for furniture making. The design competition is one key method to pursue this aim. It allows students to gain experience of designing with, specifying, purchasing and working with local timber; and to appreciate the social, economic and environmental benefits of using that local timber. It can raise the profile of local timber among established furniture-makers and the buying public. It can stimulate the interest of local sawmills in supplying local timber.

Graeme Widdows and Ben Carter, winners of the Chilterns Design Competition 2001, at the wood?carving symposium in Thuringia.

Method

The process was launched in 1999. In that and the two subsequent years, students were set a design-and-make project using Chilterns timber. The timber was specified, sourced and ordered by the students from local suppliers. Funding was provided through the TWIG project. Supervision of the projects was the responsibility of the course tutors. In 2000 and 2001, a judging event was held to select the best two pieces. The judges included tutors, Members of the European Parliament, senior figures in the furniture industry, furniture historians and TWIG partners. Three judging criteria were used:

- The design should demonstrate effective use of locally grown timber.
- It should demonstrate professional levels of craft skill in its production.
- It should be appropriate for its intended use.

Press releases were issued to generate publicity for the judging event. The winning students were offered an exchange trip to a TWIG partner region to look at furniture making there. Completed pieces were put on public display.

1999

20 second-year students from the B.A.(Hons.) Furniture Design and Craftsmanship course at Bucks Chilterns University College completed 13 individual pieces of outdoor furniture. 'Green' or unseasoned Oak was the main material ; some pieces also used elements of concrete, steel or stone. The seats were displayed at the first Chiltern Wood Festival (see page 75 section 6e), which attracted nearly 3,000 people. After the Festival the seats were installed in 3 locations open to the public - the Chiltern Open Air Museum, and the National Trust's estates at Bradenham and West Wycombe. No competition was held on this occasion.

2000

The second event involved students from Rycotewood College. They were asked to produce an outdoor picnic bench or a dining chair. The outdoor benches were designed for use on a countryside picnic site owned by Buckinghamshire County Council: this gave the added value of a real-life client. 15 students took part and a total of 12 pieces was produced - 3 picnic benches and 9 dining chairs. The benches were entirely of green oak, but the dining chairs made good use of oak, ash and yew. The two themes were judged separately by a panel of 8 judges. Two winning students were selected and offered a visit to furniture training facilities and furniture makers in Trier and Thüringen. The pieces were displayed at the International Woodworking Show at Alexandra Palace (UK) and also at the second Chiltern Wood Festival: thus, they could have been seen by more than 20,000 people.

2001

The third competition again involved second-year furniture students from Rycotewood College, using locally grown timber to produce unique pieces of outdoor furniture. The setting this time was a newly opened 11km cycle route between the towns of Thame and Princes Risborough. This route, called the Phoenix Trail, has been developed by Sustrans, a civil engineering charity dedicated to sustainable transport. A key feature of all Sustrans' routes is commissioned artwork that is both aesthetic and functional, and created with a strong local input.

The theme of the student competition was to interpret the Chilterns heritage of using wood, particularly for furniture. The students were asked to design and build individual resting places and sculptural features to be sited along the trail. A resident artist guided the project, which was part-sponsored by Ercol Ltd, an important local furniture maker. The siting of pieces alongside this popular trail will ensure that many thousands of users experience the pieces and receive the message that Chilterns timber is a versatile resource for making furniture.

Conclusion

Through these three events, about 40 students have gained experience of specifying, purchasing and using local timber. Most of them will move on to a long-term career in furniture making and will take this experience with them, along with an understanding of the wider value of local wood use for the environment, landscape and local economy. The competition element of this project has obvious added value for the selected winners, in terms of the opportunity to learn from other regions. But it has given all of the students the opportunity to present their work to an expert panel, and also to have it displayed to thousands of potential customers.

Design award winners with judges.

Many thousands of people have already used or seen the pieces created; and many thousands more will do so over coming years. Thus the public has become more aware of the value and use of local timber.

The local saw-millers, who supplied wood for these events, have gained trade in the short term. They have also been exposed to the idea that there is a market and demand for locally grown timber.

For maximum benefit, this project should be run for perhaps 10 years. This would give direct experience of local timber to a significant part of the furniture-making workforce, and would provide a continuing demand for local wood from local suppliers.

