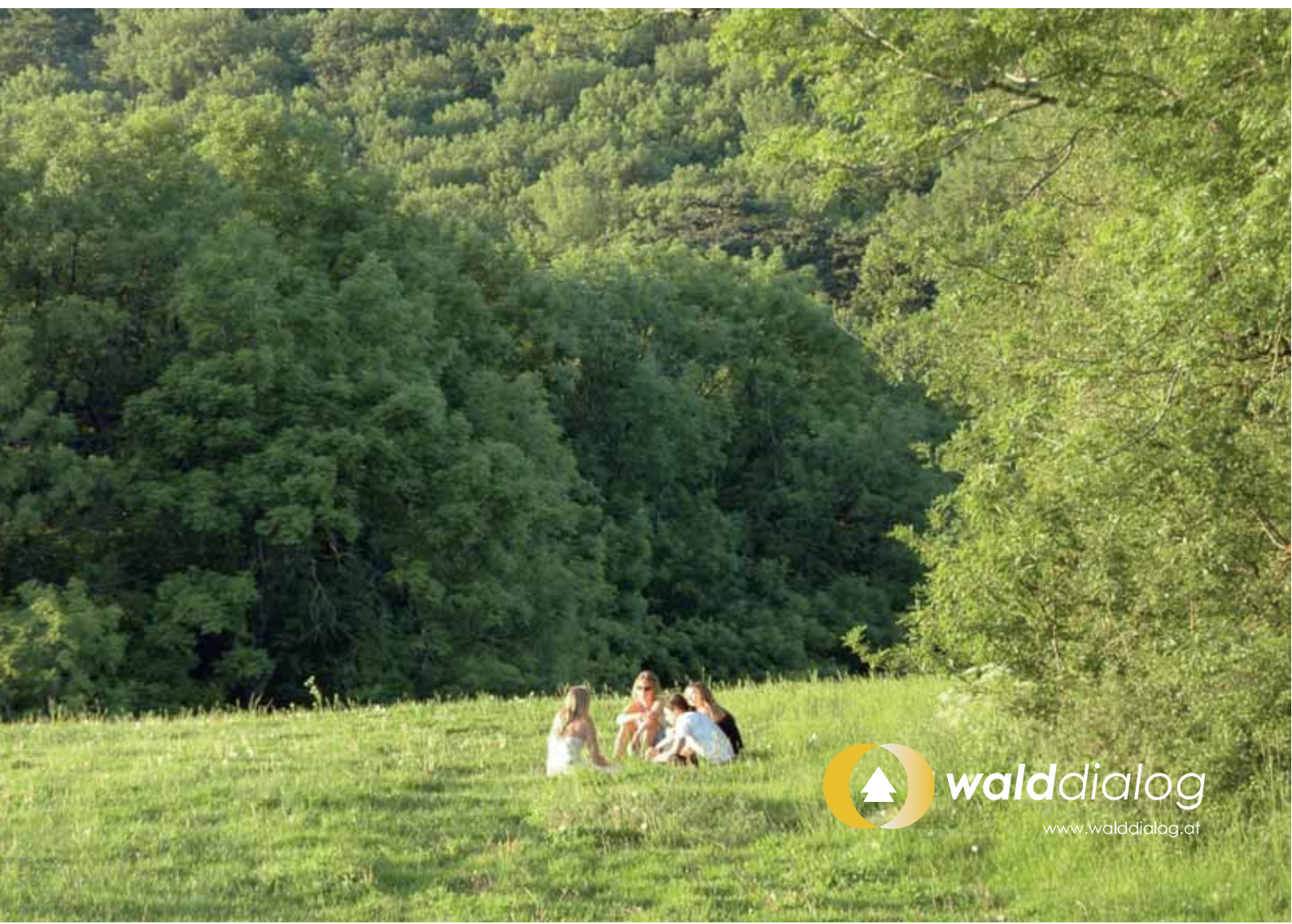




lebensministerium.at

# THE AUSTRIAN FOREST PROGRAMME



**walddialog**

[www.walddialog.at](http://www.walddialog.at)

Wir Alle **Leben** Davon.



