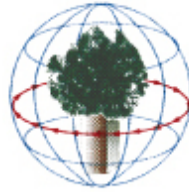


MINISTERIAL CONFERENCE ON THE  
PROTECTION OF FORESTS IN EUROPE



UN-FAO/ECE  
Forest Communicators Network

Ewald Rametsteiner  
Roland Oberwimmer  
Ingwald Gschwandtner

# EUROPEANS AND WOOD

**What Do Europeans Think  
About Wood and its Uses?**

A Review of Consumer  
and Business Surveys in Europe





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ul. Bitwy Warszawskiej 1920 r. nr 3  
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tel.: +48 22 331 70 31 tel./fax: +48 22 331 70 32  
e-mail: [liaison.unit@lu-warsaw.pl](mailto:liaison.unit@lu-warsaw.pl)  
[www.mcpfe.org](http://www.mcpfe.org)

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## **Affiliations of Authors:**

Ewald Rametsteiner: BOKU University Vienna, and IIASA, Laxenburg, Austria.

Roland Oberwimmer: BOKU University Vienna.

Ingwald Gschwandtl: Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management and Head of the UN-FAO/ECE Forest Communicators Network.





# PREFACE

*“In agreement with the public nothing can fail, without public acceptance nothing will succeed”*. There is no doubt that this sentence stated by Abraham Lincoln a long time ago is more relevant today than ever. But who are the public? What would they agree upon and what would they reject? The answer to these questions is crucial, particularly if policies are to be accepted and success on markets enjoyed.

In communication and marketing it is important to understand your target audience in order to design strategies and messages that are in line with their concerns and interests. In general, people have an extremely positive attitude towards forests and wood. In addition, the relationship between human beings and forests, and also wood, is very much determined by their feelings and emotions. Nevertheless, the forest-based sector is very often confronted with strong preconceptions – and where these assume the dimensions of misconceptions, these can be so deeply-rooted that they prove very difficult to change, requiring long-term communication efforts based on an exact understanding of what people actually believe.

*“It is very unlikely, that communication works”*, the German social scientist Niklas Luhmann found out after years of analysing structures and processes in numerous large companies and organisations. Luhmann demonstrated that it is to a large extent the often neglected psychological factors that determine if communication efforts succeed or not. Just providing the right information is usually not enough to where hearts and minds are to be won over. It is a challenge to make the receiver listen to, then understand, and finally accept, what a message conveys. Effective communication is a process based on a two-way information flow, but it is more about listening than talking.

Opinion polls and surveys constitute the most widely-used systematic approach by which light may be shed on this inscrutable terrain. The present publication thus reviews the consumer and business surveys carried out in Europe on that certain market segment comprising wood and products made from it. Together with the report *“Europeans and their Forests”*, published by the MCPFE and the UN-FAO/ECE Forest Communicators Network in 2003, it constitutes the most comprehensive insight into public perceptions as regards forests and forest-based products.



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# 1. INTRODUCTION

## The Story of Europeans and Wood

*“Fact is fact, but perception is reality”* is a well-known proverb that captures an essential truth in the lives of specialists in public relations, communications and marketing. It is thus a basic rule in policymaking and communication and has continued to be a driving motivation behind the compilation of this follow-up report to that on “Europeans and their Forests”, published by the MCPFE and the UNECE/FAO in 2003.

A French sociologist, Pierre Bourdieu, made a general understanding of “public opinion” specific, when he remarked that *“Public opinion doesn’t exist”*. The “average public opinion” on a given topic is as rare as the “average person”, calculated into existence statistically from data on different individuals. Thus, almost by definition, the results generated by public-opinion and broad consumer-attitude studies across cultures and consumer market segments simplify grossly, and make the wide diversity citizens and consumers actually represent look much more homogeneous than they really are. It is evident that the diversity of cultures and living contexts of citizens and consumers in Europe is striking, and this should forever be borne in mind as this report too is read, its statements often being based on a limited number of studies, with data often available from one or a few countries only.

Note also that people responding to surveys are both “citizens” and “consumers” at the same time. Judgements made by individuals as citizens do not reflect the judgements they would make as consumers. As citizens, individuals are often more aware of their role in society, and the responsibility of society, e.g. towards the environment, as a whole, and they feel the bound by social norms into behaving “appropriately” when faced by surveys and the need to respond to questions. As consumers, they often do behave more as individuals (indeed being allowed or even expected to do by the same social norms). Yet the two dimensions are only rarely distinguished between in any of the studies reviewed for the purposes of this report.

*“We have the facts. If you don’t like them, we have others...”* somebody once remarked. In areas that are multi-faceted and complex and where only a limited amount of data or studies are available, this is not totally surprising. The uncertainty surrounding assertions on a topic, based on empirical data, decreases with an increase in the number of surveys on the same topic. In some areas covered in this report, a multitude of surveys have confirmed a general impression. In others, assessments are based on weak, and sometimes conflicting, findings. Convergence or divergence of findings are the result of a number of biases that can occur as efforts are made to gauge “public opinion” or consumer attitudes on an issue. To start with, survey results imply that people have an opinion on a specific subject in the first place, and that this opinion can be given upon request. Further, respondents are usually not free to frame questions and answers as it suits them. The questions are predetermined by those who commissioned the survey – and are influenced by their specific interests. Moreover, survey results imply that opinions are fairly stable for at least a limited period of time, and over the different roles persons have in their lives, both public and private.

In sum, readers are asked to be aware that the results presented in the report are not precise facts, but rather a generalized “story of Europeans and wood”. Nevertheless, this report has its value, as a first attempt to collect and present results of citizens’ opinion and consumer-attitude surveys over a wide range of wood-related topics undertaken in Europe in the last 10–15 years, as far as they

were made available from different sources in Europe. This is certainly not a full report on all the surveys undertaken or questions posed as regards wood or forest products in Europe. Likewise, the presentation of the findings that have been obtained doubtless tends to reduce the views of millions of Europeans to gross generalisations, with all the attendant loss of specificity that denotes. Quite often, findings were available from one country only, and are possibly or fairly certainly over-generalized in terms of their validity to another region with very different conditions. The limited number of studies available from Eastern European, and in particular Southern European, countries in most cases obstruct the presentation of differences between these and other regions in Europe. Equally, there is a hope that additional and future evidence can adjust and refine our current understanding, and correct possible misinterpretations. There is thus value in publishing a report like ours with a view to encouraging the application of the traditional scientific method, whereby further enquiries triggered either prove or disprove, or else increase the level of accuracy and detail of, our understanding regarding the views of society. There will also be a possibility to track changes over time.

One of the main aims of this meta-study is to provide a first overview of the nature of and trends for attitudes displayed by citizens and consumers alike to wood – as one of the main products forests have to offer. Over time, there have been changes in society's view of forests, and thus in the demand it imposes upon them. These changes also affect the public's way of looking at the traditional role of forests as producers of raw materials. The urge to re-orient societies towards increasingly "bio-based economies" results in higher demands for raw material, not only for increasingly sophisticated products, but also for renewable energy. All these changes have profound effects on the forest sector, including for forest policymakers, and their owners and managers. The latter face new opportunities to respond to and become engaged in increasingly integrated value-added production and the appropriate governance of resource use. This also requires better understanding of, and a greater effort to listen to, society, where the concept is taken to embrace both consumers and citizens. In many respects, the history of the MCPFE is one of recognising and responding to the needs and concerns of society where forests and their sustainable use are concerned, as well as to facilitate and promote new approaches to doing so across Europe and among the different stakeholders. We trust that this report should serve that end.

## 2. GENERAL ATTITUDES TOWARDS WOOD

This chapter overviews the way in which people in Europe generally think about wood. It discusses attitudes displayed by consumers, specifiers and business customers towards wood as a material and towards different uses of wood in general, as well as purchase criteria that consumers apply when buying wood. In particular, it addresses the environmental image of wood in comparison with other materials, as well as the issue of what Europeans think about the role of wood use in mitigating climate change. Most of the surveys reviewed and presented in this chapter were undertaken in countries of Central and North Western Europe, most especially France, Germany and the UK. Relatively little information is available from southern and, most especially, Eastern Europe. Most is based on data from representative national consumer or public opinion surveys (some 22 such surveys were reviewed for this chapter). If data are presented from surveys of specifiers and business customers, this is stated explicitly. General questions regarding attitudes towards wood in such surveys leave it largely open to the respondent to which the response refers to. A wide range of wood uses or different types of wood product could be involved, but this reference “image” is usually not known. It is certain that responses are influenced by the kind of wood use or wood product respondents have in mind when asked about their attitude towards wood. Survey results presented here, as elsewhere, are thus generalized findings and “story lines” that require verification and further specification.

### 2.1. Wood is natural, warm and friendly

Europeans in general have a clearly positive attitude towards wood. According to the available survey data, it is a material considered natural, warm, healthy, good-looking, easy to use and environmentally friendly by a majority of people across Europe. People feel well when surrounded by wood, and thus above all associate wood’s use with interiors and furniture. It is evident that most people think of solid wood only, when asked about wood in general.

Wood seems to provide a link back to nature, to forests and trees. People associate forests as such and the wooden furniture at home as very positive, but forget about or cut out the link in between, namely harvesting and wood processing, which often have negative associations. Only a very small percentage seem to associate wood products with wood production in forests, harvesting or the loss of forest. If this is true, and there is evidence from surveys, the image of wood as “nature” and the perception of the naturalness of the state of forests are closely linked. Forest and nature are often used as synonyms, and possibly most people “feel closest to nature when they are in the forest”. As the general attitude (and the dominant social norm) is positive towards nature and the environment, and many see nature and the environment under threat, a high proportion also think that “forest needs to be protected by man”. By way of contrast, the statement “the use of wood helps nature” is thus seen as quite controversial. It is clearly rejected by a majority of respondents in a number of countries. This begs the question as to how far changes in the perception of the state of forests changes the attitude towards wood and wood use (see Rametsteiner and Kraxner, 2003).

Europeans associate wood as such with mostly positive attributes, and focus on the aesthetic, kinesthetic and use characteristics of the material. This is unlike their feelings towards forests, which are mostly positive, but often also mixed with negative connotations, including “silence”, “quietness”, “happiness”, “threat”, “darkness” or “danger”. Figure 1 with data from France and a range of surveys in other countries show that attributes like “attractive look”, “healthy” and “warm”, as well

as the “versatile” nature of the material rank high. These findings are considered rather universal across European regions.

The same Figure 1 also shows most attributes that are frequently named as negative. These generally fall into two camps: attributes that are negative in using wood, and the degree to which it is seen as “modern”. Negative attributes related to wood use differ across different applications, but particularly touch upon the property that wood decays, and the attendant need for maintenance, and dimensional stability and strength – in short: technical performance.

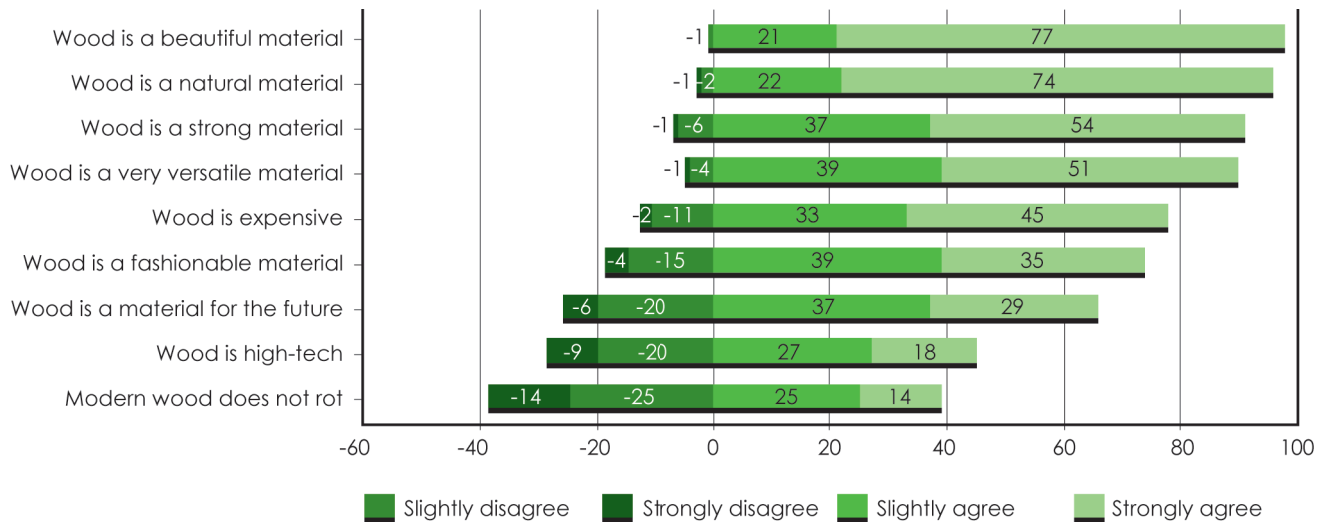


Figure 1. The image of wood among the French public (Source: modified after *Institut d'Études de Marché et d'Opinion*, 2003)

The second area with consistently “negative” connotations across almost all surveys reviewed is the perception of wood as a material that lacks attractiveness in “design”, “high-tech”, “modern” and “future” feel or “fashion”. Unlike surveys in continental Europe, those carried out in the UK found very high levels of support for wood as a fashionable material and a material “of the future”. Such more “soft” attributions to wood can make a huge difference in the attractiveness of its use. The French survey, for example, found that wood was mainly used by “traditionalists” with the characteristics: male, older, living in rural areas, and by home owners of individual houses. These “soft” attributes can be more easily addressed by public opinion campaigns compared to technical characteristics, and have been addressed in some cases (e.g. in Austria, Germany and the UK). Not surprisingly, business-to-business customers put considerably more emphasis on technical performance aspects compared to “soft” factors.

A third issue frequently asked about in surveys is the price of wood. Usually wood is considered an “expensive” material by a large majority of the population, to the extent that in some countries like France, consumers consider the price of wood as excessive. In contrast, in other countries like Germany, the price of wood is found to be high, but at the same time “reasonable”.

## 2.2. Wood is greener than substitute materials

As with general attitudes towards wood and wood-product purchasing criteria, a comparison of wood properties with those of substitute materials is best made at the level of the specific product or application. For instance, the properties required in outdoor applications are markedly different from those required indoors. Similarly, plastic is not usually seen as a substitute material for concrete or steel in construction. Nonetheless, a number of surveys have also included questions on the general environmental image of wood compared to substitute materials. Survey results for

specific products are reported under the specific wood products chapters, but in general these tend to confirm the overall situation. Again, the emerging picture is rather consistent across different surveys and across European regions.

A comparison of the general perception of the environment-friendliness of wood with those of substitute materials across different countries in Europe show that wood (with the exception of tropical timber), followed by paper are regarded as more environmentally friendly than glass, steel, aluminium, concrete, and plastic (in that order) (see Figure 2). Glass is rated as environmentally friendly, less so than (domestic) wood, but more friendly than tropical wood in most countries for which data are available. Bricks for masonry are likewise seen as less environmentally friendly than wood. In many countries, consumers consider the use of tropical wood as rather harmful for the environment in the late 1990s, and there is little reason to expect a dramatic change since that time. Particularly in continental Europe (where the share accounted for by domestic wood is large), there is a marked difference in the perceived environmental friendliness of domestic as compared with tropical wood. This difference of attitude is considerably less pronounced in countries with high shares of imports and/or with a high share of forests that are considered monoculture-plantation forests. There is a consistent finding among all studies that plastic is the most environmentally harmful material.

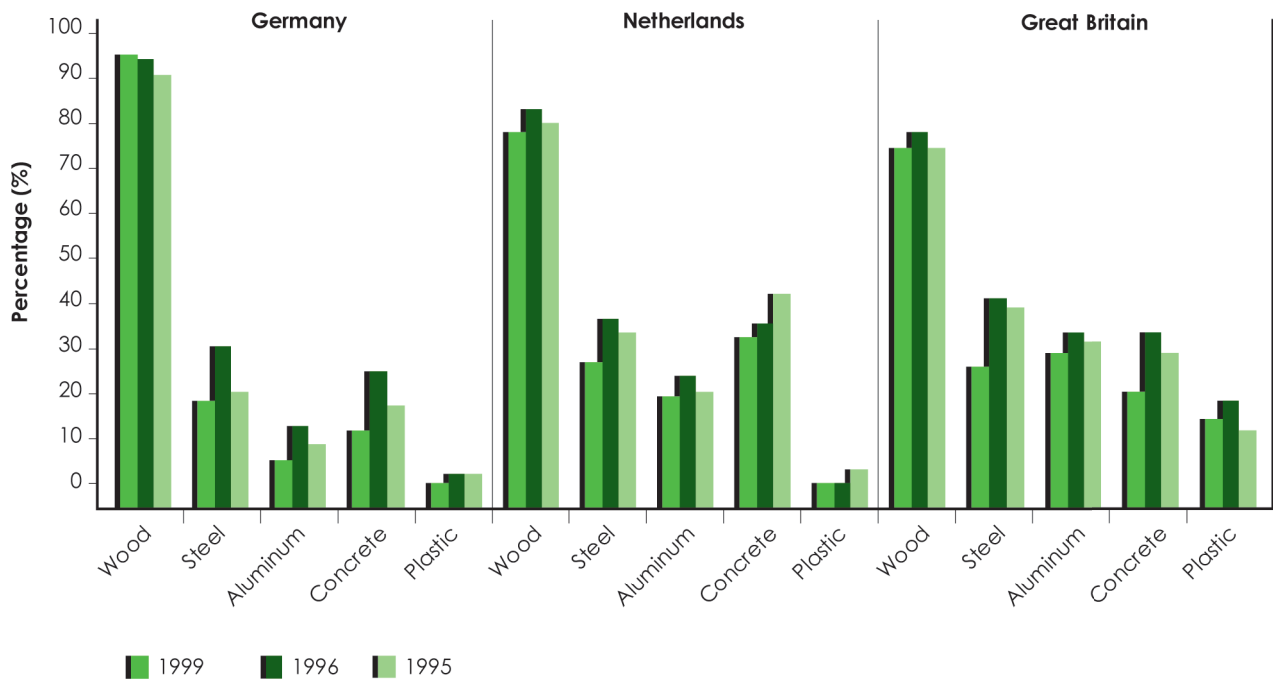


Figure 2. The environmental friendliness of wood and different substitute materials; percentage of respondents assessing a material as environmentally friendly (Source: modified after Lindholm, 2000)

Data from cross-country surveys using identical questions show that the ranking of the environmental friendliness of different substitute materials is largely identical across Europe. However, there are differences in magnitude. For instance, Lindholm (2000) finds that almost the entire German public (93%) considered wood to be an environmentally friendly material. This notion was less pronounced in The Netherlands (77%) and Great Britain (74%). Paper was ranked second behind wood in all three countries, but is seen as considerably more environmentally friendly in the UK than in Germany (Germany 51%, Netherlands 59%, Great Britain 64%). The German public are shown to be more positive towards wood than the general public in Great Britain and The Netherlands, as well as being more critical of other materials where their environment-friendliness is concerned.

Several surveys indicate low perceived levels of information regarding wood and its use. For instance, a representative survey conducted in France in 2000 showed that about half the population considered themselves rather ill-informed about the advantages and disadvantages of wood compared to alternative materials. Another one conducted in the UK some two years later shows that close on half of all respondents think they would use more wood if they knew more about it.

### 2.3. As wood is purchased, environmental attributes rank low

A considerable number of surveys have been undertaken to find out the ranking of different product attributes by consumers. Although in practice this certainly varies depending on the specific product in question, many surveys ask for wood products in general. Where survey results are available for specific products, these tend to confirm the general picture. As with the attitude towards wood in general, the emerging general picture is rather consistent across different surveys and regions.

When asked, consumers in a range of different countries across Europe usually report that quality and price combine with wood species as the main product attributes influencing purchase decisions. Figure 3 shows the result of representative surveys in five European countries. In general, the European consumers regard quality, durability, appealing shape and material, and economic price as the most important product attributes across a number of product categories. Environmental aspects such as natural product and environmental compatibility were ranked comparatively low, which is largely consistent with actual average purchasing behavior. Only the attributes “modern”, “product made in home country” and “exclusive” are ranked as less important. The low rank of attributes such as “modern” and “exclusive” in particular indicates that aggregate consumer surveys show an average opinion, but not the attitude of specific consumer groups or market segment interested in a particular aspect or style.