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h. Chiltern Woodworks

Support for new-furniture-making enterprises

A problem identified at the Chiltern's Wood Industries Liaison Group (see page 45 section 4d) was a lack of support for new designer-makers who wish to set up their own furniture businesses in the Chilterns. The region has an international reputation, and contains two of the U.K.'s foremost colleges for training in this field. However, there is no stepping-stone facility between college and self-employment. The Liaison Group suggested that new furniture makers, if they could be supported, would represent the best opportunity for increased usage of local timber for furniture manufacture.

The Woodschool

A small working group was established to look for a suitable way of supporting new designer-makers and increasing the availability of local timber to the furniture trade. The 'Woodschool'* in the Scottish Borders was quickly identified as a possible model and a fact finding visit was organised for November 2001.

The tour convinced the TWIG team that a facility like the Woodschool in the Chilterns could be an effective way of:

- supporting new designer-makers starting up in business
- promoting furniture-making of a bespoke kind (i.e. designed specifically for the customer) in the region
- improving access to locally-grown timber for all makers, and
- supporting the local woodland sector.

To work effectively, it was desirable that the established furniture-making companies fully support the concept. Accordingly, Eion Cox, Director of the Woodschool, was asked to give a presentation to the meeting of the Wood Industries Liaison Group, held in February 2002.

The Group unanimously supported the concept of introducing a Woodschool locally and work has now started on Chiltern WoodWorks.

Chiltern WoodWorks

The idea is that supported workshop facilities will be available to new graduates to rent for a limited tenure of 3 to 5 years. Premises, machinery and in house experts, as well as more formal business training and mentoring, will be available to the designer-makers. They will operate as independent businesses, developing their own products and markets under expert in-house guidance. A proportion of sales will come back to the Chiltern WoodWorks to cover running costs. The WoodWorks will itself seek to attract commissions, which will be sub-contracted to the tenants.

The emphasis of the Centre will be quality, bespoke design using locally-grown timber. Timber supplies will be arranged centrally. Ideally the facilities would include saw-mill and kiln-drying equipment. Storage will be needed. Services will be offered such as cutting and drying timbers to order. Alternatively, these facilities may be provided by an existing local sawyer, although it would still be necessary to have storage and retail capability.

Mark Irle (Bucks Chilterns University College) and Andrew Shenton (Rycotewood College) at the Woodschool.

A gallery would be a key asset of the WoodWorks, as would the facility to put on occasional exhibitions or to host conferences. Promotional material of benefit to all designers would be produced centrally. Similarly attendance at fairs and expos would also be arranged centrally.

The WoodWorks will have close links to existing companies. These manufacturers, while 'putting something back', will benefit from having a pool of designer-makers to draw upon from; from promotional opportunities; and from a sub-contracting facility for design and development work and for bespoke variations to catalogue designs.

The centre will be supported by full or part time staff from the colleges, together with business advisors. The opportunity will be taken to forge strong links with local centres of technical expertise, such as the Forest Products Research Centre and the Timber Research and Development Association. Thus WoodWorks will act as an on-going link between colleges and industry, and between researchers and the furniture maker.

The greater use of Chilterns timber as a sustainable resource is a key concept. To achieve this, all work will use locally-grown timber. WoodWorks will also act as a retail outlet for off-the-shelf timber. Increased use of local timber will create more jobs in the forestry and conversion sectors, and enhance the management of Chiltern woodlands.

WoodWorks will have 'green' credentials with waste minimisation, wood fuel heating etc. If opportunity arises, a fuel processing plant may be possible to convert sawdust etc. to pelleted fuel.

At the time of publishing this report, the Chiltern WoodWorks is making excellent headway and is on target to be launched in late 2003 as a fully operational 'incubator' for new businesses and outlet for local timber.

Contacts: - for the Woodschool, see web site www.woodschool.com
- for Chiltern Woodworks, contact Chilterns Conservation Board (see address at the end of the Guide).

Mike Furness (Chilterns TWIG Project manager) talks to one of the Woodschool's designer makers.

Chainsaw carver at Chilterns

i. Inter-generational transfer of skills in wood-carving, Evia

North Evia, in Greece, is a region with wide forests, the products from which have been the staple of the region's economy. Now, that economy is faltering, and there is need to find new ways in which value can be added locally to the forest products.

The area has a tradition of wood-carving. Could this tradition be updated and extended to create jobs in the area?