[lebensministerium.at](http://lebensministerium.at)



## **I M P R I N T**

### **PUBLISHED BY**

Republic of Austria, Federal Ministry of Agriculture, Forestry,  
Environment and Water Management (BMLFUW), Stubenring 1, 1012 Vienna  
[www.lebensministerium.at](http://www.lebensministerium.at)

### **OVERALL COORDINATION**

Dr. Georg Rappold  
[georg.rappold@lebensministerium.at](mailto:georg.rappold@lebensministerium.at)  
(Division IV/1 – Forest policy and Forest information)

### **COMPILED AND ARRANGED BY**

MR DI Ingwald Gschwandtl, SC DI Gerhard Mannsberger, Dr. Georg Rappold,  
Dr. Johannes Schima, Dr. Johannes Voitleithner

### **PICTURES**

Hans Bubestinger, Danuta Butler, IISD Earth Negotiation Bulletin, Gerald Fischer, Christoph Gröll, Abdulkader Höning, Johann Kiessling,  
Helmut Köhle, Stephanie Lackner, Ministry of Life, Michael Löffler, Antonia Martschin, Johannes Prem, Georg Rappold, Edith Ringhofer,  
Adolf Schatten, Johannes Schima, Wolfgang Simlinger, Alexander Starsich, Andreas Urban, Hans Peter Zwicklhuber.

### **DESIGN & PRODUCTION**

Martschin & Partner GmbH, [www.martschin.com](http://www.martschin.com)

### **PRINTED BY**

AV+Astoria Druckzentrum GmbH

© BMLFUW 2007

Reprinting permitted only with reference to source.





# Table of Contents

<b>Preface</b> .....	9
<b>Introduction</b> .....	10
 <b>I. International and National Context of the Austrian Forest Programme</b> .....	<b>13</b>
a) Global Level .....	13
b) Pan-European Level .....	13
c) European Union .....	14
d) Alpine Region .....	15
e) Austria .....	16
i) Multi-functionality of the forest .....	16
ii) Sustainable Forest Management – Forest Act .....	18
iii) Strategy for Sustainable Development and National Environmental Plan .....	20
 <b>II. Thematic Areas of Forest Policy</b> .....	<b>22</b>
Thematic Area 1	
<b>Contribution of Austrian Forests to Climate Protection</b> .....	<b>22</b>
1.1 Current State .....	22
1.2 Principles and Goals .....	26
1.3 Fields and Sets of Measures .....	27
Thematic Area 2	
<b>Health and Vitality of Austrian Forests</b> .....	<b>28</b>
2.1 Current State .....	28
2.1.1 Game as an Influential Factor .....	28
2.1.2 Grazing Stock as an Influential Factor .....	31
2.1.3 Damage Through Harmful Insects .....	32
2.1.4 Forest Utilisation as an Influential Factor .....	33
2.1.5 Climate Change as an Influential Factor .....	34
2.1.6 Storms as an Influential Factor .....	36
2.1.7 Forest Fires as an Influential Factor .....	37
2.1.8 Ambient Pollution as an Influential Factor .....	37
2.1.9 Degraded Forest Soils as an Influential Factor .....	38



2.2 Principles and Goals .....	40
2.3 Fields and Sets of Measures .....	41
Thematic Area 3	
<b>Productivity and Economic Aspects of Austrian Forests .....</b>	<b>42</b>
3.1 Current State .....	43
3.1.1 The Forest as an Economic Resource .....	43
Forest area and tree species composition .....	43
Growing stock and utilisation potential .....	44
Types of forest management .....	47
Access to the forest .....	49
Non-wood forest resources .....	49
3.1.2 Macro-economic Framework Conditions .....	50
Global dimension .....	50
European dimension .....	50
National dimension .....	55
3.1.3 Timber Market and Austrian Wood-based Industry .....	61
3.1.4 Income Situation in Forestry .....	64
3.1.5 Timber Production as an Economic Factor .....	66
3.1.6 Other Products and Services as Economic Factors .....	67
Energy from woody biomass .....	68
Water services .....	69
Game management and hunting .....	72
Protection against natural hazards .....	72
Services for nature conservation .....	72
Recreational services .....	72
3.1.7 Trends and Developments at Forest Operational Level .....	72
Innovation .....	72
Marketing .....	73
Cooperation .....	74
Rationalisation and work safety .....	75
3.2 Principles and Goals .....	76
3.3 Fields and Sets of Measures .....	77