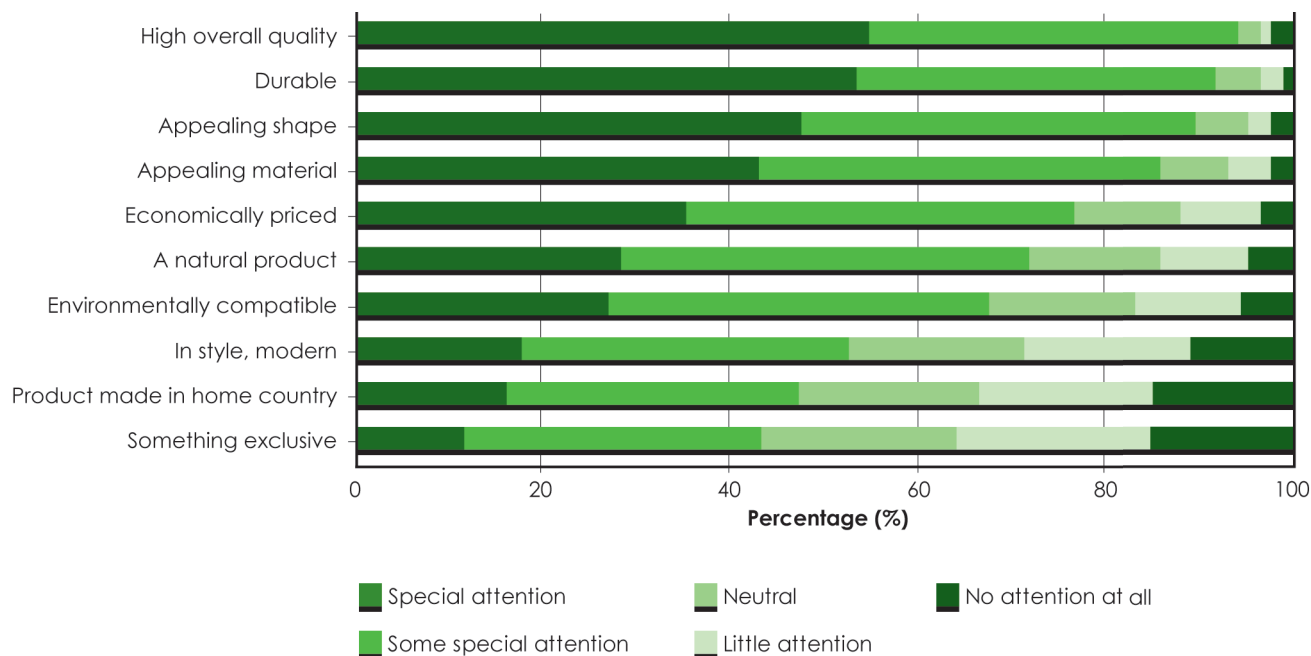


Figure 3. Attention paid to different product attributes in purchasing furniture; percentage of respondents (Source: modified after Rametsteiner, 1999, 2000)

Young people did not pay special attention to the attributes “natural product” and “product made in the home country”. On the other hand, older persons (age 50+) and less educated people weighted those attributes significantly higher. This is consistent with the findings from the French study cited earlier, and indicates that the young seem less interested in environmental matters than their

counterparts in the mid 1990s were, while they have a more internationally open approach to their lifestyle. There is evidence that the role of environmental aspects is varying across different forest products. In general, environmental considerations seem to be more important for paper products than for furniture, where the degree of “greenness” is less important for consumers. Compared to end consumers, companies purchasing forest products tend to consider environmental features rather unimportant. End-users of forest products at corporate level regard price, technical quality, and supplier characteristics as the most influential criteria in their purchase decisions. Figure 4 shows results from Germany where statements also included the issue of health and design.

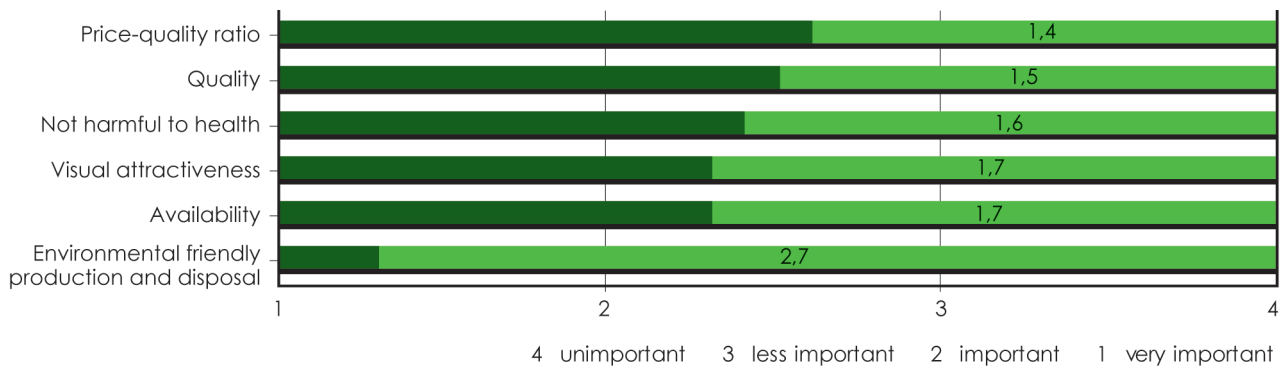


Figure 4. Importance of purchase criteria for business customers dealing with forest products for construction purposes in Germany; average assessment of importance (Source: modified after Mantau, Thoro, and Heuvel, 2002)

The purchase decision processes of end consumers vary significantly from one wood product to another – e.g. between furniture, structural construction or paper-based packaging. However, if asked with regard to wood products, a clear pattern emerges that is likely quite true for Europe as a whole, but has been demonstrated by survey data in the UK as well as in Nordic countries. In the majority of cases the initial purchase decision is made together by adult household members. However, particularly for interior use of wood such as furniture, the final purchase decision is mainly made by females. Male adults play a very minor role in the last step of a buying decision. For instance, in the UK, in 47% of households it was mainly the female adult who made the decision when buying forest products like furniture or wallpaper – compared to 15% of households in which the male adult made the decision (Lindholm, 2000). In Norway, Gill (1998) found that 29% of the purchase decisions regarding wood products like furniture were considered “female”, while males felt responsible for just 2% of the buying decisions.

## 2.4. Does certification improve the image of wood?

The issue of forest certification has triggered a comparatively large number of surveys on the importance of labels on wood products certifying that the wood used for a product originates from sustainably managed forests. In the wake of such studies it emerges that most consumers are hardly or not at all familiar with the term “sustainable forest management” (SFM). As consumers have difficulty with understanding the meaning of the concept of SFM, it is not surprising that surveys showed that consumers do not rank certified wood products as significantly better or more environmentally friendly than wood products without a label. These findings tend to differ for tropical wood, as regards which labels have a more positive influence. It also differs between countries with a well-established forestry tradition compared to countries which mainly depend on wood import.

The controversy surrounding the benefits of certification to timber producers has centred around the issues of market price premiums and market access. A large number of studies have tried to



assess end consumers' and business customers' willingness to pay more for certified wood. In the meantime an increasingly large body of evidence is accumulating to compare willingness to pay with actual price changes. In general – and as expected – the results show that willingness to pay surveys overestimate price premiums. Overall, it seems that no premiums are often paid for certified softwood commodity products, while price premiums do exist for high-quality and specialist assortments, in particular also for tropical wood. However, survey results also show that, when asked to decide between two products where all things are equal except the certificate, a large majority of consumers tend to prefer the product with a certificate.

Business customers closer to private end-consumers such as Do-It-Yourself companies or architects tend to be more sensitive to the importance of certification, and display a greater willingness to pay for certified forest products than is displayed by business customers in other segments of the forestry-wood chain. According to a number of surveys, the commitment companies show to the offering of certified products is rather connected with the company owners' environmental attitude, perceived competitive advantages, and the chance to gain a greater market share in the future than to any higher profitability anticipated.

Interestingly, survey data show hardly any correlation between the perception of individual consumers on the status of forest area (which the majority see as decreasing), and their respective willingness to pay. This would mean that consumers do not see forest certification as an effective instrument by which to improve forest management. However, it is more likely to be nothing more than a further indication of the (still) low level of awareness and knowledge of what “sustainable forest management” means. Moreover, there are indications that consumers implicitly assume the raw material for wood products to come from acceptably well-managed (European) forests (Veisten and Solberg, 2002). Thus, with current levels of knowledge among consumers, forest certification alone is unlikely to guarantee greater demand, and nor a significantly improved image of wood or significantly higher prices for wood products in general.

## 2.5. Is using wood good or bad for climate change?

Some recent surveys have investigated the attitudes of citizens regarding the impact of the use of wood on climate change. Amongst experts, the use of wood and consequent longer-term storage of carbon in wood products and the replacing of non-renewable materials by renewable ones are seen as a useful component in a wider overall strategy to mitigate climate change. Given that a large majority of Europeans are concerned about climate change (with many countries in the EU regarding climate change as the most important environmental issue (Eurobarometer 2005), action to substitute carbon-neutral materials for materials that are not carbon neutral should gain the support of public opinion. However, in contradiction to the facts, a majority of Europeans still seem to think that forest area is decreasing in Europe (see also Rametsteiner and Kraxner, 2003). For instance, in the UK as of 2002, 56% of those polled believed that forest cover in Europe is not increasing (down from 63% in 2000) (Jaakko Pöyry Consulting, 2002). In France, in 2004, some 55% believed that French forests were shrinking, down from 71% in 2000 (TNS Sofres, 2000; IPSOS, 2004).

From a citizen's perspective, the use of more wood possibly also means that forest area decreases even more. As Figure 5 from the UK shows, around half of all respondents in the representative UK surveys in England, Scotland and Wales believe that the cutting down of forests and woodland makes climate change worse, even if the latter are replanted. However, as the respective chapters make clear, UK citizens tend to think that using wood to replace non-renewable materials such as fossil fuels and gas (see chapter on wood energy) and construction materials (see chapter on building with wood) is good for mitigating climate change. However, between one third and a half of all respondents either claim not to have an opinion, or simply do not know.

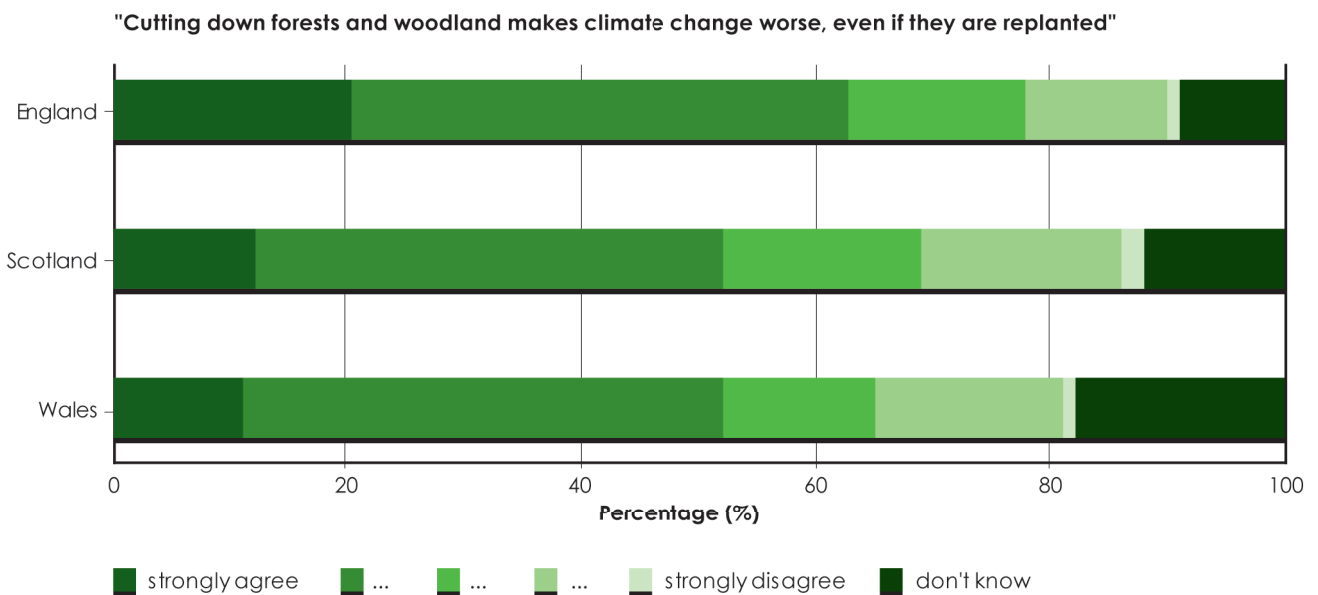


Figure 5. Effects of cutting down forests on climate change: Percentage of respondents agreeing or disagreeing (Source: UK Forestry Commission 2007)

Given that the UK is a large importer of wood and domestic forestry is less well established than in some other countries in Europe, one would expect that citizens in countries with a strong domestic forestry sector would be more positive towards wood substituting non-renewable materials. However, it is likely that a considerable part of the population in other countries has similar concerns as regards cutting down forests, a similar lack of knowledge and attitudes that are not yet strongly formed.

Comparable surveys conducted in France in 2004 showed similar results, with more than half of the citizens agreeing that the use of wood reduces the greenhouse gas effect, and some 30% disagreeing, while the rest was undecided (IPSOS 2004). Compared to earlier French surveys conducted in the year 2000 and 2003, this was a marked change, as a relative majority of 47% disagreed to the same statement only three years earlier (TNS SOFRES 2000), see Figure 6.

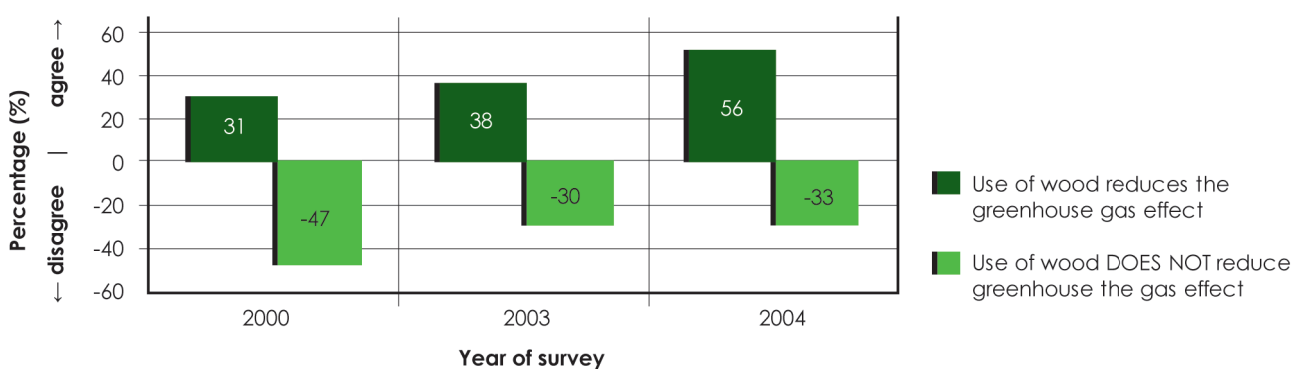


Figure 6. Perception of the contribution of wood use to climate change in France; percent agreeing or disagreeing with the statements (Source: modified after TNS Sofres, 2000; *Institut d'Études de Marché et d'Opinion*, 2003; IPSOS, 2004)

## 3. LIVING WITH WOOD

### Furniture and interior applications

This chapter focuses on the use made of wood in furniture and interior applications. The specific product in question is sometimes, but often not detailed further and more fully in surveys. As in the previous chapter, a good part of the information presented in this chapter is from representative national surveys (around 13 such surveys were reviewed for this chapter). A significant number of reviewed studies were regional. Again, more and better information is available from Central and Western Europe, but there are more studies available from Central and Eastern European countries. Relatively little information is available from southern Europe. If data are presented from specifiers and business customer surveys, this is explicitly stated. Research on attitudes towards furniture is limited by the fact that the sector is split into many different subsections. Responses are influenced by the kind of furniture consumers have in mind when asked about their attitude to wooden furniture in general. This association could be in terms of location of use (kitchen, bedroom, living room, garden), function (seating furniture, beds, shelves, cupboards), or material (solid wood, plywood, chipboard, combination with other materials). Survey results presented here, as elsewhere, are thus generalised findings and “story lines” rather than reliable and precise specifications of attitudes.

#### 3.1. Wood creates a welcoming atmosphere and a good room climate

Furniture and interior applications feature in the first spontaneous answers given by consumers when asked about possible end-uses of wood. Irrespective of the region surveyed, wood as a furniture material was highly appreciated by the respondents for its appearance (“colour” and “grain”), the atmosphere it is able to create (a “warm/cosy atmosphere”, “feel well with wood”), and its positive effect on room climate (“improves room climate”, “regulates humidity”) (see e.g. Figure 7 for results from Germany). A survey of the Austrian public showed a preference for wood over other materials by a majority of the population, particularly when it comes to furniture, doors, children’s toys and handicrafts, and, by a rather slight margin, windows. The increasing importance of “healthy” materials for consumers is backed up by a Delphi study (Knauf and Frühwald, 2004), wherein German forest industry representatives expressed their conviction that wood attributes related to health and wellness are increasingly gaining the attention of consumers, and are likely to become more important in the future due to the general “wellness” trend currently visible in at least a number of countries in Europe.

In a comparison with substitute materials made for the purposes of a study undertaken in Finland in the late 1990s, people were asked an open-frame question about attributes that make wood superior to other materials used in furniture manufacturing (such as metal or plastic). 84% of the respondents agreed that wood indeed has superior attributes. The attributes most frequently cited were reliability (50.4%), environmentally safe material (39.3%), and good looking (35%).

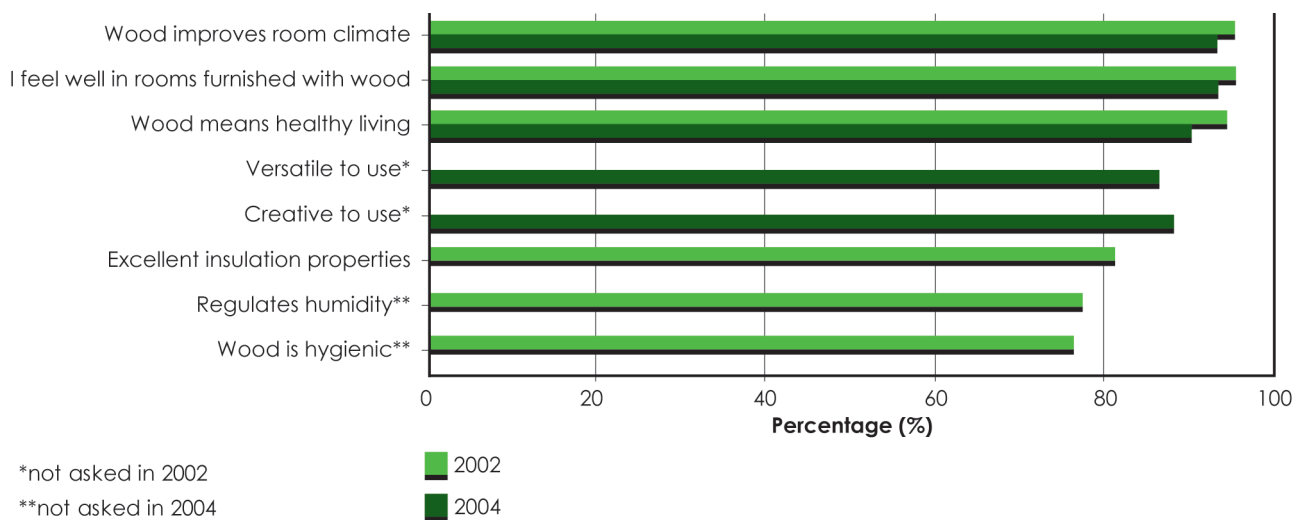


Figure 7. Image of wood as a material for furniture and interior applications in Germany; percentage of respondents agreeing (Source: modified after TNS 2003, 2005)

### 3.2. When buying wooden furniture, design and quality count most

Surveys regarding purchasing criteria for different types of furniture and the ranking of different attributes tend to confirm results from the general wood attitude surveys described in the previous chapter. A considerable number of surveys have been conducted for a range of different types of furniture, and across different regions, largely with similar results. For instance, a representative survey run in Ukraine in 2004 showed that consumers rated attractive design ahead of colour, quality, price and material in their last purchase of furniture. In Bulgaria, the top four criteria for buying furniture were found to be price, solidity, design and function (in that order). In Croatia and Slovakia, consumers ranked material and quality ahead of price. Other surveys in Europe show that consumers demand “good” quality, particularly when furnishing kitchens, bedrooms or living rooms, and consider processing quality, comfort, durability and functionality as main dimensions. Good quality wooden furniture is usually associated with solid wood. The importance of quality increases with the expected longevity of products. A mainly qualitative small survey undertaken in Sweden and Spain (AIDIMA, 2007) found that, for Spanish consumers, the determining factors for buying furniture are price, functionality, and additional services, while for Swedish consumers design and environmental characteristics are also major criteria. The same study indicated that, in Spain, glass is seen as the most aesthetic material, followed by wood.

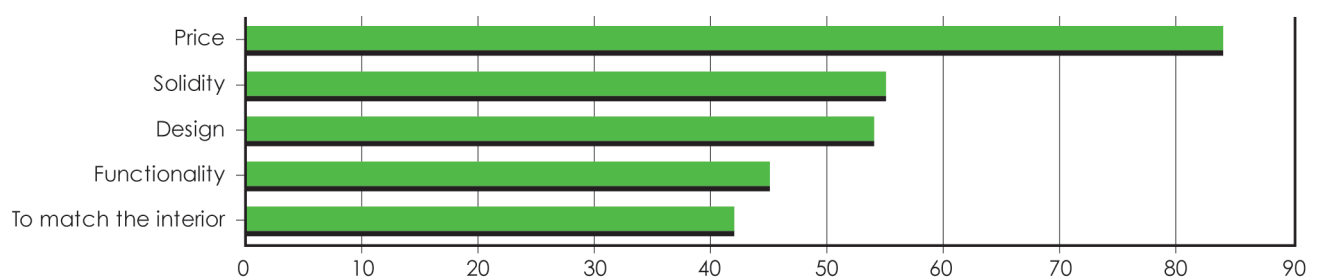


Figure 8. Top 5 criteria for the purchase of living-room, bedroom, and kitchen furniture in Bulgaria (Source: modified after Branch Chamber of Woodworking and Furniture Industry, 2003)

When it comes to wood furniture purchases, the attributes design, price, quality and species are almost always among the four major purchase criteria for consumers, regardless of the type of furniture in question (e.g. solid furniture, plate structure furniture or upholstered furniture). Different segments of the stratum of consumers tend to vary in their views. Several studies also show that the provisioning of information as to the type of wood species used and the origin of the wood has a positive impact on purchase behaviour. The request to provide information about the origin of products consumers buy and consume seems to be a trend across a wider range of products, including forest products.