To answer this question, the TWIG partner in Greece undertook a feasibility study. This showed that the tradition has not completely disappeared. There are two experienced wood-craftsman with workshops in the area, and a number of other small furniture-making and carpentry enterprises. There is a potential market for wooden handcrafts in the region, and a wide network of tourist-related shops which could sell these items to consumers. But the wooden-ware items that are now produced do not match the demand of the market in either quantity or quality. As a result, most of the products on sale in the area are imported.

In this context, the existing entrepreneurs expressed a need to upgrade their own skills in wood crafts, and pointed to a lack of skilled woodcarvers. The study also showed that there is a high level of unemployment among young people, and among older adults who have lost their jobs following the closing of a major bauxite quarry.

Training course

The TWIG partner therefore decided to initiate a training course in woodcraft design and wood-carving. Participants in this course were experienced craftsmen, acting as trainers; semi-experienced workers, acting as both trainers and trainees; and unemployed people, both young and older (typically aged over 40), as trainees. The aim was to develop the skills of the unemployed, so that they could come into the labour market as qualified wood-craftsman; and to strengthen the technical and entrepreneurial skills of those already active, in order to open up new opportunities for them .

The course was based in Prokopi, and attracted participants from that town and from nearby communities. The focus was upon technical skills in woodcraft design and woodcarving; and also upon personal development and entrepreneurial skills. The training method was based on active learning, in a workshop situation. The aim was to use the existing expertise and knowledge of the participants; to build synergies among individuals with varied skills and employment status; and to be open to new ideas that would encourage motivation and learning.

Modules. The training course offered modules in:

- Design and drawing skills for woodcarving
- Hygiene and Safety
- Work experience in woodcarving, including sharpening of tools; use of woodcarving tools; design imprints on wood and development of woodcarving techniques; individual project development; finishing; and treatment and polishing of wood
- Personal guidance and entrepreneurship.

Skills. The skills developed in this training exercise included:

- craftsmanship (woodcarving techniques) through practical training
- drawing skills
- working with others in a team context
- improving one's own learning and performance, by assessing one's own strengths and weaknesses, identifying targets, and following a schedule to meet these targets
- entrepreneurship, through the organisation of the work
- market analysis and business development, through advice offered during the course.

Innovation

There were three innovative aspects in the project.

The first was the exchange of knowledge, skills and support between the two age groups: by working together, these distinct groups increased their self-confidence and encouraged close cross-generation bonds.

The second was the teamwork between experienced and less experienced people. The experienced trainers supervised the whole process of teaching and learning. The semi-skilled workers benefitted from the training themselves, but also took part of the training responsibility: they monitored the work assigned to the unskilled trainees, and tutored them in tasks such us tool sharpening and grooving.

The third innovative aspect wais the very practical nature of the training. Participants could produce actual woodcraft items, which could bring immediate financial rewards, and they gained the skills and confidence to seek employment.

A number of agencies worked together to carry out this innovative project, namely:

- The TWIG office in Prokopi, managed by PRISMA Centre for Development Studies (co-ordination of the project)
- The Municipality of Kireas (political support)
- The Apprenticeship School of the Manpower Employment Organisation, based in Vasiliko, Evia (training programme development and advice)
- The Wood-Carving Workshop of the School of Arts based in Athens (motivational speakers and guidance)
- K. Sismanoglou, a local carpenter and woodworker (practical training).

Wood carving workshop in Prokopi, Evia.

Conclusion

Training courses of this kind can enable trainees to learn new skills or to upgrade their existing skills, in drawing and design, in use of tools, and in wood-carving. They can learn how to work in a team and to pay attention to quality and aesthetic value. The practical nature of learning can help semi-skilled or unskilled trainees to identify new business prospects and employment opportunities, including the possibility of working for the local entrepreneurs who helped to train them.

Some of those who took part in the course have expressed an interest in further training.

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a. Introduction to the theme

Forests have figured strongly in the very soul and psyche of Europe. They appear in myths and legends, in the history of nations. They have formed the setting, and provided much of the resource, for the lives of millions. But the clearance of the forests in some regions, and the detachment of town-dwellers from their rural roots, have broken the link between the forest and many modern Europeans

The TWIG partners believe that a revival of public awareness of the forest, and of the benefits which woodlands and woodland products can bring to people, are a vital element in securing a sustainable approach to forest management and local added value to woodland products. A public which is alert to the value of woodlands, and to the versatility of woodland products, is more likely to support the active protection and management of these woodlands and to buy those products

Acting on that belief, the TWIG partners have taken initiatives to promote public awareness of woodlands and woodland products. In this chapter, we describe;

- Publicity for timber buildings at fairs in Thuringia
- The environmental fair in Trier
- The creation of a forest Museum in Evia
- The Wood Festival, and the Woods at Work display, in the Chilterns.