## Thematic Area 4

<b>Biological Diversity in Austrian Forests</b>	<b>81</b>
4.1 Current State	81
4.1.1 Area Protection	82
4.1.2 Species Conservation	87
4.1.3 Conservation of Genetic Diversity of Forest Trees	88
4.1.4 Distribution of Alien Plants (Neophytes)	91
4.1.5 Ecosystem Approach	91
4.2 Principles and Goals	92
4.3 Fields and Sets of Measures	93

## Thematic Area 5

<b>Protective Functions of Austrian Forests</b>	<b>95</b>
5.1 Current State	95
5.1.1 Protection Against Natural Hazards	95
5.1.2 Forest Soil Protection	101
5.1.3 Water Protection	101
5.1.4 Air Protection	102
5.2 Principles and Goals	103
5.3 Fields and Sets of Measures	104

## Thematic Area 6

<b>Social and National Economy Aspects of Austrian Forests</b>	<b>107</b>
6.1 Current State	107
6.1.1 Contribution of Forestry to the Rural Development	108
6.1.2 Recreation, Tourism and Sport	110
6.1.3 Forest Culture	111
6.1.4 Education	114
Education and training of forest managers	114
Education and continuing education in the wood-processing industry	116
Education of the public in and about forests	120



6.1.5 Research .....	120
Research in the field of forests and their management .....	120
Research in the field of wood and its utilisation .....	121
6.2 Principles and Goals .....	122
6.3 Fields and Sets of Measures .....	123
Thematic Area 7 .....	
<b>Austria's International Responsibility for Sustainable Forest Management .....</b>	<b>125</b>
7.1 Current State .....	125
7.1.1 Development Cooperation .....	126
7.1.2 Illegal Logging in Other Countries .....	126
7.1.3 Austria's Endeavours in International Processes .....	128
7.2 Principles and Goals .....	130
7.3 Fields and Sets of Measures .....	131
<b>III. Indicators relating to the Goals of the Austrian Forest Programme .....</b>	<b>134</b>
<b>IV. The Work Programme of the Austrian Forest Dialogue .....</b>	<b>147</b>
<b>V. The Austrian Forest Dialogue .....</b>	<b>148</b>
A. Structure and Procedure .....	148
B. Rules and Principles .....	151
C. Participating Organisations .....	155
<b>VI. Annexes .....</b>	<b>159</b>
A. References .....	159
B. List of Acronyms .....	160





*"The Austrian Forest Programme is our inter-generation contract with the forest. Because the forest cannot be formed within legislative periods. With the Austrian Forest Programme we have created a long-term working instrument, that was elaborated jointly and is supported by all participating organizations."*



# FORESTS

## Are What We All Live On

Next to half of the area of Austria is covered with forests. They dominate our natural scenery, constitute an important economic factor, provide protection from natural hazards, make an important contribution to air and water quality and are, last but not least, a multi-faceted living space and recreational area for humans and animals. In order to reconcile the different interests in the utilisation of forests in the best possible way and to ensure their manifold functions in the long term, I have invited all interest groups relevant to forest and forest matters to develop a comprehensive Forest Programme within the framework of a dialogue process. After close to three years the Austrian Forest Programme is now available - more than 80 institutions have contributed to its development. The Forest Programme identifies future-oriented objectives and measures for all relevant fields in order to safeguard a sustainable management of forests. With this document we have concluded an inter-generation contract with the forest, and have created a long-term working instrument setting clear standards, in order to balance all components of ecological, economic and societal importance for our forests and utilise them in the best possible way. This programme constitutes a big step forward in terms of the sustainable development of our country. Also with respect to the process and the method the Austrian Forest Dialogue sets new standards for the democratic way of decision making.