While price is usually a major consideration, it seems that respondents frequently compare and judge alternatives with a certain price range in mind. Price sensitivity in turn varies for different types of furniture, in that consumers seem to be less price-sensitive when purchasing more expensive and longer-lasting items compared to smaller items such as hi-fi, a computer and other small furniture. One possible explanation for this empirical finding is that more consumers compare using relative (percentage) price differences than absolute difference (in cash). This leads to greater sensitivity for the same total amount in lower-priced furniture as opposed to that at higher price. According to some studies, price sensitivity tends to be higher for plate structure furniture compared with solid wood furniture or upholstered furniture.

Wood colour and the related issue of species of tree from which wood derives are a design element. Preferences for dark or light wood shades and wood species preferences are evidently following design fashion, which is neither determined by consumers alone, and nor by supposedly powerful retailers and their trend consultants. They rather emerge as a co-evolution of consumers asking for variety over time, and retailers and producers aiming to create new trends and fashions to maintain or increase sales volume turnover. Given that design is an important purchasing criterion, the trendiness of a certain wood species has a positive influence on the achievable price of a piece of furniture.

A further design element that has been studied in surveys is the optical uniformity of wood surfaces, in particular the acceptance of knots or other character marks of wood as a naturally growing material. These studies tend to find that, when asked explicitly, a majority of consumers do not reject such furniture, as long as these character elements are not too frequent and dominating. A study conducted in Sweden in the mid 1990s (Broman 2001) found that respondents judge the impression of the whole surface rather than individual elements. Consumers favoured wood surfaces with a visual balance between a degree of harmony and dynamics, whereby it is important that the elements creating dynamics such as knots or grain patterns are well balanced across the whole surface. However, there is at least some indication that furniture retailers accept the presence of character-marks on furniture surfaces only as long as these marks are not too obvious – as the frequency and size of knots seems to have an adverse effect on the actual (as compared to stated) willingness to buy such furniture. Thus, while overall the “average” customer might not actively look out for character-marked furniture, there is a segment of consumers who are more open to it, or actively looking for it.

Like private households, companies regard the attributes design, species, price and quality as the four most important purchase criteria when office furniture is bought for their own use. For instance, a Ukrainian survey amongst office furniture buyers showed very similar results to the survey undertaken amongst households. In contrast, a representative study amongst Bulgarian managers in 2003 considered price and type of wood (in that order) as the most important purchase criteria for office furniture. The respondents clearly preferred solid wood over chipboard. Retailers, wholesalers and DIY-markets considered technical quality, visual properties and usability as the most decisive

criteria when selecting furniture. According to some survey results, supplier characteristics, environmental friendliness, and services, information and logistics play only a comparatively minor role.

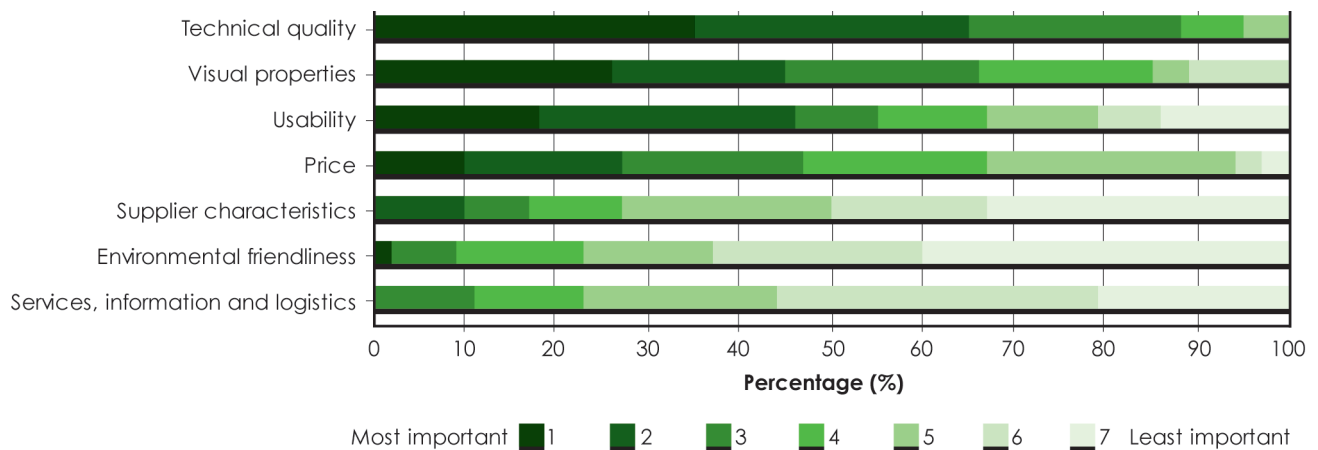


Figure 9. Purchase criteria for kitchen cabinets by DIY companies in Germany and Austria (Source: modified after Järvinen E., Toivonen R., Enroth R.-R., 2001)

A comparison of purchase criteria among business customers in the study undertaken in Germany and Austria presented in Figure 9 revealed some significant differences between different customer groups. DIY chains considered the price of kitchen cabinets more important than construction material retailers and wood product wholesalers. DIY chains also considered supplier characteristics and services, information and logistics more important product-selection criteria than the two other respondent groups. Other smaller surveys undertaken for specific business customer groups highlight differences of requirements between, e.g. hotels, whose furniture acquisition is clearly determined by the overall design, and hospitals, in which furniture needs to withstand heavy use and often has to fulfil high safety standards (AIDIMA 2007).

### 3.3. Windows and flooring: is wood durable and maintenance friendly?

Preferences for the use of wood in interior application or interior construction – such as windows, flooring or doors – vary across these products. Overall, it emerges from surveys in Central and Northern Europe that wood is the preferred material for floor coverings, but is clearly avoided for window frames.

Windows made of wood meet with considerable scepticism concerning their maintenance. Several surveys on windows reveal the main reasons for substituting wood windows with windows from other materials to be high maintenance efforts and high initial costs. For instance, in a representative survey of 2003, the German public was asked about the perception of and purchasing criteria for windows. The respondents indicated that the major reasons for replacing windows were that current ones are not draft free, and they found that old-style wood windows were characterised by low energy efficiency. Interviewees clearly avoided re-purchasing wood windows, and preferred plastic window frames.

Figure 10 shows that German households, as well as architects and planners, rate non-technical attributes such as being a “natural” material and “good appearance” as highly as positive attributes, durability issues and costs as the most negative attributes. Less than 10% of the German population regarded wood windows as not expensive, whereas more than 40% of respondents perceived plastic windows as not expensive. Interestingly, the same German survey found that, despite the perceived disadvantages, a majority would prefer wood windows (69%) over plastic windows (12%) for their residential homes.

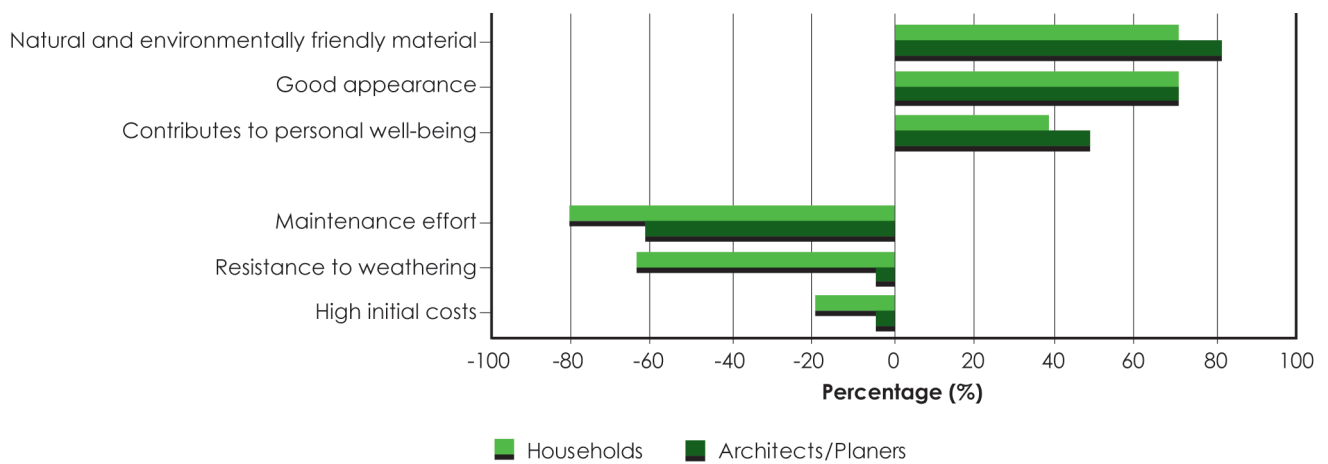


Figure 10. Reasons for/against the purchase of wood windows in Germany; percentage of respondents (Source: modified after Adlwarth, 2003)

Customer perceptions as to the advantages and disadvantages of wooden windows seem to be similar for private and public consumers and specifiers. For example, a German survey amongst architects reported the same reasons for avoiding wood windows as private households, although the percentages for the perceived disadvantages were much lower. As in the household survey, environmental friendliness, good appearance, and the wellbeing of residents were the most prominent advantages of wood windows. A similar survey conducted amongst homebuilders and public building associations in Austria showed that wood window frames were regarded as inferior when it came to the most important decision criteria like initial costs, maintenance and durability. On the other hand, wood window frames were rated as satisfying with respect to attributes like disposal costs, renewable material, natural appearance or design. Alas, those attributes were also considered least important in the decision process.

Regarding criteria for interior architecture, wood flooring is the first use for wood that comes to mind, followed by the choice of doors for living-rooms, according to a representative survey conducted in Austria. For flooring materials, the Austrian public preferred wood flooring over other materials, particularly in living rooms (80%) and bedrooms (74%). Previous comparable surveys make it clear that the preference for wooden flooring has risen considerably over the last decade. The main reasons for choosing wood flooring have been appearance and health aspects such as beauty (89%), natural look/warm atmosphere (84%), healthy room climate (83%), hygienic material and reduction of the risk of allergies (both 79%).

A more in-depth study amongst households which have been re-floored in the recent past in the UK and The Netherlands (Jonsson 2005) showed, not surprisingly, that the usage context (e.g. own house or dwelling, type of room) had a crucial influence on material choice. Carpeting was preferred for stairs & landings, bedrooms, and bathrooms, where tactile warmth, a good foothold or sound-absorbing qualities are the main criteria. Tiles were chosen for bathrooms for hygienic reasons, waterproof nature and aesthetic value. Laminate was the preferred floor covering when it came to hygiene, health, or durability. Laminate was also considered the closest substitute for wood flooring, and was especially competitive with wood in bedrooms. Wood was favoured when aesthetic appeal, feeling and the natural look were highly valued. Thus, wood was used in living rooms mainly. Additionally, aesthetic considerations, attributes related to the nature of the material (e.g. natural look and softness), functional criteria (e.g. hygienic material, Do-It-Yourself product), and past individual experience played an important role in material preferences.

### 3.4. Environmental issues are seen at the end, not the beginning of the life cycle

As with wood products in general, consumers seem not to consider environmental criteria as of great importance to their choice of furniture. Despite concerns about environmental issues being expressed across Europe, consumers are hardly basing their decision to purchase products on the criterion that they are environmentally friendly. A range of studies across Europe, including southern Europe, also indicate that the importance of eco-labelling is lower than that of other more tangible product attributes. In general, northern Europeans seem to take more account of these labels than do consumers in southern Europe. Compared to other end-uses of wood such as construction or use as paper, certified furniture or furniture sourced from sustainably managed forests was less sought after by the general public, although a consumer segment clearly interested in such labels was identified by several studies. In the aforementioned study on purchase criteria when it comes to kitchen cabinets being bought by business customers, environmental friendliness was found to be of greater importance to wood product wholesalers than construction material retailers and DIY chains, though this attribute was rather unimportant compared to other product attributes.

Overall, when comparing the environmental friendliness of different stages of the life cycle of furniture, most Europeans consider forestry to be more environmentally friendly than furniture production. Given that most Europeans also think that forest area, forest biodiversity and forest health are decreasing, this is possibly an initially surprising finding. However, as several studies have shown, Europeans do not blame this deteriorating situation of forests on forestry, and they tend to view foresters as good and trusted stewards of forests (see also Chapter on the image of the forest industry). Although in general all phases of the life cycle of furniture are seen as rather environmentally friendly, the most troublesome area of the life cycle, in the opinion of Europeans, is the end-of-life disposal of furniture, and the open question of managing furniture disposal and the possible recycling and recovery of wood waste therefrom.



## 4. BUILDING WITH WOOD

### Construction and outdoor use

This chapter comprises consumer surveys on housing and building material, interior construction elements such as flooring and windows, as well as new materials, including for outdoor use of wood. As in the previous chapter, a good part of the information presented in this chapter is from representative national surveys (around 18 such national or regional surveys were reviewed for this chapter). Most surveys are from Central European countries, and virtually no study from Central-Eastern or southern European countries. If data is presented from specifiers and business customer surveys, this is again explicitly stated. As before, surveys into the general use of wood in construction do not always relate to a specific product, which leaves it open what individual respondents had in mind when they answered specific questions. Similarly, as in the rest of the study, a general emerging picture of an “average” consumer often obscures the differences between different consumer or market segments and between different regions across Europe. This is particularly an issue with regard to wood use in construction, as regional or national traditions in this regard vary considerably across Europe. Furthermore, houses are very complex products in terms of materials, and are expensive to build. This implies that general surveys amongst the public report the attitudes of persons with little or no exposure to a “real life” situation. Generalizations are thus probably more difficult to make in this chapter than in most others in this study.

#### 4.1. Consumers are positive, but have reservations about the technical characteristics of wood as a construction material

In contrast to the very positive image of wood in general, wood for construction purposes is viewed with some ambiguity. In general, the image of wood as a building and construction material is positive among consumers in many European countries, although it is less positive than for other end-uses like furniture. Attributes such as naturalness, versatility, ease of use and environment-friendliness are the perceived advantages of wood over substitution materials in the private construction sector. People are, however, more reserved about using wood in structural construction and for outdoor applications. In comparison to substitute materials, wood is seen as inferior with respect to many important technical attributes – people generally regard wood as less fire resistant, less durable, less dimension-stable, less resistant to decay and insects, and more expensive to maintain, than other materials. For instance, a slight majority of the French public surveyed in 2004 believed that wood was not the appropriate material for load-carrying structures. Similarly, a study amongst the Austrian public showed that the majority of respondents considered wood appropriate for applications like detached buildings, farm structures, facades and interior construction.

Figure 11 shows results from a representative survey conducted in Austria, in which participants were asked about their associations with different building materials comprising wood, masonry, steel, and concrete. Wood was most frequently seen to be associated with naturalness, comfort and environmental friendliness. In contrast, steel was seen as a modern (18%) and high-tech (53%) material, while concrete was regarded as strong and safe (32%). Masonry was associated with being familiar/known material (42%), of high quality (34%), traditional (31%), timeless (27%) and safe (25%). In a follow-up question, the respondents were asked for their opinion on different building materials with respect to their technical and economic performance. Wood was most often mentioned in the categories pleasant room climate, light-weight, recyclable, versatile, high insulation, flexible,

and easy to use. Wood was seen as inferior to other materials in regard to aspects like fire resistance (3%), load carrying (10%), resistance to moisture (13%), strength (14%), and long life (20%).

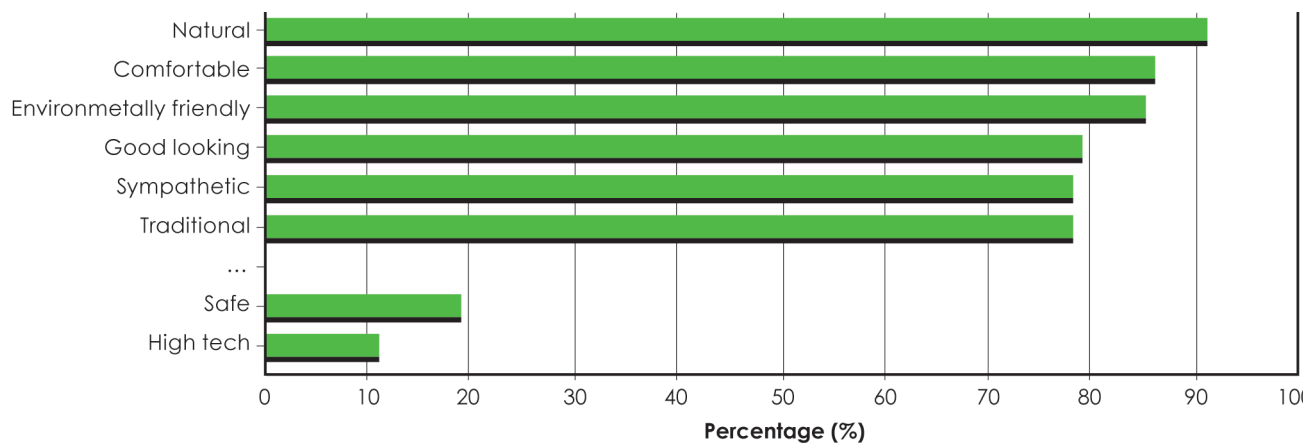


Figure 11. Associations with wood as a building and construction material in Austria, as a percentage of respondents (Source: modified after Fessel-GfK Institut für Meinungsforschung, 2004)

While consumers do not universally regard the use of wood in construction as positive, the image seems to be rated considerably more favourably when it comes to renovation and re-modelling activities. For instance, three out of four German homeowners preferred wood as a material for the improvement of their homes and houses, as in interior renovation, attic/loft conversions, and work on facades. Respondents argued that wood is renewable, easy to work with, versatile in use, and comes at a decent price (University of Hamburg, 2005). Other studies imply that materials that are easy to work with and require less maintenance will become more attractive for renovators and homeowners in the future.

Quite a large number of surveys were carried out in several European countries with a view to determining consumers' attitudes towards wood as construction material, and about preferred materials for residential construction. While residential houses are highly complex products incorporating many materials, a majority of studies find that (regardless of concerns over wood's technical capabilities), this is the building material of choice in housing construction, followed by masonry/concrete in second place. For instance, a representative survey of the German public conducted in 1997 revealed that more than two-thirds regarded wood as the preferred material for construction work at home, followed by masonry (39%), concrete (28%) and steel (10%). This largely confirmed an earlier representative study in which a similar degree of preference was shown for wood, albeit with higher ratings for masonry and preferences shown for natural stone over concrete and steel.

Contrary to that finding (and possibly reflecting funding by a business association interested in views on masonry and roof tiles) were those of a 2001 representative survey carried out in Austria, in which a majority (62%) of respondents were seen to favour masonry as the preferred residential building material, followed by wood (on 18%). Prefabricated buildings made of wood were ranked third (by 12% of respondents), while the least-favoured material for residential construction was concrete (4%). A similar study in Finland revealed a preference for houses made of wood among some 70% of respondents, followed by concrete (ca. 25%). Only a small minority of the public preferred prefabricated buildings.

A country in which the level of familiarity with wood in construction is rather high is Germany, wherein a 2000 study again revealed a very positive image for wood as a construction material. 73% of participants regarded it as very suitable to suitable in this role. On the other hand, more than a quarter doubted that wood was appropriate for any construction purposes, the main objections

being insufficient dimension stability/straightness and limited durability/service life. Additionally, a slight majority considered wood more expensive than other building materials. A similar perception of wood as costly in construction is also widely held in France.

More than half of the respondents of the aforementioned German survey rejected the very idea of their living in a multi-storey house made of wood, while one in three claimed to like the idea. The rest were undecided. Concerns regarding multi-storey wooden buildings centred around dimension stability and durability of construction. Interviewees also expressed concerns reflecting unfamiliarity with life in wooden constructions, the visual appearance and the level of fire resistance. Limited confidence in the technical performance of wood was also a reflection of a belief in wood being mainly appropriate for lightweight constructions and low-rise residential buildings. Similarly, an Austrian representative study undertaken in 2004 showed that, despite a positive image and sympathy for wood, respondents only considered it appropriate in such applications as detached homes, farm structures, facades, and passive energy houses, as well as in interior construction.

Business customers who compare wood with substitute materials (like brick, steel or concrete) seem to evaluate it positively as a building and construction material where aspects like appearance, ease of use, price, environmental friendliness and degree of prefabrication are considered. However, they join consumers in tending to regard the technical performance of wood as inferior to that demonstrated by competing materials. The main perceived disadvantages often centre on fire resistance, strength, durability, resistance to decay, service life and maintenance efforts. Wood is thus often deemed inferior to substitute materials with respect to all or a majority of the criteria of importance when materials are selected. Concrete and steel outperform wood in regard to strength, lifetime, maintenance and durability in particular.