Green wood turning at the Chiltern Wood Festival.

Awareness raising seminar, Evia.

b. Publicity for timber building techniques

Fairs provide a valuable means of bringing wood, and its potential as a building material, to the attention of the general and professional public. The TWIG partner from Thuringia offers two examples of displays at fairs in Germany

Production of Wooden Frames

In September 2000, the 'Innenausbau + HolzTec' (Interior design and wood technology) Fair at Leipzig gave the opportunity to the Thuringian Carpenters' Association to mount an active display, within the context of the TWIG project.

This display, on a site of about 1000 square metres, was a practical demonstration of how to prefabricate timber frames for a new building. The work was done by master craftsmen and skilled carpenters, drawn from the member companies of the association. These companies also provided machines and materials.

More than 7000 visitors – carpenters, joiners, glass workers – came to see the fair. They included architects, designers, wood-processing companies, carpenters and other visitors.

Such publicity is of high importance, in order to boost the use of timber in the building industry. The association believes that the use of timber has grown rapidly, and can rise much further. For example, out of 140,000 houses in Germany in 1999, 16,000 houses were made of timber, whereas only 500 timber houses were built in 1990. The last ten years have shown that timber frames can be used in many types of building, such as kindergartens, homes for old peoples, zoos, botanic gardens and municipal facilities.

Building Skills exhibition

In October 2001, the association of carpenters and timber trade in Middle Germany set up a "user-centre" for carpentry in the BauFach (Building skills) exhibition in Leipzig. This user-centre formed part of the exhibit of the member enterprises of the association, and it displayed the many ways in which wood and timber can be used in building. Apprentices demonstrated their skills in carpentry and showed numerous ways in which wood and timber can be used in building.

The Thuringian Minister for Economy at the TWIG-exhibition stand during the "Mitteldeutsche Handwerksmesse 2002" in Leipzig

Almost 50,000 visitors came to see the exhibition, which included displays by 1003 exhibitioners from 28 countries. Visitors to the fair included many foreign businesses, particularly from the markets of Russia and eastern Europe. This was welcomed by Mr Werner M. Dornscheid, general manager of Leipzig Fair, who said. 'The building industry in the new federal states of Germany is currently in a painful process of chainge. We have adapted to this process in time. With a focus on innovation, on business visitors, and on co-operation between East and West Europe, we are setting a momentum for the building industry in these hard times.'

Mr Karl Robl, managing director of the central association of the building industry, said, 'Especially in these tough times, technical fairs have a special significance as a place for information and communication. Visitors can look for new opportunities and seize them immediately. This fair has shown new and innovative fields, which can give impulse to the shattered building industry. We have concentrated our publicity on architects, designers, entrepreneurs and dealers in the building trade.'

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c. Environmental Fair, Trier

A central aim of the TWIG project was to promote the use, within a region, of wood produced within that region. Linked to this is the idea of sustainability, in which wood is recognised as a renewable resource.

That aim, and that idea, were the starting point for the Öko fair, organised by the TWIG partner in Trier, the Saar-Lor-Lux Umweltzentrum. This fair, held in 2000 and again in 2002, was aimed at the general public, and also at specialists in the building and related industries, conservationits and representatives of local authorities.

Öko 2000

The Öko 2000 fair was focussed on ecologically-friendly services of all kinds. Within this, wood and wood products have a major role. Of 106 exhibitors, 42 were wood-related companies, covering a wide spectrum from construction of wooden houses, wood-framed windows, doors, wood-based heating systems, furniture-makers and carpentry firms. About 15,000 visitors came to the fair, which shows the high public interest in environmentally friendly products.

This large public audience provided an excellent meeting in which to present the objectives and activities of the TWIG project. A special TWIG stand was therefore included, in addition to stands mounted by the TWIG partners and by associated enterprises. For example, Eurotec Pazen GmbH presented its wooden window frames. Rudi Müller, one of the first carpenters in the Trier region to introduce an environmental management audit system (see page 51 section 4g), displayed furniture made of red-hearted beech: this showed a new way to use a type of timber which is common in the Trier region, but has long been viewed with prejudice. In addition to the displays, the visitors could listen to series of short lectures. The topics included environmentally friendly heating with wood, insulating wooden window frames, and construction of log houses.