I would like to seize this opportunity to express my heartfelt thanks to all those who have contributed to the elaboration of this Forest Programme and encourage all those concerned and interested to participate in this Dialogue in an engaged way also in the future. However, a credible forest policy also requires that not only all measures set out in the Forest Programme are supported by all those concerned, but are also implemented in the best possible way.

Josef Pröll,

Federal Minister of Agriculture, Forestry, Environment and Water Management





*On the left: Nicolaus Drimmel, on the right: Michael Johann*



*Ursula Kopp (Moderator)*

## Introduction

**The present Austrian Forest Programme has been elaborated by the participants of the Austrian Forest Dialogue and approved unanimously by the Round Table, i.e. the policy committee of the Austrian Forest Dialogue, on 5 December 2005. The Green Party (die Grünen), the World Wide Fund for Nature (WWF) and the “Oekobureau” have consented with reservation. They asked for a GMO-free orientation of the Austrian forest policy, a clear definition of target values for the goals determined in the Forest Programme by the end of 2006, and an immediate implementation of the measures stated in the Forest Programme.**

Together with the Austrian **Forest Programme**, the related **Work Programme** also constitutes an important result of the consensual Forest Dialogue process started in April 2003. The Work Programme is a living document that keeps a continuous record of the implementation and further development of the Forest Programme by means of concrete measures (see Chapter IV). The Austrian Forest Programme is designed in the following way: It starts with an

illustration of the past international and national efforts for sustainable management, conservation and development of the forests. The main part is composed of 7 thematic areas, which are related to the 6 “pan-European Criteria for Sustainable Forest Management” identified by the Ministerial Conference on the Protection of Forests in Europe. The seventh thematic area on “Austria’s international responsibility for sustainable forest management” has been added.



*On the left: SC Gerhard Mannsberger, on the right: Minister Josef Pröll*



*On the left: Ernst Strobl, on the right: Karl Moser*

The seven thematic areas are:

- 1. Contribution of Austrian forests to climate protection**
- 2. Health and vitality of Austrian forests**
- 3. Productivity and economic aspects of Austrian forests**
- 4. Biological diversity in Austrian forests**
- 5. Protective functions of Austrian forests**
- 6. Social and national economy aspects of Austrian forests**
- 7. Austria's international responsibility for sustainable forest management**

Each thematic area begins with the description of the actual state including related trends and challenges as far as they have been addressed and discussed in the framework of the Forest Dialogue.

On this basis, principles and goals (the “Guiding Principles”) have been developed with an attempt to cover all target objectives expressed by the individual participants to the best possible extent. For the sake of consensus their formulation is rather general. The numbering merely serves the purpose of clarity and shall not be seen as part

of a hierarchical order of priorities. It should be noted that some goals might serve more than one principle and that some principles might be assigned to more than one thematic area. Finally, sets of measures have been elaborated jointly for each thematic area in order to comply with the principles and goals. They constitute the basis for identifying concrete individual measures which are part of the Work Programme of the Forest Dialogue and are designed for immediate implementation.

Indicators have been elaborated for each goal agreed in the Guiding Principles (see Chapter III) in order to make the goals more concrete and control their fulfilment. It should be noted that one indicator might occasionally refer to more than one goal and that there are several indicators for one goal in general. The present set of indicators will be further developed in the framework of the Work Programme and completed with potentially missing indicators. A survey of actual values and the development of target values will equally take place in the framework of the Work Programme. The Austrian Forest Programme has been elaborated on the basis of a participatory and transparent process. Structure, principles and procedure of the Forest Dialogue are described in Chapter V.