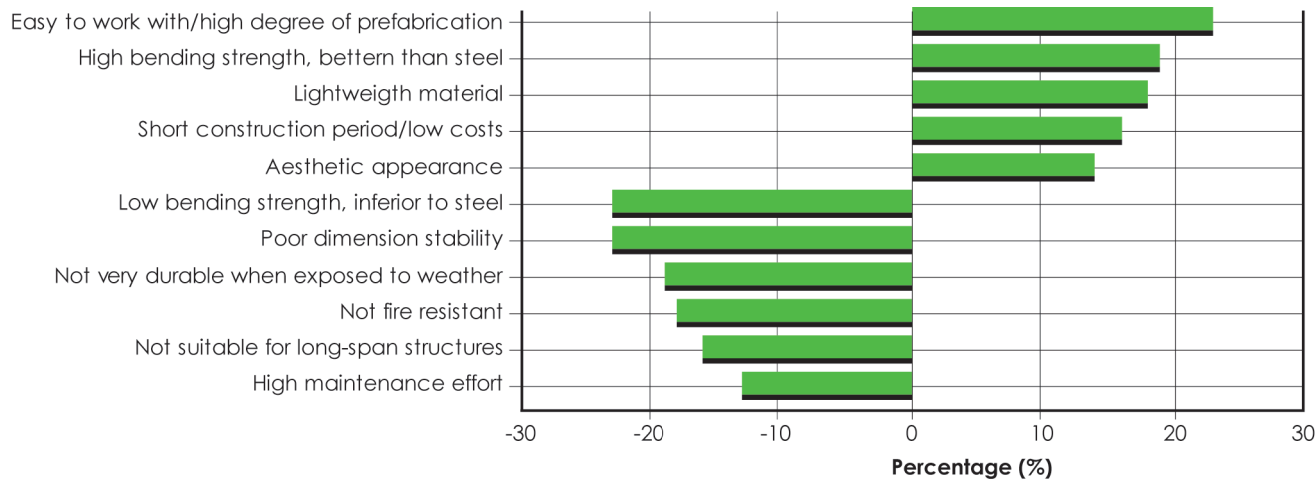


Figure 12. Strengths and weaknesses of "wood" as perceived by German architects and engineers  
(Source: modified after *Compagnon Marktforschung*, 2000)

German architects and engineers were surveyed in 1999 in respect of their perceptions of wood as a construction material (Figure 12). The results show that they point to more weaknesses than strengths, notwithstanding their spontaneous positive associations with the term "wood". Furthermore, a certain genuine familiarity with wood as a construction material is professed, a quarter of respondents expressing confidence in the adequacy of their level of knowledge on wood as a construction material.

## 4.2. Wood in outdoor use: durability is key

According to consumer surveys, wood is either used or not used in outdoor applications by reference to such criteria as lifetime, maintenance efforts and price. In general, durability is the most important criterion in material selections for outdoor applications. In the minds of consumers, wood does not tend to fare too well in these circumstances. For instance, 80% of people in France think that wood requires more maintenance effort than alternative materials. A majority of respondents also regarded wood as not very resistant to moisture and not very durable when exposed to the weather. Close on 90% of people considered wood inferior to alternative materials when it came to such exterior applications as siding or decking. In the case of such wooden outdoor decking, a Norwegian survey found that consumer ratings were mainly influenced by surface homogeneity, harmony (= the balance of wood features) and natural-looking colours.

Treated wood and the wood of naturally decay-resistant species are generally regarded as appropriate materials for outdoor applications, the service lifetime of treated wood being estimated as greater than that of non-treated wood. However, the expected lifetime of both products is lower than for non-wood materials. Both treated wood and wood of naturally decay-resistant species are considered less durable and less economic to maintain than concrete, brick or steel, by architects and homebuilders. Nonetheless, untreated wood seems to be preferred over treated, especially where the treatment changes appearance. Treated wood also raises concerns about health risks and the long-term effects of exposure to the chemicals applied. These concerns are augmented by a lack of knowledge on these chemicals, and a lack of information where the level of risk to health is concerned.

Regarding exterior facades, a survey of Austrian architects and builders (Bruderhofer, 2000) showed visual appearance to be the key product attribute, this being followed by service life, price and maintenance interval (see Figure 13). Environment-friendly production and recycling of the material were considered least important. Wood was the best siding material in respect of its visual appearance, natural character, and environment-friendly production. Exceptionally low rankings were in turn obtained where service life and maintenance intervals were concerned. Around 60% of respondents considered it necessary for wood exposed directly to the weather to be treated, while the remaining 40% opposed such treatment.

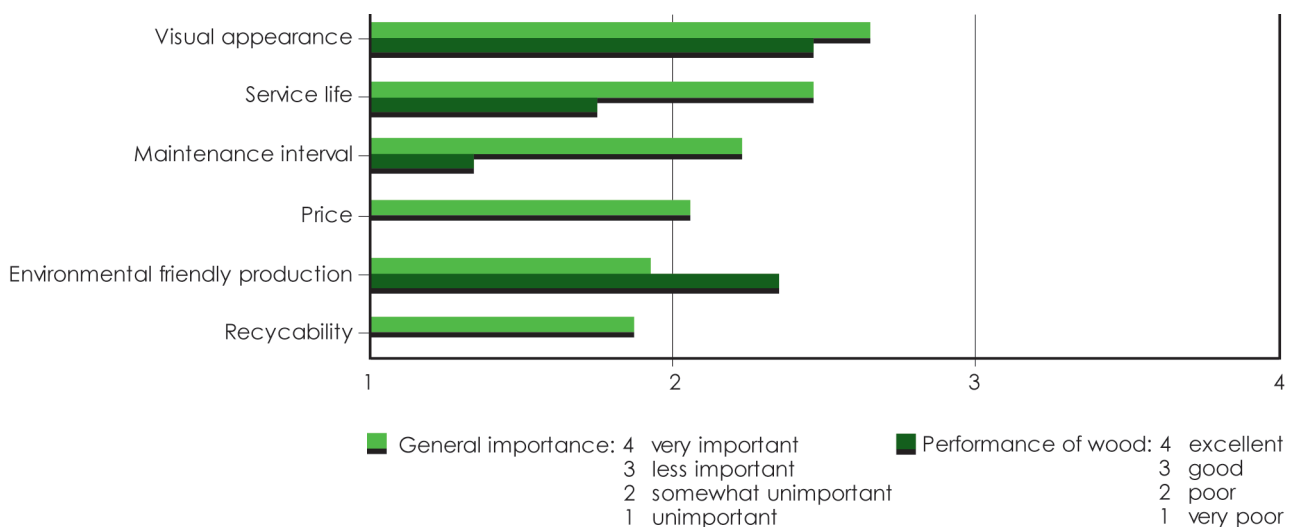


Figure 13. Importance of material attributes for facades and the performance of wood regarding facades in Austria (Source: modified after Bruderhofer, 2000)

### 4.3. Wood composites are new and unexplored materials

Wood-plastic composites (WPCs) are rather new to European markets. Studies on consumer attitudes towards, and perceptions of, WPCs are thus rather limited. First results indicate that consumers are generally interested in modified wood products that have superior technical properties. In Austria, a survey on the use of WPCs for deckings found them to be almost unknown to interviewees. Nevertheless, respondents easily grasped the idea that the properties of wood and plastics might be combined to obtain a superior final product. On average, technical product features like durability and material handling were regarded as more important than information, service and environmental attributes. However, the majority of respondents remained undecided as to whether they would actually be interested in buying deckings made of wood plastic composites. Somewhat more respondents would definitely not buy such products than would consider themselves potential buyers. Further surveys in Central Europe also showed that WPC deckings were considered innovative and durable, but more artificial, less comfortable and less warm, and somewhat more expensive.

With regard to business-to-business customers, decisionmakers in the construction and infrastructure sector are showing great interest in modified wood products and wood-plastic composites. For instance, a survey on the use of WPCs in prefabricated houses amongst business customers in Austria and Germany found that a large majority of businesses were interested, and about one-third very interested. However, the survey also revealed a substantial lack of information: only 1% of respondents felt very well informed, while half of them felt entirely uninformed about wood plastic composites.

Business customers rated wood plastic composites highly as regards their lifetime and durability. Except when it came to visual applications like facades, a solid majority would rank enhanced technical properties as more important than the natural look of wood. For example, a survey amongst architects and builders in Austria (Bruderhofer, 2000) showed that, for only around one third (36%) of respondents was the natural look of wood more important than improved technical attributes, while 22% held the opposite opinion. Another segment of 21% of architects and builders would accept modifications to some extent, as long as the material still shows some resemblance to wood. A similar study regarding window frames made of modified wood (Weilharter, 2002) showed that about 50% of the respondents would sacrifice the natural look for improved technical properties. Another segment comprising 15% of respondents would accept modification of wood as long as it still resembles "wood". Only a rather small segment of 12% of the respondents would not accept any loss in appearance. The use of WPCs with improved technical properties for noise barriers along highways and railway tracks is also widely accepted among structural engineers and highway authorities, as the attribute of natural appearance is of minor importance for this type of application (Jettmar, 2002). Overall, for the material choice of business customers, availability and technical properties of the raw material are crucial criteria.

For business customers, price was perceived as the factor most impeding the use of WPCs. In the case of noise barriers and window frames, the willingness to pay for improved wood products was just moderate – on average a slight majority would accept a mark-up price of between 5 to 10%, whereas the willingness to pay for facades made of modified wood was notably higher than for other applications of modified wood products.

#### 4.4. Wood is seen as environmentally friendly, but does using wood help mitigating climate change?

The influence of environmental considerations on consumers' purchases depends on the category of wood products involved. Furniture purchases appear less affected by environmental concerns than those involving paper products or construction materials. Among environmental attributes, the attribute of energy efficiency was the most influential as a new home is being bought. The environment-friendliness of wood as a construction material goes largely undisputed. For instance, a German study of 1995 (Figure 14) showed that wood was perceived as the most environmentally friendly building material by somewhat more than half of the population. Natural stone and concrete were ranked second and third, respectively.

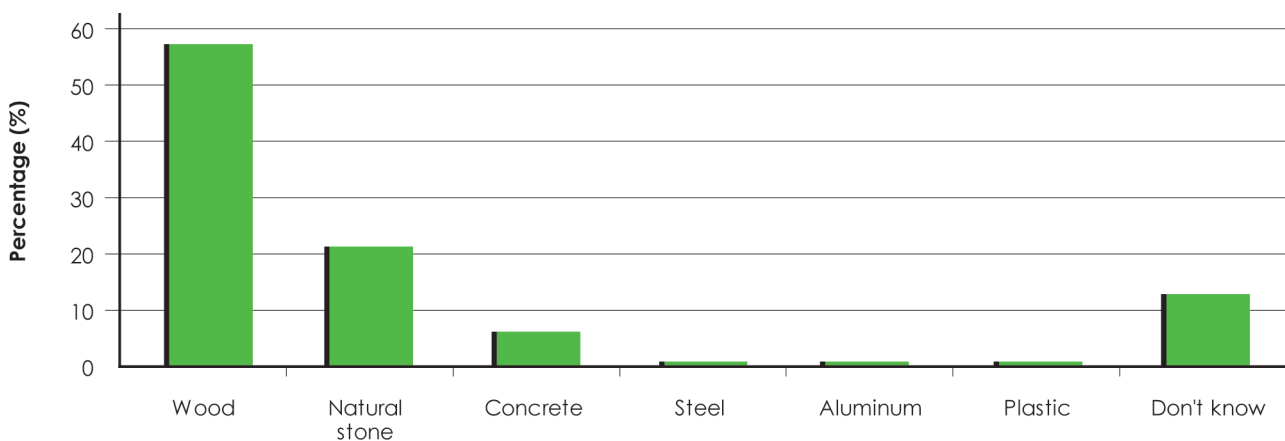


Figure 14. Perceived environment-friendliness of construction materials in Germany (Source: modified after INFAS Public Opinion Research Center, 1995)

Amongst business customers too, wood is perceived as an environment-friendly construction material. Architects and structural engineers value wood as a renewable, recyclable and energy-efficient building material. Its environmental image is usually more positive than that of other construction materials. However, compared with other material selection criteria, environmental aspects were of medium to low importance for architects and structural engineers. Environmental friendliness alone is also not enough to command a price premium. For instance, with respect to environmentally-sound wood products, the purchase managers in a survey undertaken in Germany and Austria estimated that their customer's WTP a price premium was "low". On the product side, the companies assumed that their customers would be willing to pay a "green" premium, particularly for parquet, laminate flooring, panels and furniture. For the companies, the environmental dimension to wood products consisted of the components human health (most important), sustainable forest management, recycling and the general impact on nature.

From the limited available evidence on the question of how far consumers agree with the widely-shared expert opinion that using wood helps in mitigating climate change, it is evident that people are rather undecided. According to a recent survey undertaken in the UK, respondents tend to think that it is better to use wood than materials such as concrete and steel (Figure 15). However, assuming that many people have had limited opportunities to form well-informed attitudes on the subject, it is likely that a certain number of respondents followed the suggestion of the statement.

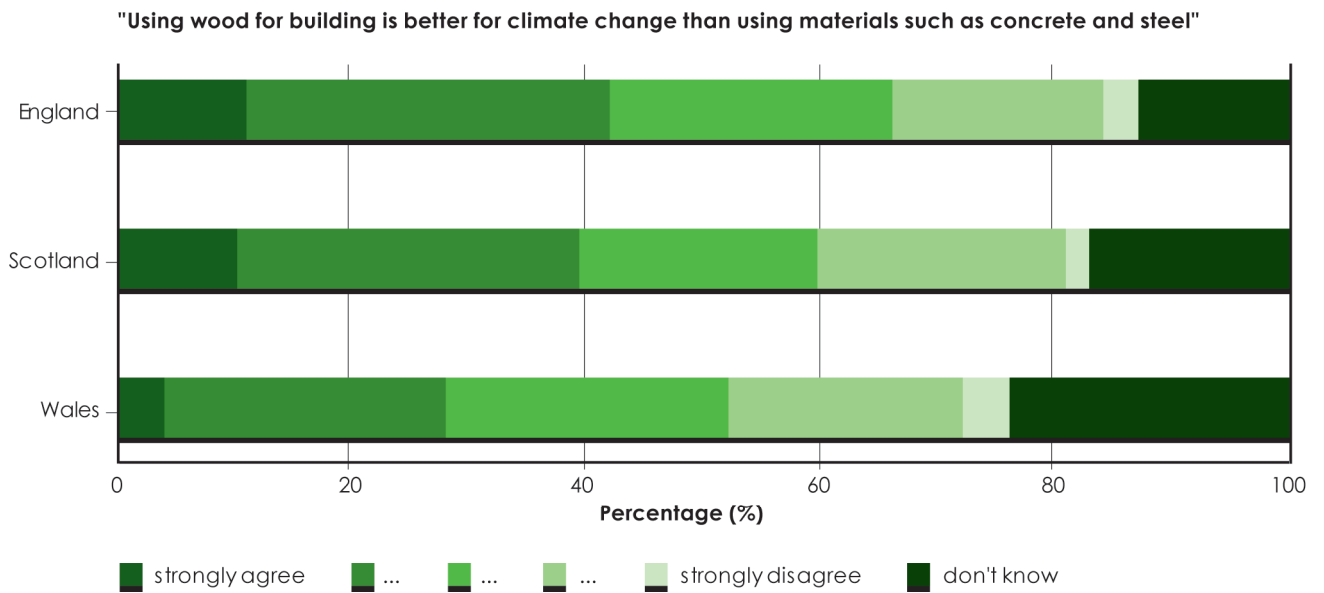


Figure 15. Using wood for buildings is better for climate change: percentage of respondents agreeing or disagreeing (Source: UK Forestry Commission 2007)

## 5. PAPER AND PACKAGING PRODUCTS

Very few studies on attitudes to paper products are publicly available. All questions in the studies that have been carried out are related to environmental aspects. Seven – mostly regional – studies have been identified, dealing with consumers' attitudes to paper products covering several European countries. Two surveys on packaging were found to be in the public domain. No studies at all could be identified where business customer attitudes to paper products were concerned. Most of the surveys reviewed address environmental aspects, and are from Central or Western European countries. As before, surveys into the general use of wood in paper and packaging products do not always relate to a specific product, although criteria for assessing individual paper or packaging products might or do differ substantially. Similarly, as in the rest of the study, the general emergent picture of the "average" consumer often obscures differences between different consumer or market segments both in end consumer and a wide variety of business customer markets and between different regions across Europe.

### 5.1. Environmental considerations seem to be more important for paper products than for other wood products

In terms of environment friendliness, paper is consistently seen as more friendly than most materials except wood. For example, between 1995 and 1999 the *Demoskop* public opinion research center (Lindholm, 2000) asked the general public in The Netherlands, Germany and Great Britain to rank various materials with respect to their environment-friendliness. In this study, paper was ranked second to wood in all three countries. Figure 16 shows the perceived environmental friendliness of different materials in Germany, The Netherlands, and the United Kingdom in 1999. Comparable surveys undertaken in 1995 and 1990 show that the environmental image of paper has somewhat deteriorated in Germany and The Netherlands over the last few years, while remaining highly positive in the UK.

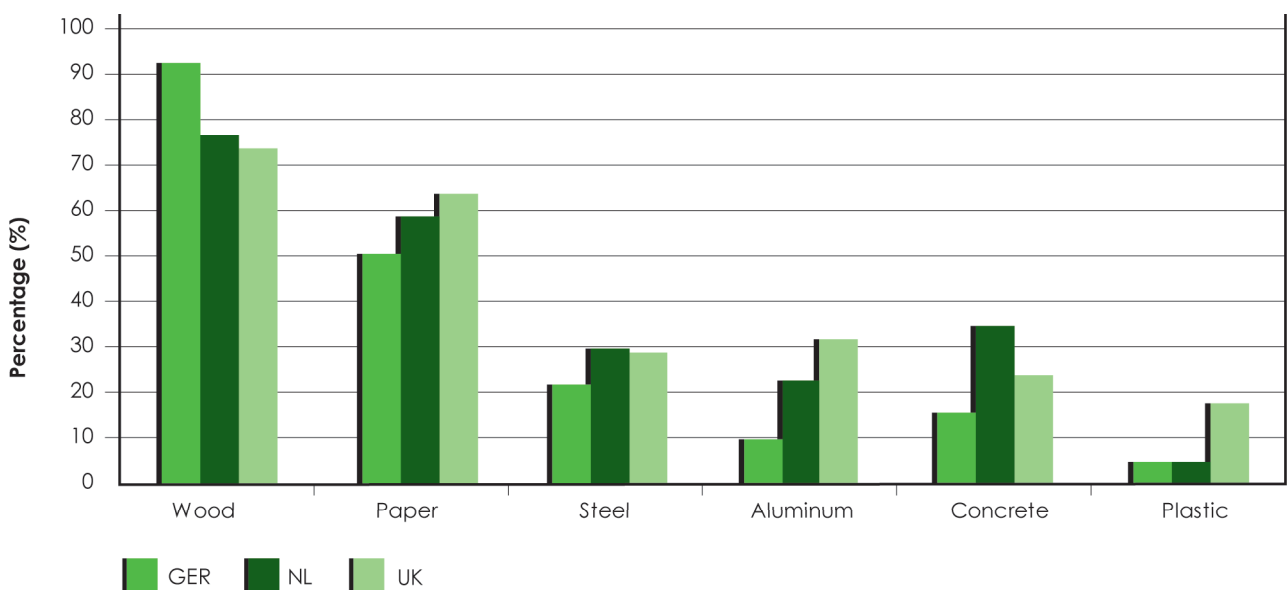


Figure 16. Environmental friendliness of paper compared to other materials; percentage of respondents assessing a material as environmentally friendly in 1999. (Source: Lindholm, 2000)



Environmental considerations seem more important as paper products are purchased than other wood products. Respondents possibly feel more “guilty”, due to a perceived direct link between the cutting down of trees and products that are used for only a comparatively short time before being discarded, such as a range of paper products. Consequently, consumers see recycling as a good means by which to reduce the pressure on forests. For instance, a survey conducted in 1995 in England and Wales assessed consumers’ environmental attitudes towards forest products and the forest industries (Paasikoski, 1996). The study asked the respondents which criteria they perceived as most important as regards environmentally sound paper products. The results indicated that the most important attributes for environmentally sound paper products were that they contain as much recycled fiber as possible (91% very important to important), the production burdens the environment as little as possible (85%), and that the fibers originate from sustainable forestry (84% very important to important).

In a regional survey in the Helsinki area of Finland, consumers’ attitudes towards the purchase of “green” and “regular” tissue paper was studied (Katainen, 1998). Households were mailed and asked about the perceived consequences of purchasing recycled paper products instead of paper using virgin fibre. Three-quarters of respondents believed that the forest resources of Finland are likely to be saved by the purchase of recycled tissue paper, while a similar proportion of people were sure that this behavior would reduce environmental damage. The answers regarding the purchase of paper made of virgin fiber showed the opposed picture. More than three-quarters of respondents thought this behavior would not save forest resources, and more than half believed that the choice of this kind of paper would increase environmental harm. In general, “green” tissue paper was considered more environmentally friendly, less expensive, and a less luxurious choice than “regular” paper. Females had a rather more positive attitude towards the purchase of “green” tissue paper than males. About 93% of the people asked claimed to support recycling.

Rametsteiner (1999) investigated consumer attitudes towards forests and forestry in the four main European markets of Germany, France, Italy, the UK and Austria in 1996/1997. In the representative surveys the respondents were asked about the importance of the feature “origin of wood from sustainably managed forests” for different product groups including paper products. On average, more than 60% of the consumers on the four main European markets considered this feature very or quite important for paper, though it was slightly less important than for other wood products. In Austria the importance of the SFM-feature was even considerably lower for paper products, whereas over 80% of consumers regarded this attribute as very or quite important for furniture and fixtures (Rametsteiner, 2000). The same surveys also showed that most people have difficulties understanding the meaning of the term “sustainable forest management”.