Öko Fair 2002.

Öko 2002

The Öko 2000 fair was seen as a great success. It was therefore repeated in April 2002, with a similar concept. Again, the fair attracted a large number of visitors. This time, the TWIG stand included an exhibition on the use and marketing of red-hearted beech wood, plus models of six houses that can be built with regional wood. Staff of the forestry office in Trier informed visitors about sustainable woodland management, and certification of wood products. The fair included many stands related to the use of wood in heating systems, particularly the use of wood pellets; this was supported by a symposium for a specialist audience. This use of by-products from forestry as a source of energy can help to finance sustainable woodland management.

Conclusion

The experience of the two Öko fairs suggests that the objectives of TWIG – namely, the local use of wood products, and the sustainable management of woodlands – can attract the interest of the general public.

Contact: Saar-Lor-Lux Umweltzentrum des Handwerks (see address at the end of the Guide).

d. Forest Museum in Evia

As described earlier in this guide, the northern part of Evia is rich in forests, which have for millennia formed a basis for the region's economy. The direct economic use of the forest products – timber, resin, honey – is now weaker than it has been in the past. The TWIG partner in Evia has sought to stimulate the revival of this economic activity, in ways which are explained elsewhere in the Guide. But there is another significant opportunity to add value to the forests, and that lies in tourism and related activity.

The museum idea. The TWIG partners sought an imaginative way to tell the story of the forest to visitors, in a way that would help them to appreciate, understand and enjoy this great natural and man-managed resource. The answer was to create a forest museum.

A major element of the TWIG project has therefore been the creation of a new Forest Museum. The building is sited in the village of Prokopi, on land provide by the local Municipal Authority of Kireas. The structure is all wood, built of pine logs. The Museum takes up 181 square metres which includes exhibition, seminar, storage and office space. The main functions are in a single multi-purpose space, divided in smaller units by portable partitions and exhibits.

An attraction to visitors. The Museum is designed to be an attraction to visitors who want to know more about North Evia's remarkable forests of Aleppo and black pine, the ways in which these forests are used, including resin tapping, timber production and the gathering of honey, or the wildlife of the area. It offers a global view of the forests, including their natural history and beauty, their role in the local economy, the skills they have encouraged and stimulated among the local population, and the various products that have resulted from these skills.

History, and the modern economy. The Museum is unique in its conception in Greece, in that it focuses on contemporary productive activities and their role in the local economy. It also provides systematic references to the historical development of wood-based crafts, and the links between productive activities and the natural features of the forest. Part of the exhibition is devoted to forest management, displaying the results of the strategy plan conducted by the National Forest Institute for the preservation and sustainable exploitation of the forests of the area.

The exhibits will be frequently updated, to show new techniques of woodcraft and new products, including the new resin products which are being developed by the TWIG team. There is a strong IT element, presented through three powerful PS. These allow visitors to delve into fascinating details of the flora and fauna of Evia forests, the history of the local crafts, and the new skills and modern practices of today.

Exhibition techniques. Multimedia and audio-visual equipment is used to provide the visitor/user with a wide range of choices and information that relates to local forests, to the forests from the participating regions, as well as research material and scientific reports. The exhibition includes a permanent display of material from all four TWIG regions, giving the Museum an international flavour and a strong connection to the TWIG project which helped to create it.

The Museum acts as an information and advice centre; and as a venue for short seminars for craftsmen and other workers, and for entrepreneurs involved in the production and marketing of forest-related products. The main exhibition space includes a seminar room, which may be also used by visitors to view a video tape or to listen to a short lecture about the museum and the forests of North Evia. This room is very useful for school visits, which are expected to proliferate during the next school year, when the Museum will have completed its collection and will become widely known through dissemination of information about the project.

Themes. The museum exhibition covers the following themes:

1. The nature of the woodland

- types of species (fauna and flora)
- points of special interest
- special status: preservation areas, protected forests and species, designated areas etc.
- natural history, evolution, the age of the forest
- environmental impact of the forest to the area
- forests and the quality of life
- cultural aspects.