# I. International and National Context of the Austrian Forest Programme



## a) Global Level

In June 1992 the Conference for Environment and Development of the United Nations (UNCED) took place in Rio de Janeiro. The results of this conference represent the beginning of an intensive dialogue on forest matters on an international level. In protection of and for a sustainable management of the world's forests UNCED passed Chapter 11 of the Agenda 21, "Combating Deforestation" and the "Forest Principles". The United Nations Convention on Biodiversity (UNCBD), the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification (UNCCD), which have received a corresponding basis in terms of international law after their ratification, are further international elements relating directly or indirectly to the forest and its sustainable management. These **global forest-related programmes and conventions** have a common concept, the concept of a "national forest programme". It is cited as an instrument to achieve the objective of an economically, ecologically and socially sustainable forest management.

The body commissioned with monitoring and implementing forest-related decisions of Rio de Janeiro was the Intergovernmental Panel for Forests (IPF), which was appointed for the period of 1992–1995. The Intergovernmental

Forum on Forests (IFF), which was active from 1995 to 1999, was assigned the task of continuing the forest policy dialogue started by the IPF and of implementing the proposals for action in relation to safeguarding a sustainable forest management. Since February 2000 the international forest policy discussion has been continued within the framework of the United Nations Forum on Forests (UNFF).

## b) Pan-European Level

On the pan-European Level it is especially the **Ministerial Conference on the Protection of Forests in Europe** (MCPFE) along with the **European Ministerial Conference "Environment for Europe"** (EfE) and the **Pan-European Biological and Landscape Diversity Strategy** (PEBLDS) that deserve mention as important forest-related processes.

The Ministerial Conference on the Protection of Forests in Europe is an ongoing cooperation of Forestry Ministers from 44 European states. It is the aim of this Pan-European Ministerial Process to address subjects of greatest importance to forest and forestry on the highest political level and to forge common solutions. The Ministers of Europe responsible for forest matters have adopted a number of resolutions since 1990 dealing with selective measures for the conservation and sustainable management of forests.

These resolutions resulted, among other things, in the establishment of the Pan-European Criteria and Indicators, of guidelines for a sustainable management of forests and of the Work Programme for the Conservation of Biological Diversity in Forest Ecosystems, which was elaborated jointly with the European Environmental Ministers Process (EfE/PEBLDS). The European Forestry Ministers Process is aiming at an integration of sustainable forest management into the sustainability policies of the individual states on the one hand, and at the implementation of the sustainable management of forests according to uniform and thus comparable principles on the other hand.

Via its decisions, the MCPFE has brought a better understanding of “sustainability” in the area of forest management, in general terms and also in the European context, and has influenced policy in the European states. However, the process has not yet been evaluated as to whether its objectives (e.g. reduction of forest degradation in Europe and the safeguarding of biological diversity) are being met. The implementation of the decisions of the MCPFE is currently in its starting phase in most signatory states.

### c) European Union

Forests as well as forest and timber management do not represent an element in European Union treaties, thus there is also no obligatory coordination of activities and measures relevant to forests on the level of the EU. There are, however, a number of areas, in which forestry is involved, such as the foreign relations of the European Union, industry, research, the environment, and agriculture.

In order to counter the trend of an uncoordinated approach towards subjects relevant to forests and forestry, an **EU Forest Strategy** was adopted in 1998. The Forest Strategy of the European Union is intended to supplement the national forest policies of the individual member states and to optimize the implementation of Community measures in the area of forestry. The Forest Strategy stresses the principle of subsidiarity as well as sustainable management of forests and their multi-functional role as the most important maxims in trade.

The EU Regulation 1257/99 on “support for the development of rural areas” is a framework regulation for the bilateral support between the European Commission and the EU member states aiming at the development of the rural areas, including sustainable management, with consideration of international agreements, especially the resolutions of the Ministerial Conference for the Protection of

Forests in Europe. In Austria the EU Resolution currently in force with the “Rural Development Programme” is being implemented, which will continue until the year 2006. For the new programme-planning period (2007–2013) a new resolution on support for the development of rural areas (Council Regulation (EC) No 1698/2005) was passed.