## **5.2. Packaging paper is more environmentally friendly than alternatives**

Although paper resembles a range of other wood product categories in being subject to product and customer-specific market research undertaken by companies, little of the information this yields enters the public domain, particularly where the sectors concerned involve just a few large companies, as with the industries making panels, but also packaging. A survey carried out in three countries (the UK, Sweden and Slovakia) in 2004 (Sustainpack 2005) found that consumers have a practical attitude towards packaging. Although varying across different product categories (e.g. between juice, food or other products) and situational contexts (e.g. private consumption, consumption in public places), consumers like paper and board packaging best for juice packaging. They believe that paper and board is the most environmentally-friendly material. Nonetheless, plastic packaging has some important advantages in the consumers’ eyes. Consumers say that visual impact is an



important but not decisive factor when buying a product, and, when asked, state that they would like to see an environmental rating on packaging. According to this survey, the three most appreciated features in a juice pack indicated by the interviewees in the three surveyed countries were “easy to open” and “legible print” in the cases of British and Swedish consumers, as compared with robustness, recyclability and a light weight in the case of Slovak consumers. The same study found that the three most annoying features are difficulty with opening or information that is difficult to read, excessive packaging or flimsy packaging that is easy to damage (in that order). Compared to those in Spain, consumers in Sweden seem to take more account of environmental aspects.

What is deemed the most appropriate packaging is very much dependent on the type of product (e.g. juice, food in different stages of processing, electronic devices or bulk material). For juice packaging, this study found that paper or board is the type of packaging material preferred by 79% of Swedish consumers, 75% of those in Britain, and 59% of Slovak consumers. Paper or board is preferred over plastic and glass. Reasons given focus predominantly on environmental and convenience aspects. Cardboard and paper packaging is mainly considered recyclable, biodegradable, easy to open and easy to carry (in that order). Microwavability, resealability and reusability are less linked with paper and cardboard. In comparison, plastic packaging is seen to have some important advantages, including in regard to its greater durability as compared with paper, and the fact that (unlike paper) it does not soak, and (unlike glass) it does not break.

When asked to think about which type of packaging they consider the most environmentally friendly, the majority of respondents chose paper and board (71% of British, 86% of Slovak and 74% of Swedish consumers) (see Figure 17). Consumers seem more used to recycling paper than any other packaging material. Most consumers believe that glass is the second most environment-friendly packaging material, as it can be re-used. According to most consumers, plastic packaging creates a number of environmental problems, inter alia because it is not biodegradable and is harmful to the environment.

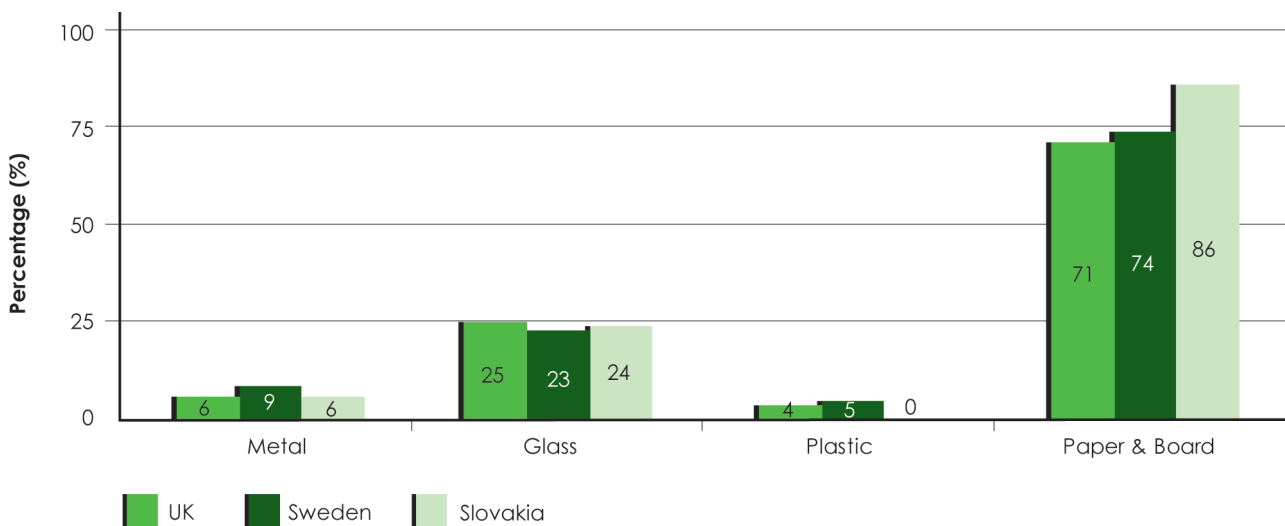


Figure 17. The environment-friendliness of packaging materials (Source: modified after Sustainpack, 2005)

A large international and representative survey on packaging in seven European countries in 2006 confirmed consumer preferences for paper-based packagings along the dimensions convenience, environmental friendliness, and appeal. The survey conducted on behalf of PaperPlus found that, on average, 93% of the general public completely agreed or tended to agree that paper-based packaging and labels are more environmentally friendly than other materials. Leaving aside the environmental

aspects, a large majority of consumers also regard paper-based packaging as much more convenient when it comes to opening, re-closing or simply tearing the packaging. This aspect was further paralleled by the respondents strong support for the tactile qualities of paper in comparison with other materials. In this survey, 87% of European consumers said they would choose paper instead of plastic packaging or labels. Figure 18 shows variants as regards agreement with several statements among people in the countries surveyed.

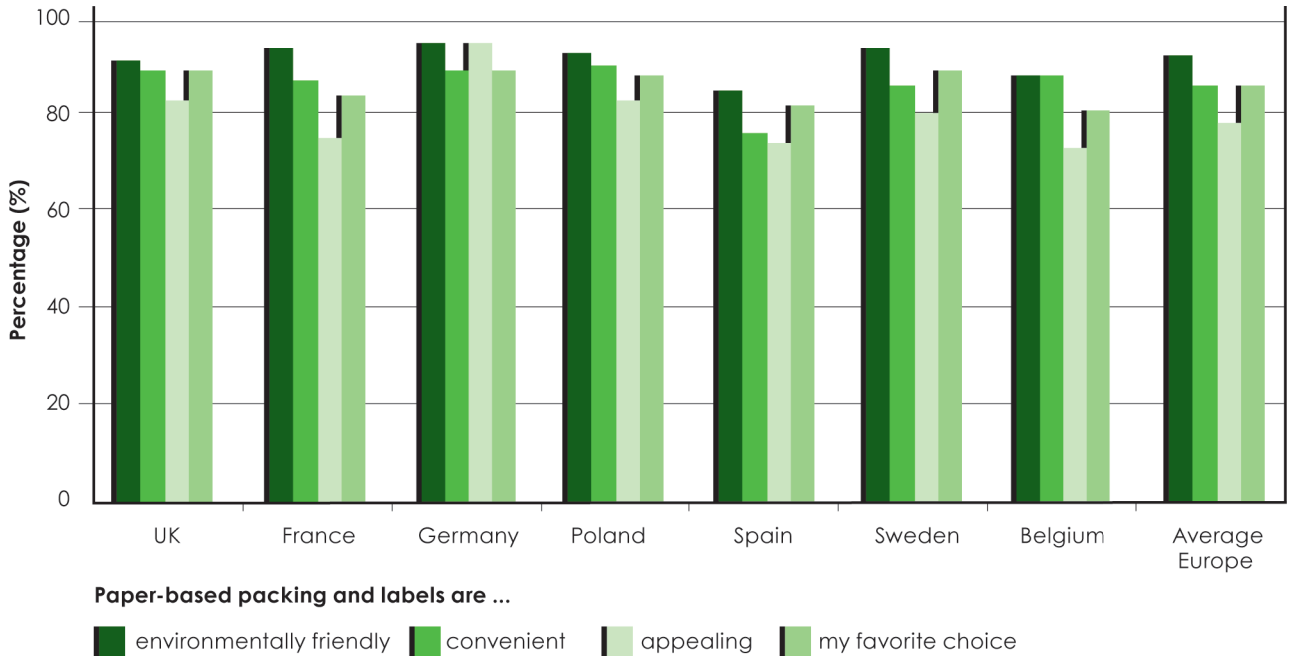


Figure 18. Attitudes towards paper-based packaging and labels in seven European countries (Source: modified after IPSOS, 2006)

## 6. WOOD FOR ENERGY

This chapter addresses end-consumer surveys on renewable energy, in particular biomass. Bioenergy is a very heterogeneous aggregation of different feeding materials, conversion technologies and end-uses. Surveys on bioenergy reviewed here contain parts of questions relating to biomass. Not all, but most items referring to biomass relate to woody biomass together with agricultural material, and (often) waste. Some, however, do not make reference to wood at all. Moreover most studies do not distinguish between three different areas of energy as regards which wood for energy is relevant, i.e. heat, electricity, and fuel. Conditions for using wood are considerably different for these three forms, whereby energy efficiency is considerably greater in heat production, compared with biofuel production. While most surveys identified and reviewed here focus on electricity, it is often not made clear which specific use is meant. No study identified focuses particularly on biofuels from biomass. 22 studies have been identified dealing with consumers' attitudes towards renewable energy and biomass, some of these having been conducted on a representative basis and EU-wide. Most available studies were conducted in the UK. However, a rather large number of smaller and non-representative surveys were undertaken in regions across Europe. While a number of attitudes emerge as fairly similar across different countries in Europe, these again tend to be more abstract in nature, not necessarily reflecting attitudes of segments of society or individuals in concrete decision situations accurately.

### 6.1. Renewable energy sources are strongly supported – and are understood to mainly comprise the sun, wind, and hydropower

European citizens considering energy issues do not pay particularly high attention to energy security. Only a minority of EU citizens consider energy issues among the most important topics in their country in 2007. Many other issues impacting more directly upon their daily lives are considered more important, including unemployment, crime or healthcare. With regard to energy issues, energy prices are followed by renewability of energy sources in terms of importance, according to *Eurobarometer* (2007).

The general public has a very positive image of bioenergy. However, while general support for renewables is high, biomass is much less well-favoured. Awareness of bioenergy or biomass is generally rather low, with wind energy or solar power being the main types of energy identified as renewable by the wider public. These findings are reported by studies undertaken over the last decade across the EU, but particularly also from Western and southern European countries. An identical representative survey in each of the 27 EU countries in 2006 (allowing for direct comparisons) found that citizens are highly positive about the use of renewable energy sources. As Figure 18 shows, 80% support the use of solar energy, 71% that of wind energy, 65% hydroelectric energy, 60% ocean energy and 55% biomass energy (understood to mean “using wood, plants or biogas as fuels”). Only a marginal number of respondents oppose these energy sources. The great majority of Europeans support the use of solar and wind energy, while hydroelectric energy, ocean energy and biomass energy tend to divide European public opinion somewhat more (*Eurobarometer* 2007).

A considerable number of other surveys undertaken at national level support this finding. For instance, surveys carried out in Germany show that public opinion there shifted in favour of renewable energy over the period 1984–2004 (Wüstenhagen and Bilharz 2004). What seems consistent with other surveys is the fact that a survey of public opinion undertaken in 2003 finds solar

energy the most attractive source. The importance people attach to renewable energy is shown to be strongly dependent on their age, being greater amongst Germans under 30. The same study showed that more than half of all Germans think wind energy is being subsidized, while only 46–48% think the same applies to coal. In fact, coal receives more than twice the level of support.

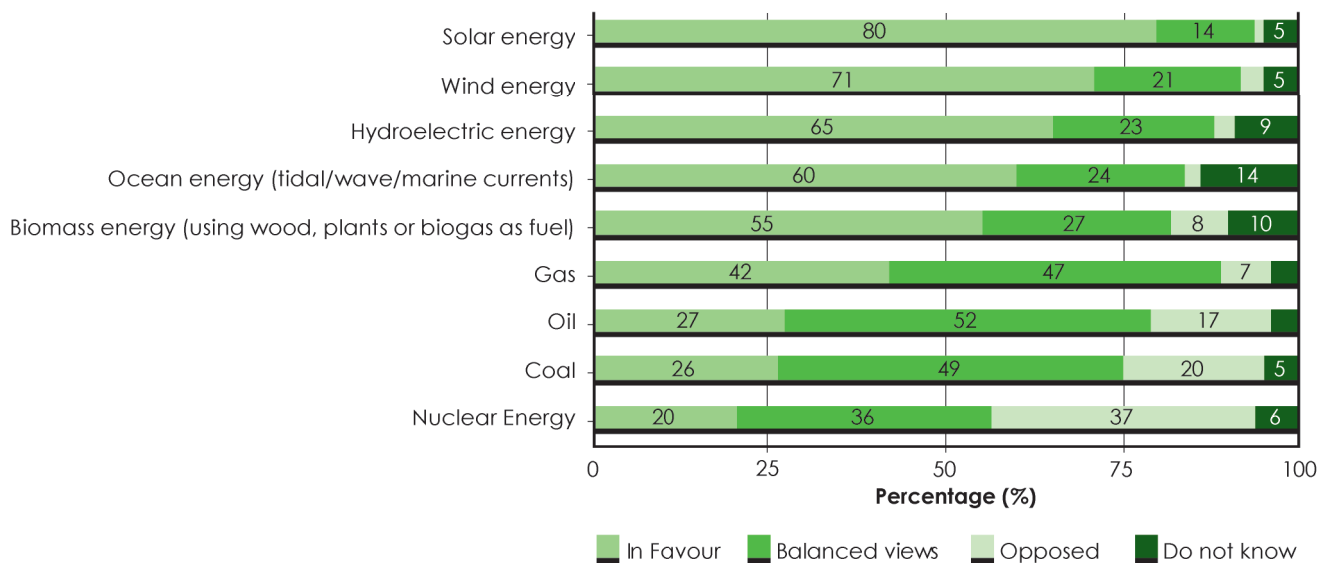


Figure 19. Acceptance of different sources of energy in the EU25 (Source: Eurobarometer 2007)

This positive attitude being displayed towards bioenergy seems to be based around perceptions as to its relative cheapness, status as being best for the environment and its efficiency. The view Europeans express regarding energy options 20 and 50 years from now is clearly influenced by their expressed preferences for renewables. In a Eurobarometer survey of 2002 (Eurobarometer 2002), the vast majority of respondents opt for new renewable energy sources (solar, etc. – 67%) or traditional renewables (hydroelectricity, etc. – 38%), while natural gas occupies third position (10%). There is thus no high level of support for biomass, which is clearly much less well understood. This finding of an EU-wide representative survey confirms those of quite a large number of smaller regional or national surveys in different countries and regions of Europe.

According to other Eurobarometer surveys (2006, 2007), top priorities where energy policy are concerned are that prices be kept low and the environment protected. The degree to which energy prices are foremost in people's minds is reinforced by results when respondents were asked to name priority measures their national governments should take as regards energy policy. 45% of EU citizens mention the guaranteeing of (low) prices for consumers as a national energy policy priority. Continuous energy supply is also ranked high, followed by protection of the environment. The survey demonstrates that the majority of EU citizens are not expressing any willingness to pay more for energy just because it is from renewable sources. There is in fact a particularly strong reluctance to pay more amongst citizens of the new EU Member States. The strong emphasis on energy prices seems at least partly driven by the conviction prevalent amongst EU citizens that energy prices will most likely increase further, even significantly. A survey conducted in late 2006 showed that 76% of EU citizens considered a doubling of energy prices in the nearest three years likely (Eurobarometer 2007).

## 6.2. The important role of wood energy is not recognized – neither its contribution today nor its potential future role

As of 2005, about 4% of the energy needs of the EU27 were being met by biomass (EU Commission 2005). According to estimates by *EurObserver*, around 3.2% of primary energy consumption in the EU in 2004 obtained woody biomass (wood waste, black liquors and solid waste from crop harvests) (*EurObserver* 2005). This would imply that some 80% of the 4% of biomass energy is woody biomass. Similar figures are found by EUROSTAT, which estimates that around 86% of biomass used for energy purposes in 2003 in the EU25 was wood and wood waste, with the remaining 14% coming from solid municipal waste, biogas and agricultural energy crops (European Commission 2005). While considerably underestimating the role of biomass (in particular woody biomass) energy as a share of renewable energy, EU citizens are consistent in greatly overestimating the current share renewable energy takes. As of 2001, the renewable energy supply in the EU25 was at around 6% of the total (European Commission 2004).

The level of awareness of biomass is very low among European citizens, lagging far behind that of other renewables like wind, solar and hydro energy. This is despite the fact that wood biomass for energy is the most important source of renewable energy in the EU today. The limited awareness of biomass for bioenergy has in fact been found by rather a large number of surveys at regional or national level across Europe. For instance, in a survey on attitudes towards wind farms and wind energy in Ireland conducted in 2003, biomass as a source of power generation came out last, with an awareness level at only 2% (ca. 23% in the case of wind, and 12% in the case of solar energy). Even among those aware of the term “renewable energy” (about half of the respondents), only some 6% mentioned their being aware of biomass for renewable energy. A smaller survey conducted in The Netherlands in 2005 led to rather similar results, around 8% of respondents associating green electricity with bioenergy. The low level of awareness and knowledge about biomass for energy was also confirmed by the *Eurobarometer* (2007) survey. However, support for biomass energy differs widely across countries in Europe (see Figure 20).

The findings from a range of earlier surveys undertaken in different countries show a very similar picture. For instance, a national representative survey undertaken in Finland annually between 2000 and 2006 regarding whether different sources of energy for electricity should be increased or decreased, showed constant support by a large majority of some 78 to 84% of the Finnish population for increased use of wood and other bioenergy sources. Domestic origin and employment considerations have been deemed the key factors in favour of the use of wood as an energy source. This survey also revealed the view that it would be more beneficial to use biomass for the production of energy and heat than to refine it into fuels for use in vehicles is gaining more support than objections among Finns.

One clearly identifiable reason for the weak support for biomass energy is low level of information. A survey undertaken in the UK in 2005 (Curry *et al.* 2005) showed that very few people have heard of or read about bioenergy/biomass (“Producing energy from trees or agricultural wastes”) (some 10% of the respondents) in the previous year compared to wind energy and solar energy (more than 50% of respondents). This confirms results of a representative survey undertaken in the UK in 2003 (Department of Trade and Industry, 2003) that found that 44% of the general public claimed to know a lot or a little about solar, hydro-electric and onshore wind power, this was only 10% for biomass energy (understood in this survey as “chicken litter/straw”). Biomass technologies were unknown to many: over three-quarters of respondents were not aware of, or knew only very little about, each of these. It is therefore perceptions of solar, hydro and onshore wind power that currently drive opinion on renewable energy in general across most of Europe. The same survey

found a direct correlation between knowledge and approval of specific technologies, suggesting that efforts to increase awareness and knowledge of technologies such as biomass might improve opinion of these renewable technologies.

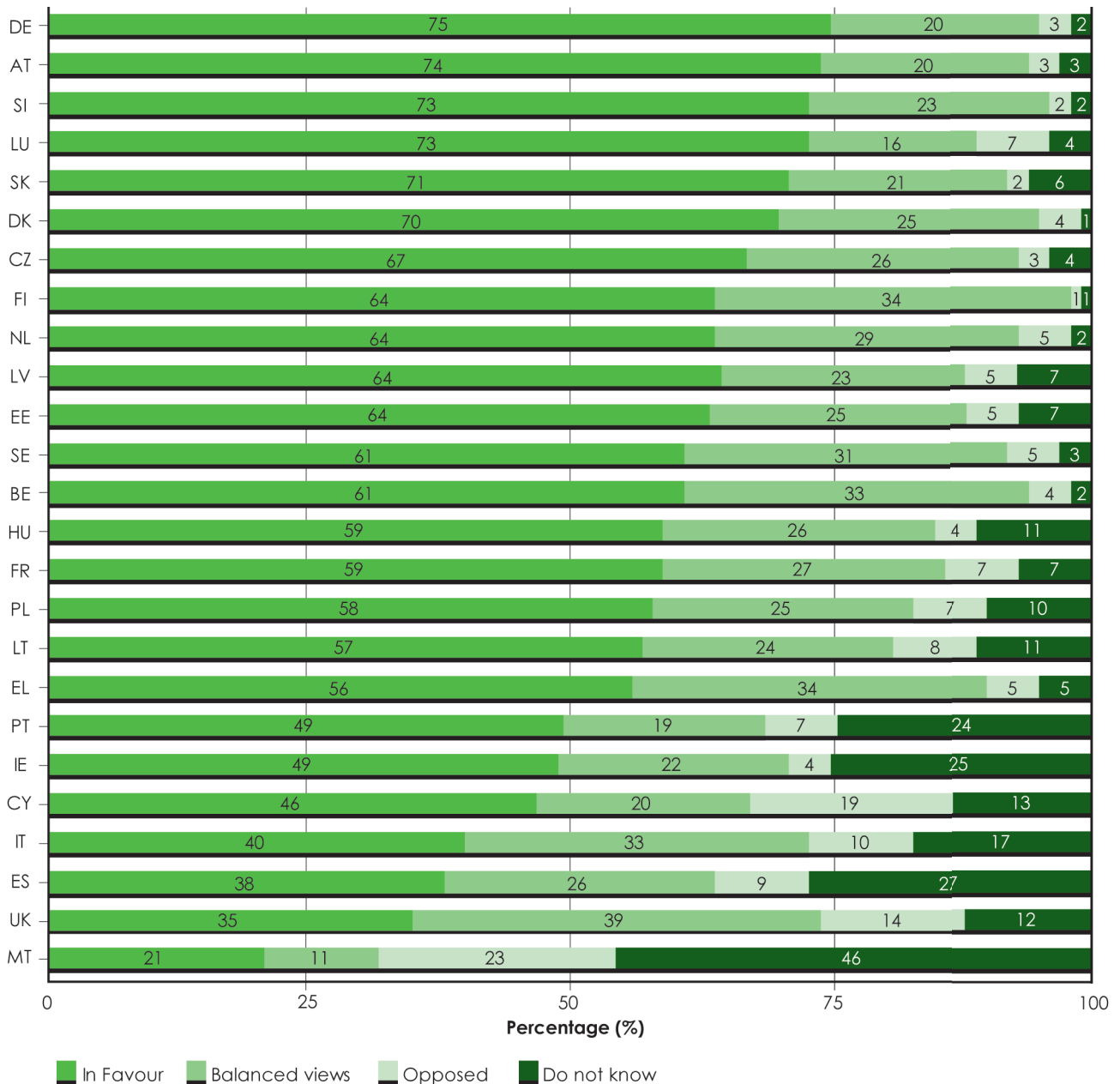


Figure 20. Acceptance of biomass energy (energy coming from wood, plants or biogas) in the EU25 – results by Member State (Source: Eurobarometer 2007)

In a survey on energy in Ireland in 2003, biomass as a source of power came out last, with only 2% of respondents aware of this option. Similar differences in levels of knowledge between solar, wind and biomass power were found in other surveys, including in the Castilla y Leon region in Spain. However, it is not just that “biomass” as such is weakly understood, for many respondents, when asked, express uncertainty as to the meaning of “renewable energy”, a finding that might surprise at first, but was found to be the case in independent surveys across different regions of Europe, including in Ireland, Austria, Spain, and Italy. Respondents appear not only to be clearly less familiar with biomass as an energy source, but also possibly think this energy form uses depletable natural resources of a country more than other renewable energy sources, such as solar or wind energy.