2. The economic value of the forest

- business activities connected with the forest
- products, crafts, trades, and skills related to the forest
- contribution of forest economy to the well-being of the local people
- activities undertaken in the context of the project that promote innovation, business development, skill development and job creation
- examples of adding value to local resources by strengthening the supply chain from the forest to the consumer.

3. Sustainable woodland management

- practices and systems applied
- fires and other perils to the forest
- certification schemes for sustainable woodland management
- the local strategy plan for sustainable forest management.

The Museum's role in tourism. The Museum is located in an area which has a history of transit tourism during the summer and religious tourism throughout the year, with a peak at the end of May, when the local church of St John the Russian holds its annual celebration. The church gathers hundreds of thousands of pilgrims, due to the fame of St John as a healing Saint. Also, weekend trippers during the summer often stop at the village of Prokopi for a drink or a meal. However, the village and its surrounding area do not offer much overnight accommodation, because the religious and weekend visitors spend only a short time in the area. The Museum aims to offer an extra attraction to these visitors, so that they may extend the length of their visit; and to attract additional visitors, especially groups such as schools, ecological societies, professional groups or researchers of the forest and its products.

Contact: Municipality of Kireas (see address at the end of the Guide).

Forest Museum in Prokopi, Evia.

e. Chiltern Wood Festival, and Woods at Work

The TWIG partner in the Chilterns took two related initiatives in order to attract the interest of the general public to woodland and woodland products in the region. These were:

- The Chiltern Wood Festival, a three-day marketing and promotional event for woodlands and woodland products.
- Woods at Work, a one-day event focused on woodland management.

The Wood Festival

The Wood Festival was designed to provide a 'shop window' for companies and products whose activity is based on woodlands and woodland products in the Chilterns. It was also intended as an educational event, telling the story of wood from forest to fine furniture. It would demonstrate the rich heritage of woodlands in the region and show how the historic use of woodland products had shaped the woodland landscape of today. It would show that trees are a crop, and that woodlands need to be managed with this in mind if they are to maintain their vitality, their wildlife and landscape value and their commercial viability.

The ***first Chiltern Wood Festival*** was held over three days in October 1999. There were 54 exhibitors, and the event attracted about 2,400 visitors. The venue was the Chiltern Open Air Museum, an established tourist attraction with a 20 hectare site which houses a collection of historic buildings from around the Chilterns.

A thorough evaluation of the Festival was undertaken, including questionnaires to all exhibitors – see the report 'Chiltern Wood Festival 1999' available on the TWIG Website and in the TWIG CD-ROM.

Rustic furniture at Chilterns Wood Festival.

Many exhibitors reported sales and/or good leads, showing that the Festival was successful in aiding the wood and woodland sectors; and much interest was expressed in having a further such event.

On this basis, it was decided that the Festival should if possible become an annual event; but that the date should change from Autumn to Spring, in order to avoid clashes with other more established events elsewhere in the region and to take advantage of the higher visitor numbers normally expected by the Open Air Museum for Spring events. It was agreed that the advertising and promotion should be improved, including the use of roadside posters; and that the aim should be to attract 7,500 visitors, in order to achieve full commercial viability.

The ***second Chiltern Wood Festival*** was held in May 2001, for three days over a public holiday weekend. There were 71 exhibitors, and the event attracted 3,200 visitors. This was much lower than the target of 7,500 visitors, despite extensive promotion work over the preceding months. The Saturday in particular was very quiet, and more than half of the visitors came on the holiday Monday, which implied that a 2-day or even a or 1-day event might be as successful. The low attendance may be partly explained by the wide publicity for the national outbreak of foot and mouth disease, which perhaps led people to believe that events would be cancelled : but consultation with exhibitors and visitors suggests that the main problem was that people did not know what to expect of a 'Wood Festival'. Organisers of future events will have to work hard to ensure that the public is left in no such doubt again.

The event was well received by both visitors and exhibitors. There was much interest in the exhibits. The visitors gained a greater understanding of the importance of woodlands and woodland products to the

local landscape, economy and culture, and most exhibitors were satisfied with their commercial return. Again, a report entitled 'The Chiltern Wood Festival 2001' is included on the TWIG Website and the TWIG CD-ROM.