Only a few studies in existence have investigated specific forms of wood bioenergy. According to a small 2005 survey undertaken in Finland, Germany and Spain as regards wood pellets, both end consumers and business customers perceive disadvantages where wood pellets are concerned, these including the high one-off investment costs, the large storage capacity needed, and the time and effort needed for pellet heating systems, which require more maintenance and repair than oil-fired heating (*i.a.* as regards time spent cleaning ash). Perceived advantages of pellets were the environmentally sound way of heating, low running costs, and independence of fossil fuels. While anticipated investments costs are high, the actual day-to-day use of pellets is considered comparatively inexpensive. Pellets are also expected to maintain or increase their competitiveness vis-à-vis other heating options in the future. Explanations users have for their opinions include stable price development (thus far), increases in oil and electricity prices, the limited nature and insecurity of availability of fossil fuels, good availability, lack of other good options and the development of technologies related to pellets.

### 6.3. Do Europeans support the use of wood energy to address climate change?

Energy-related measures are also resorted to in addressing an issue regarded as a key challenge for the future by most EU citizens, namely climate change. The expanded use of renewable energy receives the most support when the question involved is how best to address the issue of global warming as it relates to electricity production. A survey undertaken in the UK (Poortinga *et al.* 2006) showed that the majority of respondents either strongly agree or tend to agree that renewable sources of electricity (such as the wind and the sun) can help prevent climate change (*i.e.* 85% solar power; 85% wind power; and 71% hydroelectric power). Another survey undertaken in the UK (Reiner 2006) showed that, of a list of technological options by which to address climate change, solar energy and wind energy placed at the top of the list, after energy efficient cars and appliances. Carbon sequestration (“Using trees to absorb carbon dioxide from the atmosphere”) found more support (63% “definitely use” or “probably use”) than using bioenergy from biomass (54% “definitely use” or “probably use”). Compared to the same question in 2004, support for tree planting and biomass has declined by some 12 percentage points each, while support for solar and wind power has weakened slightly. A survey undertaken in the Greater Copenhagen area of Denmark found that the importance of the reasons for EU to aim at increasing the share of renewable energy sources for generation of electricity were thought to be mainly connected to the reduction of pollution from coal fired power plants and emission of greenhouse gasses (DTI 2005). A survey undertaken in England, Scotland and Wales in 2007 (Figure 21) shows that a majority of respondents in all three regions thinks that using wood for fuel makes climate change worse, but less so than using fuels such as coal and gas.

Unfortunately, there are few hard data from surveys to answer a question as to whether Europeans would welcome or accept fast-rotation forestry for bioenergy production. However, there are a number of indications that support from citizens to such an approach to bioenergy production is not widespread. In general, a large number of surveys undertaken in different regions in Europe have found that citizens do not support monoculture forestry, and clearly prefer mixed forest. Europeans are also by and large likely to perceive forest biodiversity in Europe as on the decline (see also Rametsteiner and Kraxner 2003).

A small survey carried out in 2005 in The Netherlands (PDE 2005) showed that biomass is regarded as somewhat more green than farmed wood. About 30% of respondents to this survey found that farmed wood is not green (15% found it to be rather green, and some 55% to be green. Waste wood



was found to be even less “green” (more than 40% regarded waste wood as not “green”). A local survey also undertaken in The Netherlands on implementation barriers to energy from biomass (Midden et al. 2003) found that organic waste and manure were the only two biomass materials preferred as sources of biomass energy by a clear majority, followed by wood waste, which was supported by around 1/3 of respondents. Farmed wood or crops were rejected by a clear majority, around 50% of respondents. Moreover, expert interviews amongst bioenergy organisations in several countries in Europe (Rohracher et al., 2004) also indicate that experts expect frequent resistance to the use of farmed wood as a source of biomass to arise among the wider public or environmental organisations – as cutting trees for burning is regarded as harmful to the environment. The comparatively weak reputation of biomass as an energy carrier is also reflected by the fact that the term “bioenergy” gains a significantly better evaluation from most people when compared to the term “biomass”.

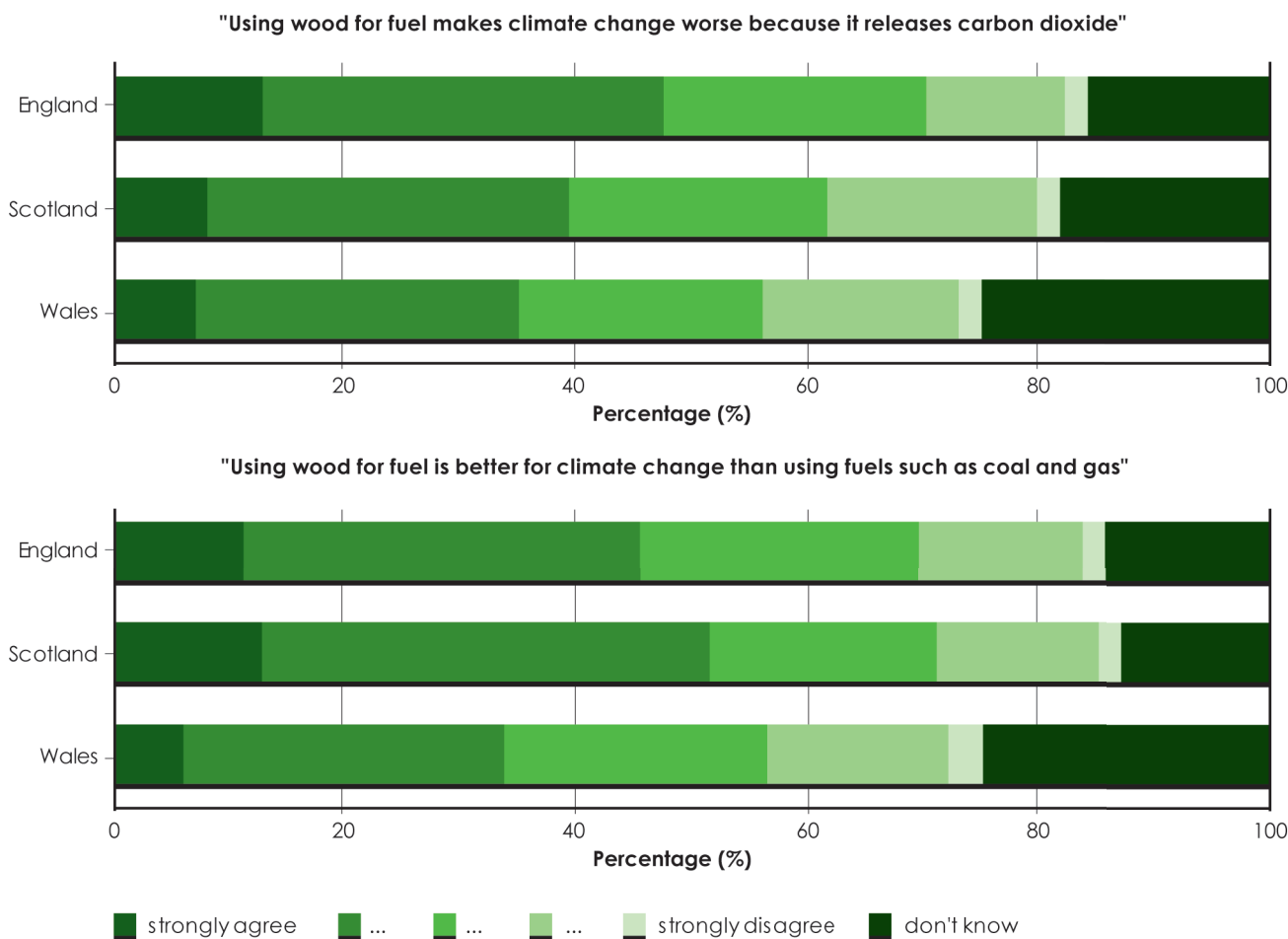


Figure 21. Using wood for fuel: effect on climate change: percent of respondents agreeing or disagreeing (Source: UK Forestry Commission 2007)

### 6.4. Renewable energy sources are expected to become increasingly important, and should receive government support

EU citizens are anticipating a marked drop-off in the use of fossil fuels, in particular oil and gas, with these being replaced by renewables, in particular solar and wind energy. Solar energy is expected to be a key energy source in the future, with an expected rise in the use of solar energy varying from an increase of 21 percentage points in Portugal to 60 points in France. Other anticipated future energy sources include wind energy, with similar expansion expectations as solar energy, hydroelectric energy and nuclear energy. Interestingly, EU citizens thus estimate the share of biomass contribution



to renewable energy supply today about correctly – at around 3%. Biomass comes in as only the sixth most important bioenergy source in the future. Nonetheless, citizens expect a share of around 19% in 30 years, compared to a perceived share of biomass energy of some 3% today. This is still a huge increase. Figure 22 below also shows that EU citizens expect, not only a substantially higher share of renewable energy, but also a larger diversity of energy sources in the future.

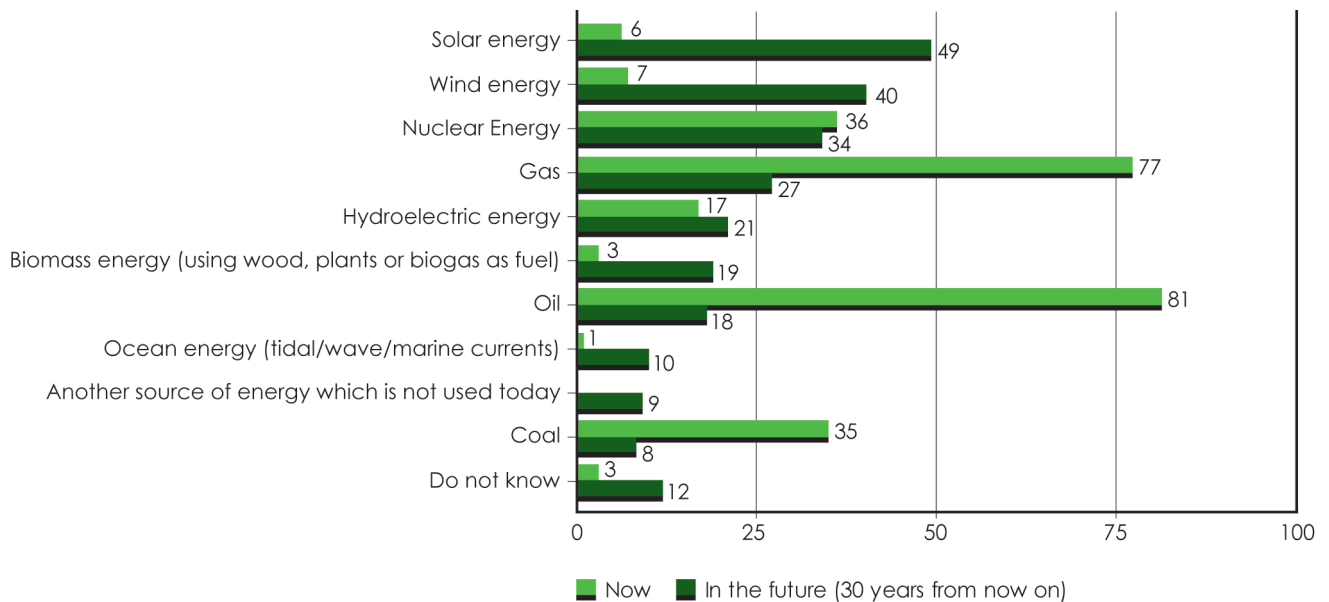


Figure 22. Public opinion about the three most used energy sources in the EU25 (*Eurobarometer 2007*)

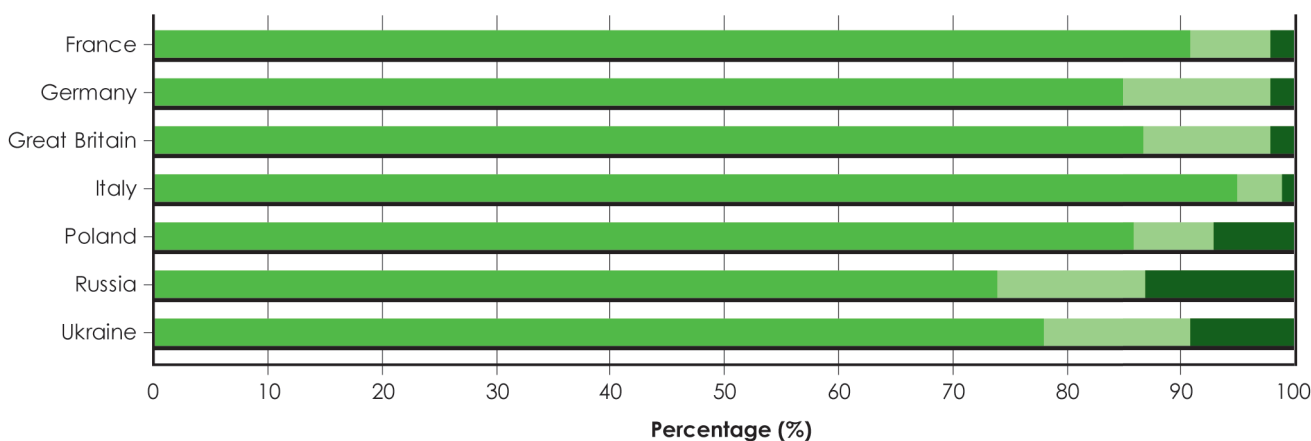
Similar survey results, confirming the higher approval rating enjoyed by solar, wind and hydropower today, and the expectation of a substantially larger role for these three energy sources compared to biomass in the future energy supply, was also found in a range of other studies, national and regional, including in several studies undertaken in the UK. While biomass is often ranked after the three energy sources above, the ranking among the three tends to vary according to national situations. For instance, a survey undertaken in Slovenia in 2005 ranked water ahead of solar and wind energy in terms of expected growth in the near future, as did a representative survey in Austria in 2003, and a small survey in Croatia in 2003, while regional surveys in two regions in Spain ranked solar ahead of wind. Over the longer term, the Slovenian and Austrian survey respondents rank solar ahead of hydropower and wind as the most important source of energy, followed by biomass. Frequently, awareness of and support for biomass is found among ca. 10% of respondents.

In a EU-wide survey on energy technology expectations in the future (*Eurobarometer 2002*), 40% of EU15 citizens asked about their energy expectations for 2050, predict that the least expensive energy sources will be renewables like solar, wind and biomass, followed by hydroelectric power (24%) and natural gas (21%). Moreover, 27% consider that renewables will provide the greatest amount of useful energy, while 67% think that renewable energy sources are the best environmental option.

As in many similar areas where environmental issues are concerned, there is a discernible disconnection between the role of respondents as consumers and as citizens when it comes to individual action. As described above, awareness of environmental threats does not translate into acceptance of, or willingness to pay more for, renewable energy sources, or the acceptance of more radical changes in consumption behaviour. As citizens, people do not put trust in self-motivated behavioural change. Rather, respondents send a clear message to policymakers to take action towards the collective best. In the case of energy policy, respondents do not support a curbing of choice or consumption, but do call for support for renewable energy solutions.

When asked what the national governments should focus if the current energy dependency is to be reduced, respondents in an EU-wide *Eurobarometer* survey cited improvement of the use of renewable energies and investments in research and technology development as the main means to tackle the problem (*Eurobarometer* 2007). Almost half of all Europeans (48%) support a governmental focus on developing the use of solar power, followed by a promoting of research on new energy technologies, such as hydrogen or clean coal (41%), and developing the use of wind power (31%). Similar results are reported from national surveys undertaken in other contexts. A survey conducted in 19 countries worldwide in 2006 (BBC 2006) showed considerably greater approval for renewable energy subsidies than for taxes aimed at reducing consumption (see Figure 23). Equally, surveys in different regions (including Castillia y Leon in Spain or Liguria, Italy) found very consistent results. Respondents call for governmental support in accordance with both their general level of knowledge about renewable energy sources, and their future expectations: solar, ahead of wind or water, followed by biomass, followed by small hydropower appliances. In some regions, geothermal applications seem to be competing with biomass appliances for fourth rank. A survey in Germany found that future support for renewable energies is widely accepted. Only 14% think that subsidies should be reduced, 49 % think they should continue at current levels, and 47% think that public support for renewables should be increased (Wüstenhagen and Bilharz 2004).

**Tax incentives**



**Tax increases**

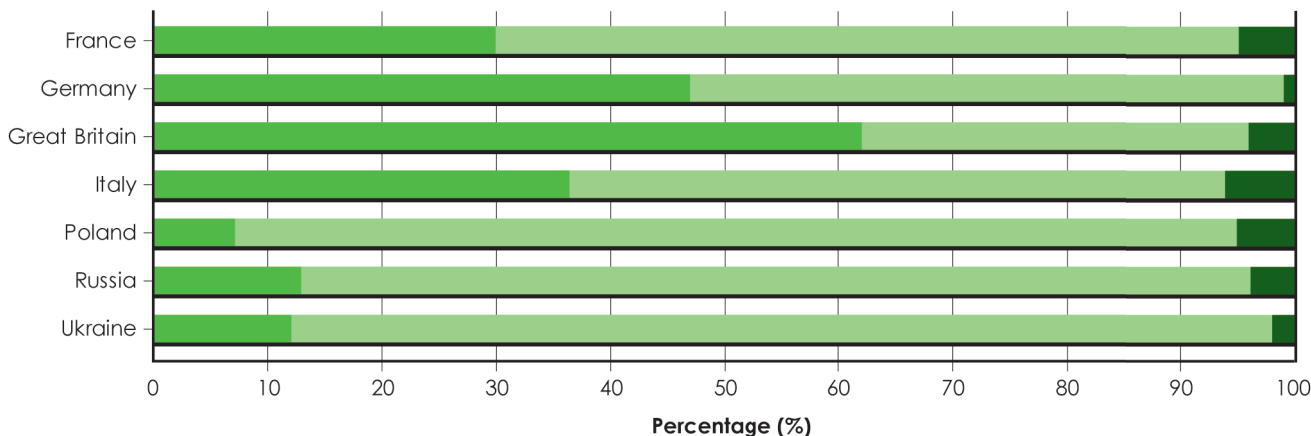


Figure 23. Public support for government action: creating tax incentives for renewable energy promotion versus an energy tax to reduce consumption (Source: modified after BBC, 2006)

Very similar results have been obtained from a number of surveys carried out in the UK. For instance, when a survey conducted in 2003 (UKDTI 2003) asked how much respondents agreed or disagreed that “Government should encourage the use of renewable energy”, nearly three-quarters

agreed strongly with this statement, while over 90% agreed overall, and there was virtually no disagreement. In turn, a 2006 survey conducted in the UK in regard to the top priorities for national energy policy (Reiner, 2006) showed that “subsidising renewables” was the leading first and second choice, followed by “energy independence”, “addressing global warming”, and “keeping energy prices low”. Similarly, a recent MORI survey in the UK had as its leading answer “manage demand through behavioural change”, followed by “increasing the use of renewable sources and expanding the use of energy-efficiency technologies” (both supported by more than half of all respondents). Large-scale low carbon options such as nuclear power and carbon storage were far less popular, as was regulation and taxation to reduce consumption.

## 7. THE IMAGE OF THE FOREST INDUSTRY

This chapter overviews public opinion as regards the economic, social and environmental behaviour of the forest industry in Europe. It was only possible to identify rather a small number of studies on the image of forest industries. A major such study was a qualitative focus-group based one concerning the image of forest industry branches amongst citizens in the EU15 (two groups per country with some 10 persons each). This is a suitable and comparatively cheap approach by which to gauge a situation if no or very little prior information exists. However, it does not allow for any tracking of changes over time.

### 7.1. There is little awareness or knowledge of the forest industry and its importance

Overall, people in Europe seem to have a very hazy notion – and comparatively little knowledge – of the sector of industry based around forests as a whole, and they are hardly able to distinguish between different sectors and production stages along value chains, according to the EU Commission (2002). This is particularly the case for mechanical wood working industries, among which the sawmilling sector was somewhat more often recognized than others. The furniture industry was a much better-known sector. This sector is clearly connected with wood, as only a few focus-group participants mentioned other materials used in furniture. In comparison, knowledge and comprehension of the pulp, paper and board manufacturing industry was extremely low. In general participants knew that the raw material for paper is wood and/or recycled paper. In contrast, the printing industry seemed familiar to focus group participants, and had a high reputation. The associations made, however, revealed that there was partial confusion with the publishing sector.

There are not only large differences between different sub-sectors of the forest-based industries, but also between different countries in Europe. However, even in countries with strong forest industries and a public that has a favourable impression of the forest industry, – like Sweden – citizens still admit to having a low level of knowledge. For instance, a 1997 survey carried out in Sweden (*Demoskop AB*, 1997) asked about the domestic sawmill industry. While respondents in general displayed a positive attitude towards this, the level of knowledge on this sector of the forest industry was low. A French survey on forests and wood conducted in 2000 (TNS SOFRES, 2000) revealed that around 50% of respondents felt ill-informed about the impact of forest industries on the environment.

In countries in which surveys sought to assess the perceived importance of the forest industry for the economy, and particularly for rural areas, a majority of respondents consider this sector important. For example, 65% of the respondents in a Swedish survey conducted in 2005 (*Demoskop AB*, 2005) considered this Sweden's most important industrial sector. The level of agreement was also high when people were asked whether the sawmill industry offered job opportunities in rural areas (~70%). Time series for the public opinion data available in Sweden reveal that the public impression of the country's forest industry has remained remarkable stable and favourable over the last 12 years. Similar results are available from Finland, where 93% of 1997 respondents agreed to a large extent (while 52% agreed totally) that the forest industry is an important source of economic well-being nationally (Taloustutkimus Oy, 1997). A 1997 survey undertaken in Ireland, a country with a less well-developed forest industry tradition, nevertheless found that about 75% of people believed a contribution to the national economy was being made by the forest industry. Another two-thirds



regarded the industry as an important source of income for farmers. About 80% of the Irish public were at least somewhat convinced that the industry is an important employer in rural communities, whereas only 5% opposed this notion (Landsowne Market Research, 1997).

## 7.2. The forest industry is not seen as being innovative or attractive for work – with exceptions

Overall, however, focus-group results contained in the EU Commission study (2002) point to the forest-based industries not having a very innovative image, even though perceptions – as far as they exist – seem quite different between sectors. The mechanical wood working industries were not regarded as industries using outdated machineries, and were considered to have adopted new techniques and equipment, like every other industrial branch. Given that focus-group participants declared they had very scant knowledge of the sector overall, the attitude in question is rather assumed to have been inferred from a lack of knowledge implying a different situation. This perception seems to be connected with the prevailing image of wood as a traditional material.

Unlike mechanical woodworking industries, the furniture, paper and printing industries have a quite positive image. People appreciated innovativeness in the style and design of furniture, its positive influence on their lifestyle and the “cultural” dimension to the different styles. The sector also had a clearly modern and dynamic image, the mass-production segment in particular being seen as ultra-modern and equipped with very efficient machinery. It was quite evident that focus-group participants associated furniture, not so much with manufacturing as with well-known furniture design brands. Paper industries were perceived as modern (the Finns in particular regarding pulp and paper as a high-tech sector), with a high degree of automation, large enterprises and large production units. Printing was seen as extremely modern, dynamic and innovative, seemingly on account of the integration into this of information technologies.

With regard to employment, a less positive outlook is again detectable, the mechanical wood working industries being regarded as employers of only limited attractiveness. The image of work in the different sectors was largely one of difficult working conditions (noise, dust and hazards), manual work, unskilled, badly paid jobs, limited career prospects and limited scope for creativity. The appeal of this sector for young people was thus limited. Jobs in it were often connected with unskilled work, poor payment and limited freedom for initiative and creativity. The image of the furniture sector as an employer was definitely more positive, perhaps because an opportunity to design furniture and to show creative skills was being perceived, but even then this work was not considered very appealing. The image of the pulp, paper and paper board industry as an employer was also not very attractive, this sector being associated with heavy industry, monotonous and low-skilled tasks, and a hazardous working environment. Young people in particular expressed very little desire to work in this sector. In contrast, the image of the printing industry as an employer was much better, mainly due to the sector’s perceived dynamic nature, and the prominent inferred role of information technology, an aspect particularly attractive to young people.

Large differences between different sub-sectors of the forest-based industries are noted, not only as regards the perceived innovativeness and attractiveness as a place to work, but also between one country in Europe and another. However, national or regional surveys offer very little quantitative information on this. *Demoskop AB* has conducted biennial surveys of the public’s view on the Swedish forestry sector since 1985 (*Demoskop AB*, 1997, 1999, 2005). These show that the public impression of the forest industry has remained remarkable stable and favourable over the last 12 years (*Demoskop AB*, 2005). 28% of the Swedish population had a very favourable, and 59% a fairly favourable, impression of the Swedish forest industry, whereas only 7% had a fairly unfavourable

one, and less than 1% a very unfavourable view. In 1985, the proportion of respondents with a very favourable or fairly favourable impression of the forest industry totalled 61%. The percentage increased steadily until 1993. Over the last 12 years the portion of the population with a positive impression of the forest industry has remained stable at between 85 and 87%.

### 7.3. Forest industries are seen as relatively environmentally friendly, though perceptions vary considerably

Overall, the limited number of surveys available on this subject seems to indicate a view of forest-based industry as comparatively environment-friendly. For instance, the qualitative focus group study of perceptions in 15 EU member states (EU 2002a) found a relatively positive environmental image for the wood processing sector, which was not felt to be very polluting or hazardous for the environment, although the destruction of forests was sometimes referred to. However, the latter concern seems to be compensated for by the natural image of the processed material. In Sweden a representative survey regarding the domestic sawmill industry (*Demoskop AB*, 1997) also showed 60% agreeing with the idea that the sawmill industry engages in environmentally friendly production. The remaining four out of ten respondents in turn accused sawmills of disturbing the local environment with their noise.

The environment-friendliness of furniture, paper and paperboard production and printing was viewed rather negatively by participants in the EU study's focus groups. The image of the furniture sector ranged from neutral through to slightly negative, some groups expressing concerns about pollution and difficulties with recycling due to applied chemicals. A lack of knowledge did not stand in the way of most people holding very negative perceptions of the paper industry's environmental impact, and moderately negative ones as regards paperboard production. Likewise, although knowledge was limited, people seem to have a general awareness that bleaching agents pose problems, and they assume that a number of other chemicals are used in the production process. These substances are felt to cause water and air pollution. Similarly, the environmental impact of the printing industry was seen rather negatively, as many participants had heard about polluting and even toxic effects of chemicals used in the production process.

A representative quantitative survey of the environmental friendliness of different stages of the life cycle of different wood products was run in five European countries in 1997 (Rametsteiner, 1999, 2000). Interviewees were asked about the environmental impact of forestry, timber procurement, the production and disposal of wood furniture, and the production and disposal of paper. The study results suggest that none of those stages were considered to be environmentally harmful in any of the surveyed countries (Austria, France, Germany, Great Britain, Italy). However, about 50% of the respondents in all countries considered the process by which paper is produced to be environmentally harmful. This contrasts with the reputation for environment friendliness characterising all other stages in the life cycle of paper (Figure 24).

Perceptions and attitudes here again vary, not only between industries, but also between citizens of different countries across Europe. For instance, only a small minority (12%) of Swedes regarded their forest industry as polluting, according to a representative survey conducted in 2005 (*Demoskop AB*, 2005). Given the very positive image of the forest industry in Sweden it might be surprising to learn that 35% of respondents believed that more timber is extracted from the Swedish forests than is regrown. A Finnish Omnibus survey (Taloustutkimus Oy, 1997) asked the Finnish public about their perception of the environmental image of the sector and found that a clear majority of respondents perceive an improved environmental record for the Finnish forest industry as regards water pollution in comparison with five years earlier. A survey conducted in 1995 in England and

Wales (Paasikoski, 1996) found that interviewees' conception of environmentally friendly forest industries was determined by this sector's perceived non-use of poisonous chemicals (47% very important to important), its founding upon sustainably managed forests (48% very important to important), and its production of recyclable products (41% very important to important). Forest industry attributes such as "uses recyclable products", "recovers its waste", and "uses as little external energy as possible" were ranked rather low.

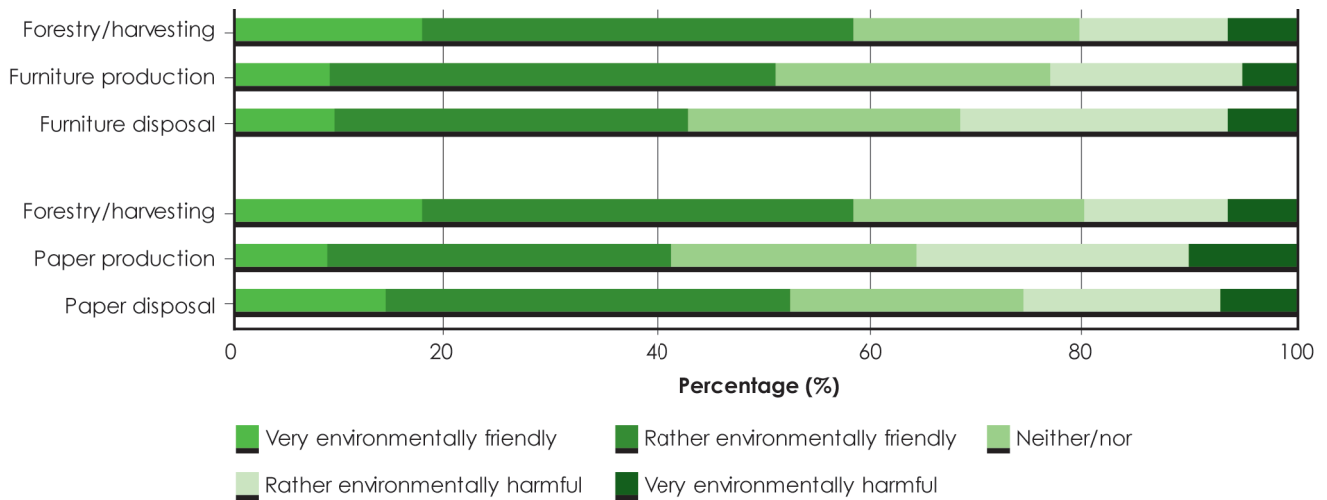


Figure 24. The environmental friendliness of different stages in the production chain for furniture and paper (Source: Rametsteiner, 1999)

1999, the *Demoskop* public opinion research center (Lindholm, 2000) asked the general public in Germany, Great Britain and Holland: "Whom do you trust when it comes to information regarding forests and the environment?". The results showed that industry representatives were among the least trusted sources of information. Their credibility among German citizens was especially low. In all three countries, foresters, scientists, representatives of consumer associations and representatives of outdoor organizations were the most trusted sources of information. There was no significant change in trust in the annual surveys between 1997 and 1999. The public opinion poll center *Demoskop AB* has conducted similar biennial surveys of public's view on the Swedish forestry sector since 1985 (*Demoskop AB*, 1997, 1999, 2005). Between 1993 and 2005, respondents were asked about their confidence in sources of information on the forest sector. In 2005, slightly less than half of the respondents regarded the forest industry as a trustworthy information source.

With regard to the communicating of environmental claims by the forest industry, commercial enterprises' unsupported argumentation regarding the sustainability and responsibility of their forest management meets with little credulity among the public. People see the forest sector and wood-based industries as jointly responsible for the destruction of forests and the wastage of this resource. There is little awareness or acknowledgement of the efforts being made to support sustainable forest management, to reduce the drain on primary resources and to improve the environmental situation in the wood-based industries. In general, the strength of criticism was connected with the assumed amount of wood consumption in the respective sector.



## 8. CONCLUDING REMARKS

Whatever experts on forests and wood think about the benefits of using wood as a renewable material, it is the public's view on issues that counts possibly as much. This report offers indications as to the views of the European public on a wide range of uses of wood as a primary forest product, and the perceived effects of using wood on both personal well-being and the environment. The large number of surveys reviewed show that citizens and consumers often have rather clear opinions and very similar views across Europe, e.g. on the much appreciated "naturalness" of wood. They also rank wood ahead of other materials in terms of environmental friendliness, if stating consistently that environmental attributes are not very high ranking compared to other attributes when it comes to the purchasing of products.

Where the use of wood is concerned, Europeans seem to prefer this in furniture and interior applications, where wood can be seen and it is possible to appreciate its most highly-regarded characteristics, its status as a natural material and its design properties. Europeans seem to need more reassurance if they are to appreciate wood as a construction material – in particular with regard to its technical features, such as strength, durability and fire resistance. Paper and paper board products for packaging are in turn considered fast-living products with short utilization periods. Thus, Europeans tend to be supportive of recycling as a means of reducing the numbers of trees and areas of forest being cut to generate this type of product. Overall, the link between wood and forests as a potent symbol of nature is evidently a (if not the) major strength of wood as a material.

Wood for energy represents a topic over which Europeans are considerably less in line with the facts, or the views of experts. They grossly underestimate the current major role of woody biomass in renewable energy provision, are considerably better informed about other renewable energy sources, and thus often support the latter more strongly and more explicitly than wood.

Promotion of the use of wood on the basis of arguments regarding its renewability often seems to be in line with, and accepted by, consumers. However, many seem unsure as to whether the cutting of more forests and trees to substitute for other materials is the right thing to do. People seem even more undecided or downright sceptical about measures to enhance wood energy as a means to mitigate climate change.

It is up to forest-sector policymakers, businesses and other stakeholders to not only balance the multiple demands being imposed on forests by citizens and consumers, but also to make a solid case for the increased use of wood. The increased use of renewable materials, including for energy, calls for sound practices and frameworks to ensure that the multiple benefits of forests can be provided sustainably to society. However, the society in question is changing fast, and often in ways that are not yet well understood. Without adequate monitoring, it is impossible to see how changes in society change views and expectations towards forests and forest products. The young generations growing up today, being accustomed to a much more urbanized and globally interconnected world, will probably have very different expectations as regards what forests should provide. It will be important to listen to, understand and communicate with an increasingly wide range of citizens and consumers in an open dialogue. The resulting understanding and trust is essential for the well-being of the whole forest sector, now and in the future.

## Material and Methods

The material used in this report comprises a total of 85 surveys – mostly representative – conducted in 21 countries all over Europe since 1990. Of these, 13 were of international scope (including four EU15/25 surveys), 57 national and 11 regional. The rest did not reveal their scope. Most of the inquiries have been conducted in Central, Western and Northern Europe. The lack of surveys in the southern/Mediterranean and Eastern European countries is evident. This part of Europe is covered by just 10 studies. Very few surveys have been repeated periodically, allowing for the tracking of changing attitudes over time. This study does not claim to have been able to identify all or even a majority of the existing surveys on the topics covered, however. Rather, it should be seen as a first compilation of relevant studies undertaken in Europe that are publicly available or were made accessible in the course of this work.

Figure 25 shows the number of studies included in this report by country in which they were carried out. The majority of studies available were conducted in the United Kingdom, Germany, and Austria. Note that the geographical distribution or the number of studies in a country says little about the comprehensiveness or quality of the single studies.

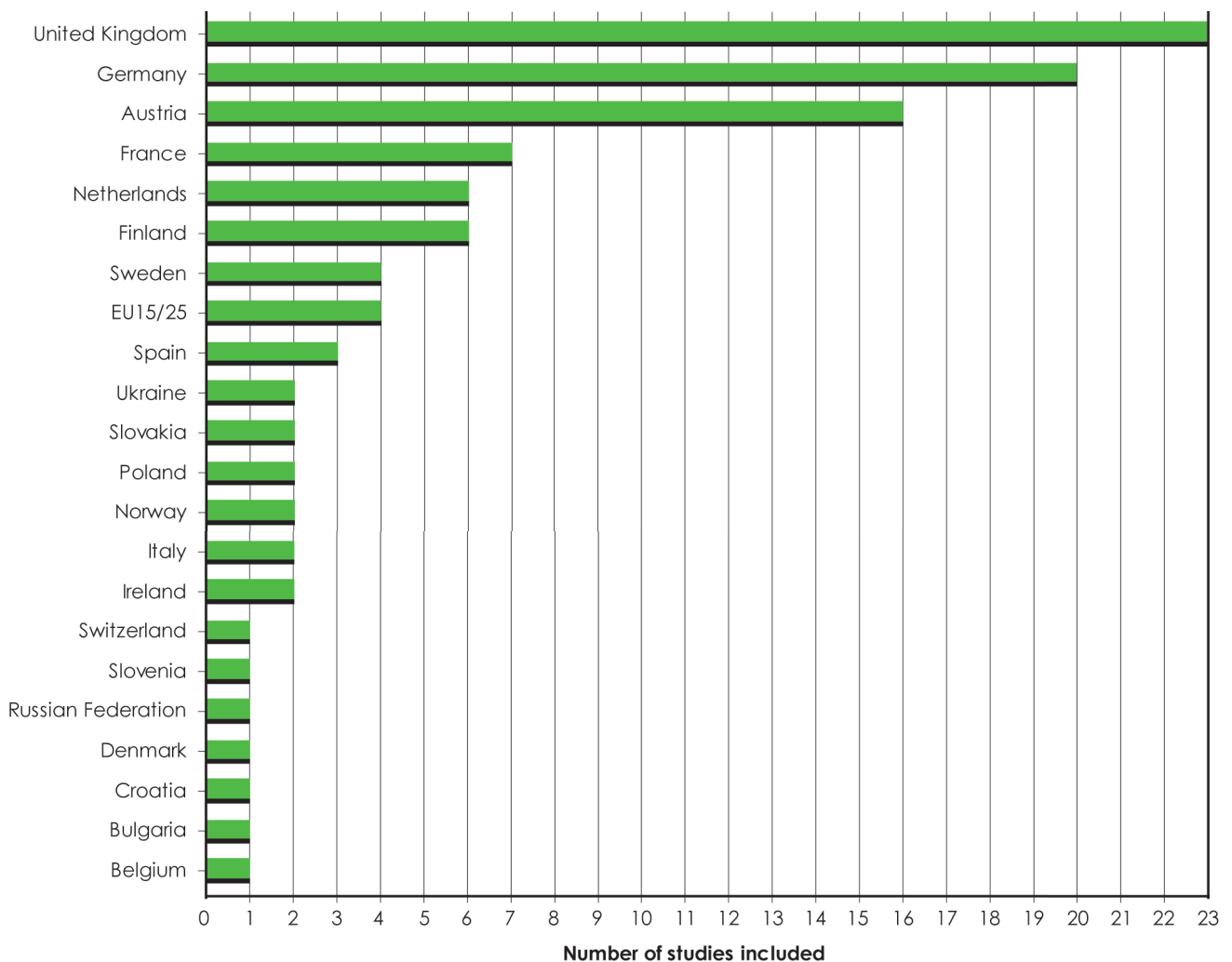


Figure 25. Distribution of studies according to countries covered

Figure 26 shows that most surveys reviewed in this report were conducted in recent years. About three out of four studies were carried out between 2000 to 2007. This distribution is a result of a number of factors, including the higher focus on identifying studies conducted in the period 1995–2007 as well as the increasing ease of access to more recent studies.

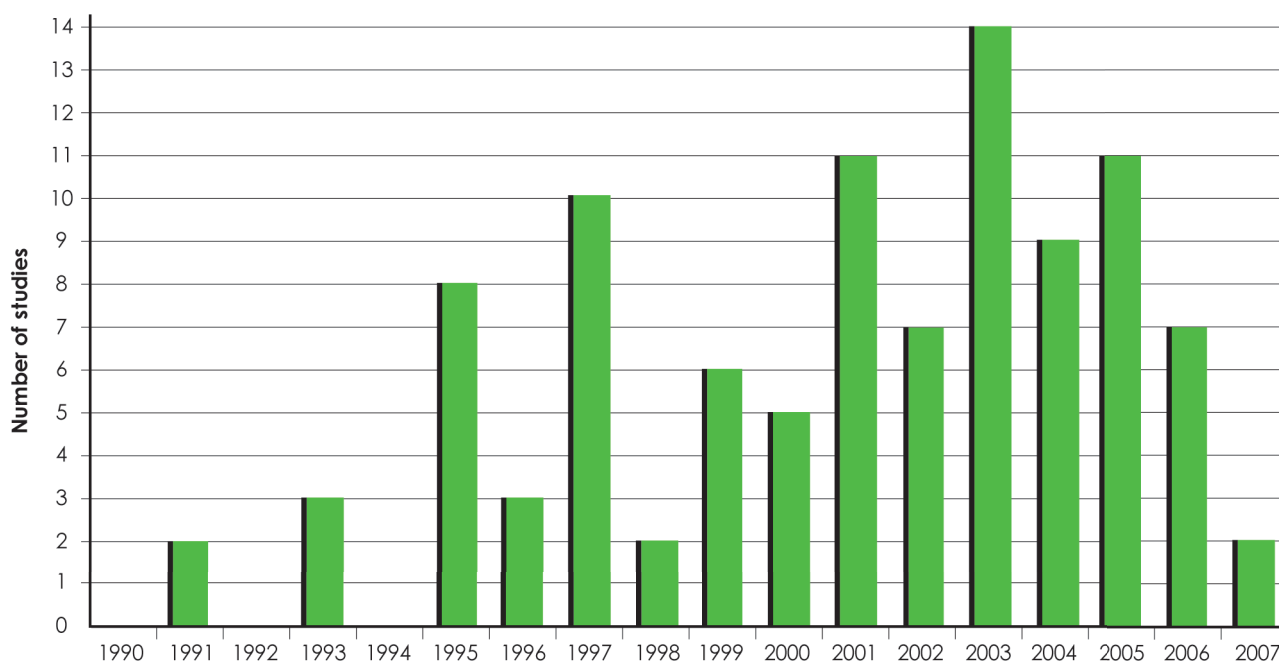


Figure 26. Years in which surveys included in this report were conducted

Almost half of the surveys reviewed in this report were conducted by academic institutions. In general, the findings of academic studies were obtained from journals, master's theses, or dissertations. Some industrial associations kindly provided studies commissioned by them. However, in general private bodies were reluctant to share in-depth information. Nevertheless, in many cases the key results from privately commissioned studies could be retrieved from press releases, newsletters, and trade journals. Note that such sources tend to report only parts of surveys, and often only those aspects that are not against the interests of the organization publishing results. A range of surveys could not be identified, while several studies were identified, but not made available. The number of surveys by commissioning organizations is as shown in Table 1.