These two Wood Festivals have shown that this can be an effective, enjoyable, and commercially viable way to tell the story of wood to a large local audience. So what future for the Chiltern Wood Festival? Following the second event, the organisers were approached by a commercial company called The Exhibition Team, who knew that the TWIG project would finish in 2002 and therefore could not support a further Festival. The Exhibition Team suggested that they should take over the concept of the Festival and develop it on the same site as a fully commercial venture. This was seen as the best long-term outcome for the Festival, and the third show, now renamed the Chiltern Wood Fair, will take place over the extended holiday weekend of 1 to 4 June 2002.

Visitors turning greenwood at the Chiltern Wood-Festival.

Woods at Work

Woods at Work was conceived as an intermediate one-day event between the three-day Wood Festivals. It was a pragmatic solution to the problem of moving the Wood Festival from a September to a May date. Rather than have a 21-month gap between Festivals, a smaller event could be introduced to maintain interest among both public and exhibitors. Woods at Work would complement the Wood Festival by clearly focussing on woodland management, whereas the Festival would be more biased towards wood products. Furthermore, by being based on a different site, it was hoped that visitors would be attracted from other areas.

The ***first Woods at Work*** was held at Wendover Woods on a Sunday in September 2000. No entry charge was made, so the number of visitors had to be estimated by reference to the number of car parking tickets purchased. The day's total of 850 tickets implies that around 2,000 visitors came. This represents a major success for a first time low-budget event, and is made more impressive by the fact that there was then a national fuel shortage which made transport very difficult. Several exhibitors were unable to attend due to lack of fuel, and some potential visitors were almost certainly lost for the same reason.

Since the emphasis of Woods at Work was on woodland management, it was necessary to choose a site where exhibitors could demonstrate their woodland equipment. Wendover Woods, which is owned by the Forestry Commission, proved ideal. It was large enough to absorb the event, it is a recognised local venue for countryside recreation, there were trees available for harvesting and processing as part of the on-going management of the woodland, and Forestry Commission staff were able to help in planning and running the event.

Second Woods at Work. The unexpected success of this first event prompted the decision that, rather than just being a 'filler' event between Wood Festivals, the Woods at Work format was worth repeating on its own merits. A second event was therefore planned for a Sunday in April 2002. This event also concentrated on woodland management and on promoting 'near forest' activities such as tree surgery, logging by horse, mobile saw-mills, coppice crafts and fuel-wood processing. There were not many items for sale to the public, but there was a strong message about woodland management, and many visitors were obviously enthralled by the noisier demonstrations such as timber conversion and tree surgery.

A total of 1,200 car parking tickets were bought at this second event, but queues for the ticket machine were such that it was decided not to enforce ticket purchase, so the number of cars was almost certainly greater than that. On this basis, it is estimated that between 3,000 and 3,600 visitors came.

Reports on each of these two events ('Woods at Work 2000', and 'Woods at Work 2002') are on the TWIG Website and the TWIG CD-ROM.

Conclusion

The success of the Woods at Work format invites comparison with the more elaborate Chiltern Wood Festival. Both events require a large input in staff time. The three-day Festival takes about 3 person-months to organise, the Woods at Work about 1 person-month. In cash terms, Woods at Work was staged for about 3,000 Euros, the Chiltern Wood Festival cost nearer 35,000 Euros. Given the higher visitor numbers at the one-day Woods at Work, this may seem to be the more cost-effective option for raising awareness and understanding of woodland management.

However, it should be remembered that the Festival involved twice the number of exhibitors across the complete wood sector, and much more infrastructure is required to put on a show including fine furniture than for an event limited to woodland-based activities. Moreover, Woods at Work offered little opportunity to raise revenue and was largely dependent upon grant-aid, whereas the Festival is on target to cover its costs and to start making a profit at the next or subsequent event. If the Festival can generate net income, it may be the more sustainable format in the long term.

In practice, we hope in the Chilterns to have the best of both worlds, with a private sector company running the Wood Festival and the public sector continuing to support the more modest cost of Woods at Work.

Contact: Chilterns Conservation Board (see address at the end of the Guide).

Green wood products at the Chiltern Wood-Festival.

7. Conclusion

The TWIG partners are well aware that this Guide tells only a partial story. There are hundreds of examples and initiatives, related to woodland management and woodland products, in other parts of Europe.

We offer these stories in the hope that they may stimulate and encourage initiative by others to manage woodlands well, throughout Europe and to ensure that these woodlands bring true benefit to the people, the economy and the environment of their regions.

We will welcome reactions to the Guide.

Chilterns wooded landscape

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