Table 1. Origin of studies included: commissioning organizations

Study commissioned by	Number of studies included
private organizations (incl. Interest groups)	41
national/international organisations (incl. Universities)	40
cooperation between private and national organizations	4

The distribution of topics dealt with in the studies reviewed for this report shows that energy-related issues and wood in general were most often surveyed (see Figure 27). Concerns as regards climate change and the substitution of fossil fuels with biofuels have led to increased recent research activity where public opinion on energy sources is concerned. The image of wood without any specific end-use in mind was investigated from 1990 on in numerous studies in many European countries. A rather small number of opinion polls have covered the paper and packaging sector and the forest industries. Surveys covering these two areas most often focused on environmental issues.

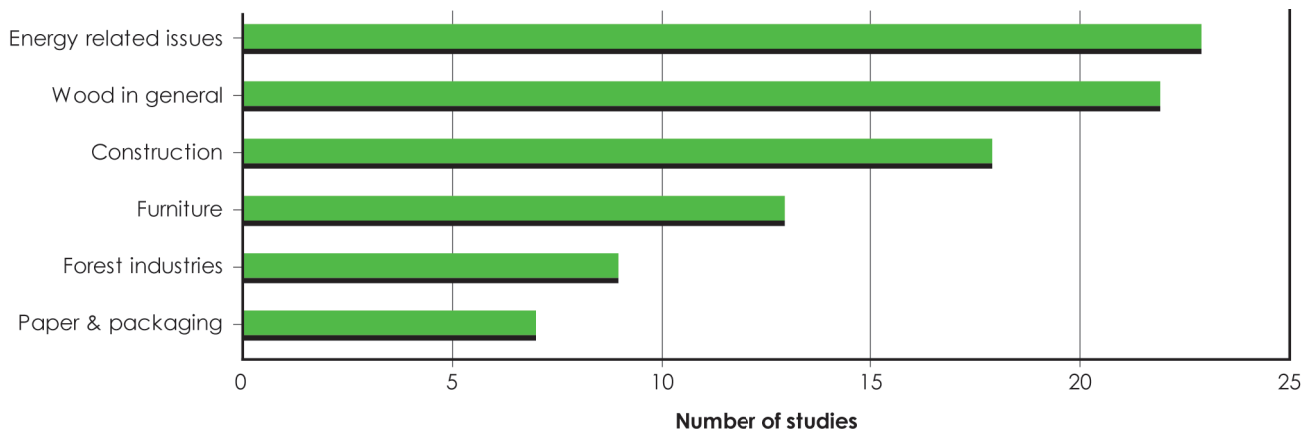


Figure 27. Distribution of topics dealt with in the studies included

Two out of three studies included were carried out nationwide, while another twelve studies expanded their scope to the international level (covering more than one country). The rest focused on regions or local areas within a country. A small minority of studies (4) were considered relevant, though their exact scale remains unknown (Figure 28).

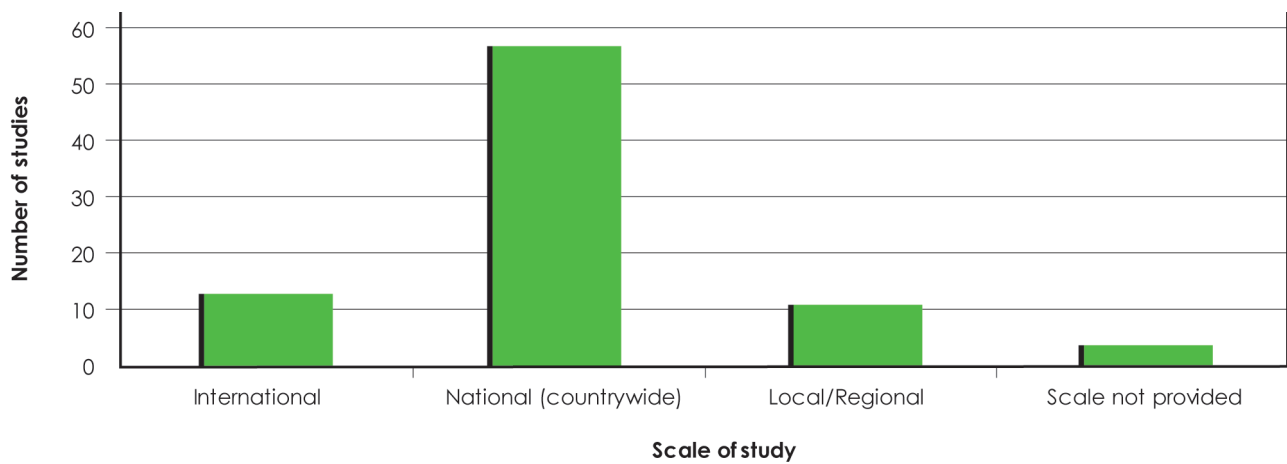


Figure 28. Scale of studies included

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# Abbreviations

- DIY** Do-it-Yourself
- FAO** Food and Agriculture Organization of the United Nations
- FCN** Forest Communicators Network
- FSC** Forest Stewardship Council
- ICT** Information and Communications Technology
- MCPFE** Ministerial Conference on the Protection of Forests in Europe
- SFM** Sustainable forest management
- UNECE** United Nations Economic Commission for Europe
- WPC** Wood Plastic Composites
- WTP** Willingness to pay
- WWF** World Wide Fund for Nature

Table 2. Abbreviations of countries, ISO Country Codes

ISO Code	Country
AT	Austria
BE	Belgium
BG	Bulgaria
CH	Switzerland
DE	Germany
DK	Denmark
FI	Finland
FR	France
HR	Croatia
IE	Ireland
IT	Italy
NL	Netherlands
NO	Norway
PL	Poland
RU	Russian Federation
SE	Sweden
SI	Slovenia
SK	Slovakia
UA	Ukraine
UK	United Kingdom

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## Studies reviewed

Table 3 provides a list of all surveys included in this report. Every study is listed with its geographical coverage, year of publication, year of fieldwork, title, name of the author(s), scope of the survey, inquiry method and sample size. Surveys covering several countries are listed first. A few studies did not provide all the study details. Missing data are indicated by a question mark in the respective field.

Table 3. Overview of studies included – with short description, listed alphabetically by country surveyed and year of publication

No.	Countries surveyed	Year (field)	Study	Author(s)	Scale	Type of study	Sample size
1	EU25	2007 (2006)	Energy Technologies: Knowledge, Perception, Measures.	Eurobarometer	international	personal interviews	24815
2	BE, DE, ES, FR, PL, SE, UK	2006 (2006)	Consumer survey on packaging	IPSOS	international	personal interviews	7990
3	DE, FR, IT, PL, RU, UA, UK	2006 (2006)	Nation Poll on Energy, Questionnaire and Methodology	BBC	international (includes a number of oversea countries)	personal interviews	>1000/ country
4	EU25	2006 (2005)	Attitudes towards Energy	Eurobarometer	international	personal interviews	29430
5	SE, SK, UK	2005 (2004)	What do consumers want from packaging?	Sustainpack	international	?	?
6	EU15	2004 (2002)	Energy: Issues, Options and Technologies Science and Society	Eurobarometer	international	personal interviews	~16000 consumers, ~50 customers
7	EU15	2002 (2001)	Perception of the wood-based industries	European Commission	international	qualitative study	2 groups/ country, 7–11 persons/ group
8	AT, DE	2001 (2000/2001)	Competence and Image of Wood on the German Building Material Markets	Järvinen E., Toivonen R., Enroth R.-R.	international	personal interviews, telephone interviews	75 retailers
9	DE, FR, IT, UK	1999 (1996/1997)	The Attitudes of EU-Citizens Towards Forests, Forestry And Wood	Rametsteiner E.	international	personal interviews	~1000/ country, 2400 in de
10	DE, NL, UK	2000 (1995, 1997, 1999)	Nordic Forestry – The public opinion in Holland, Germany and Great Britain	Lindholm A.	international	telephone survey	1000/country
11	HR, SK	2003 (2002)	Comparison Of Furniture demand In Croatia And Slovakia	Motik D., Kusa A., Jazbec A., Jelacic D.	international	telephone survey	950 HR, 1357 SK
12	NL, UK	2005	The end consumer's choice of floorcovering in the Netherlands and the United Kingdom	Jonsson R.	international, local	tape recorded personal interviews	67 UK, 70 NL
13	NO, UK	2002 (1997)	Potential demand for Certified Wood Products in the United Kingdom and Norway	Veisten K.	international	telephone survey	1014 NO, 1015 UK
14	AT	2006 (2003)	Central European Consumer Perceptions of Selected Wood	Weinfurter S.	countrywide	personal interviews, online questionnaire	180–500



No.	Countries surveyed	Year (field)	Study	Author(s)	Scale	Type of study	Sample size
15	AT	2005 (2005)	Representative survey on public opinion on different RES-e technologies in Upper Austria	MARKET Public Opinion Research Center	countrywide	telephone survey	~500
16	AT	2005 (2002)	Industrial Buyer and Consumer Requirements for Selected Wood-Plastic Composite Applications	Eder A., Weinfurter S.	regional	personal interview, mail survey	175 consumers, ~70 customers
17	AT	2004 (2004)	Erfolgsmessung und Weiterentwicklung der Imagekampagne Holz	Fessel-GfK	countrywide	personal interview,	691 adults, 122 specifiers
18	AT	2004 (2004)	Frau und Herr Österreicher stehen auf Holzboden	Institut für Grundlagenforschung	countrywide	personal interview,	~1000
19	AT	2003	Survey on renewable Energy	Gallup Institute	countrywide	personal interview,	1500
20	AT	2002 (2001)	Positionierung des Ziegels als Baustoff	Gallup Market Research	?	personal interview,	?
21	AT	2002 (2001)	Märkte für Fenster aus modifiziertem Holz	Weilharter H.	countrywide	mail survey	273/1658 builders, specifiers
22	AT	2002 (2001)	Marktanalyse: Lärmschutzwände aus modifiziertem Holz	Jettmar H. W.	regional	mail survey	41/72 structural engineers
23	AT	2002 (2001)	Schaffe, schaffe, Häusle baue	MARKET Public Opinion Research Center	countrywide	personal interview,	1056
24	AT	2000 (2000)	Marktanalyse und Marktchancen von Fassadensystemen mit Holz und Holzwerkstoffen	Bruderhofer M.	countrywide	mail survey	237/10000 architects, builders
25	AT	1998 (1998)	Werbetacking "Stolz auf Holz"	Fessel-GfK	countrywide	personal interview,	~1000
26	AT	1997 (1997)	Bevorzugte Materialien im Wohnraum	Fessel-GfK	countrywide	personal interview,	840
27	AT	1997 (1996/1997)	Die Österreicher und ihr Wald	Rametsteiner E.	countrywide	personal interview,	1000
28	AT	1996 (1995)	Schwieriger Einrichtungsmarkt 1996	MARKET Public Opinion Research Center	countrywide	personal interview,	1000
29	BG	2003 (2003)	The Bulgarian Furniture Market	Branch Chamber of Woodworking and Furniture Industry	countrywide	?	representative
30	CH	1999 (1997)	Gesellschaftliche Ansprüche an den Schweizer Wald	Zimmermann W., Wild-Eck S., Franzen A., Hungerbühler A.	countrywide	telephone survey	2018
31	DE	2007 (2007)	deutsche wollen zertifiziertes Holz	TNS Emnid	countrywide	personal interview,	~1000
32	DE	2006 (2006)	Umfrage: Holz beim Bau öffentlicher Gebäude bevorzugt.	TNS Emnid	countrywide	personal interview,	representative
33	DE	2005	Alle fünf Jahre wird renoviert	Anonymous	countrywide	?	?
34	DE	2005 (2004)	Holz hat's – ein Plus an Wohnlichkeit und Gestaltungsfreiheit	TNS Emnid	countrywide	telephone survey	1277
35	DE	2004 (2004)	Studie Umwelt 2004	Demoskopie Allensbach	countrywide	personal interview,	4293
36	DE	2004 (2004)	Umfrage – Baustoff Holz steht hoch im Kurs	TNS Emnid	countrywide	personal interview,	>1000

No.	Countries surveyed	Year (field)	Study	Author(s)	Scale	Type of study	Sample size
37	DE	2004 (1984, 1987, 1989, 1991, 1999, 2003)	Green Energy Market development in Germany	Wüstenhagen R., Bilharz M.	countrywide	personal interviews	2059 (in 2003)
38	DE	2003 (2002)	Wohngesundheit durch Holz	TNS Emnid	countrywide	personal interviews	representative
39	DE	2003 (2001)	Das Holzfenster der Zukunft: Chancen und Anforderungen aus Sicht der Endkunden und Architekten	Adlwarth W.	countrywide	personal interviews	806 consumers, 134 specifiers
40	DE	2002	Zertifizierung von Holz – Kenntnisstand und Meinungen der Zielgruppen	Mantau U., Thoro C., Heuveloop J.	countrywide	?	?
41	DE	2001 (2001)	Newsletter 17/1/2001	Möbelmarkt	?	personal interviews	?
42	DE	2000 (1999/2000)	Marktuntersuchung zum Imageprofil von Holz an der Schwelle zum neuen Jahrtausend	Compagnon Marktforschung	countrywide	personal interviews	951 consumers, 123 homeowners, 84 architects
43	DE	1997 (1996)	Die Verbrauchereinstellung zu Holz und der Bewirtschaftung der Wälder	Klaus Noyen Research	countrywide	personal interviews	~2000
44	DE	1995 (1995)	Die Einstellung zu Holz und der Bewirtschaftung der Wälder	INFAS Public Opinion Research Center	countrywide	personal interviews	2141
45	DE	1993	Verbrauchereinstellungen in Bezug auf Forst und Holz	Centrale Marketinggesellschaft der deutschen Agrarwirtschaft	countrywide	personal interviews	~2500
46	DK	2005 (2005)	Knowledge and position on electricity production from renewable energy sources in the Greater Copenhagen Region	Danish Technology Institute (DTI)	regional	telephone survey	358
47	ES	2005 (2005)	Valuation of public opinion in renewable energies and electricity production in the Castilla y Leon population	Ente Regional de la Energia of Castilla y Leon	regional	personal interviews	1172
48	ES	2000 (2000)	Forests and responsible consumption	WWF/Adena Spain	local	personal interviews	807
49	FI	2006 (2006)	Energy attitudes 2006	Yhdyskuntatutkimus Oy and LF-Enprima Ltd	countrywide	personal interviews	1163
50	FI	2005 (1993–2005, biennially)	Omnibus Survey	Taloustutkimus Oy	countrywide	personal interviews	~1000
51	FI	2002 (2000)	Consumers' Opinions of Wood as Energy Source	Rämö A.-K., Toivonen R., Tahvanainen L., Silvennoinen H.	countrywide	mail survey	1593/4000
52	FI	1999 (1997)	Success Factors of Wood as a Furniture Material	Pakarinen T.	local	personal interviews	115

No.	Countries surveyed	Year (field)	Study	Author(s)	Scale	Type of study	Sample size
53	FI	1998 (1997)	Consumer Beliefs and Attitudes in Choice of Tissue Paper Manufactured of Virgin and Recycled Fibre	Katainen E.	countrywide	mail survey	90/377
54	FI	1997 (1996, 1997)	Omnibus Survey	Taloustutkimus Oy	countrywide	personal interviews	~1000
55	FR	2004 (2004)	Les Francais et le bois: perceptions, opinions et attitudes	IPSOS	countrywide	telephone survey	1015
56	FR	2003 (2003)	Attitudes towards wood	Institut D'Études Marché et D'Opinion	countrywide	personal interviews	1033
57	FR	2000 (2000)	Sondages, opinions, études – Les Français, la forêt et le bois	TNS SOFRES	countrywide	?	representative
58	FR	1998 (1998)	Image de La Forêt Et Du Bois	Observatoire Du Dialogue Social ODIS	countrywide	telephone survey	~1000
59	IE	2003 (2003)	Attitudes Towards Wind Farms And Wind Energy in Ireland	Landsowne Market Research	countrywide	personal interviews	?
60	IE	1997	Forestry Awareness Survey	Landsowne Market Research	countrywide	personal interviews	?
61	NL	2005 (2004)	FSC News	FSC Netherlands	?	?	?
62	NL	2003	Implementation barriers of energy from biomass: psychological factors	Midden C., Meijnders A., Hübner G., van den Hoogen W.	countrywide	?	?
63	NL	2003	FSC certification as a tool for socially and environmentally responsible trade	Gemma Boetekees	?	?	?
64	NL	2002 (2002)	de markt voor energie uit afval en biomassa. Communicatie omtrent biomassa	Kalf R.	regional	personal interviews	100
65	NO	1998 (1997)	Public attitudes towards forestry	Gill E.	countrywide	telephone survey	1014
66	SE	2005 (1985–2005, biennially)	The General Public's View on the Swedish Forestry Sector 1985–2005	Demoskop AB	countrywide	telephone survey	~1000
67	SE	2001 (1995)	Aesthetic properties in knotty wood surfaces and their connection with people's preferences	Broman N. O.	local	personal interviews	215
68	SI	2005 (2005)	Survey of public opinion for »green electricity« production in Slovenia	University of Ljubljana	countrywide	telephone survey	300
69	UA	2004 (2004)	Diagnostics of the Ukrainian Furniture Sector	USAID Ukraine	countrywide	telephone survey	1500 households, 970 company managers
70	UK	2007 (2007)	Public opinion of forestry	Forestry Commission	countrywide	personal interviews	~4000
71	UK	2006 (2006)	EPRG Public Opinion Survey on Energy Security: Policy Preferences and Personal Behaviour	Reiner D. M.	countrywide	online interviews, telephone survey	>1000

No.	Countries surveyed	Year (field)	Study	Author(s)	Scale	Type of study	Sample size
72	UK	2006 (2005)	Public Perceptions of Nuclear Power, Climate Change and Energy Options in Britain	Poortinga W., Pidgeon, N.F., Lorenzoni, I.	countrywide	personal interviews	1491
73	UK	2005 (2005)	Public opinion of forestry	Forestry Commission	countrywide	personal interviews	~4000
74	UK	2005 (2004)	A Survey of Public Attitudes towards Energy & Environment in Great Britain	Curry T. E., Reiner D. M., de Figueiredo M. A., Herzog Howard J.	countrywide	personal interviews	1058/2640
75	UK	2005 (review of various studies)	Public Opinion on Energy Research: A desk Study for the Research Councils	McGowan F., Sauter R.	regional, countrywide	–	30 surveys
76	UK	2003 (2003)	Attitudes and Knowledge of Renewable Energy amongst the General Public	Department of Trade and Industry (DTI)	countrywide	personal interviews	1279 + 417 (boost sample)
77	UK	2003 (2003)	Public opinion of forestry	Forestry Commission	countrywide	personal interviews	~4000
78	UK	2003 (2003)	Public Attitudes towards Renewable Energy in the South West	MORI Public Opinion Research Center	regional	personal interviews	176/585
79	UK	2003	Who's For Renewable Energy and Why?	Štrfer D., Yang K.	regional	?	600
80	UK	2002 (2002)	Evaluation of the UK promotion programme wood. for good	Jaakko Pöyry Consulting	countrywide	?	?
81	UK	2001 (2001)	Public opinion of forestry	Forestry Commission	countrywide	personal interviews	1976
82	UK	2001	The GB Public's Views on Energy Issues	RSPB Market Research	countrywide	?	?
83	UK	1999 (1999)	Public opinion of forestry	Forestry Commission	countrywide	personal interviews	~2000
84	UK	1996 (1995)	Consumers' environmental attitudes in England and Wales	Paasikoski T.	regional	personal interviews	195
85	UK	1995 (1995)	The selling of certification	Sowerby J.	countrywide	personal interviews, mail survey	76/148 retailers



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**MCPFE**

Liaison Unit Warsaw

ul. Bitwy Warszawskiej 1920 r. nr 3  
00-973 Warszawa, Polska  
tel. **+48 22 331 70 31**  
fax **+48 22 331 70 32**  
e-mail: [liaison.unit@lu-warsaw.pl](mailto:liaison.unit@lu-warsaw.pl)

**[www.mcpfe.org](http://www.mcpfe.org)**

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