The **Habitats Directive (Directive on the Conservation of Natural Habitats of Wild Flora and Fauna)** and the **Birds Directive (Directive on the Conservation of Wild Birds)** make special reference to forest habitats and species occurring exclusively in forests. With the standstill principle laid down therein the member states are committed to taking adequate steps to preserve or reach again a good state of conservation. In order to achieve this end especially for nominated forests it is necessary to observe the regulations relating to the economic, ecological and social aspects of forest management.

In May 2003 the European Commission adopted the Action Plan “**Forest Law Enforcement, Governance and Trade – FLEGT**”, which focuses on combating illegal logging and the related trade in illegally harvested timber. The FLEGT Directive (verification system for timber from partner countries that is destined for the EU) as well as the negotiation directives for the European Commission were passed by the European Council in late 2005. These directives form the basis for the implementation of the Community Action Plan FLEGT in the EU. The directive, which makes legality licences for the import of timber from partner countries into the EU obligatory, will enter into force with the conclusion of the first partnership agreement. The conclusion of partnership agreements with countries in problematic regions (Western and Central Africa, South East Asia, South America, Russia and North Asia) falls within the sphere of competence of the European Commission – the Commission is, however, supported by the member states in the negotiations. Moreover, the European Commission has to conduct a study on further legal possibilities to support the Action Plan FLEGT.

The World Bank supports so-called “FLEG processes” (Forest Law Enforcement and Governance) in various regions of the world. For the area of the European Union the ENA FLEG process (Europe and North Asia Forest Law Enforcement and Governance) is of special importance. Under the Austrian EU presidency the Council adopted the ENA FLEG St. Petersburg Ministerial Declaration and the Indicative Action Plan.



In preparation of further EU Research Programmes the ERA-NET scheme was introduced as the main tool of the Sixth Framework Programme for supporting the cooperation and coordination of research activities on the national or the regional level. It will be financed as part of the specific programme “Strengthening the Foundations of the European Research Area (ERA)”. The Forestry Department is a partner in an ERA-NET project on the topic area “Protection against Natural Hazards”. The project is under British coordination and was submitted as an ERA-NET in the field of flooding (“CRUE – Coordination of Research Financed in the EU on Flood-Risk Management”) – it started in November 2004. The Forestry Department took over the coordination of two work packages within this ERA-NET. One work package deals with the comparison of national research programmes and projects in the area of flood risk management and the establishment of an adequate data base, while the second work package aims at developing new methods for the dissemination and communication of recent research results in the partner countries and the implementation of national framework conditions. Within the framework of INTERREG projects the Forestry Department is active as lead partner (in the INTERREG IIIC-NMF “Network Mountain Forest”) while it is also an active partner in a number of other INTERREG Programmes. All these initiatives are in line with strengthening forest sector policy in close connection with rural development. Thereby not only the Austrian forest policy is positioned internationally, but also EU-funds for the Austrian research sector can be secured.

#### d) Alpine Region

The **Alpine Convention** as a convention for the protection of the alpine region was signed by the Ministers for the Environment of the alpine states and the Environmental Commissioner of the European Commission in 1991 as a multilateral treaty according to international law and was passed by the Austrian National Council in 1995 (FLG No. 477/1995 – Federal Law Gazette No. 477/1995). Objective of the Alpine Convention is an environmentally compatible use of the entire alpine region in an economically, ecologically and socially balanced way.

With due adherence to the precautionary principle, the polluter-pays principle, and the principle of cooperation this ambitious objective is to be reached by a prudent use of resources, by reduction of current detrimental factors and by means of a common responsibility for natural and cultural heritage. The protocols regarding “conservation of nature and landscapes”, “mountain farming” “land-use





planning and sustainable development”, “mountain forests”, “tourism”, “soil conservation”, “energy”, “transport”, as well as a protocol on the settlement of disputes entered into force in 2002. The protocols to the Alpine Convention are part of the Austrian body of law and are thus to be implemented by the legislature and by the law enforcement bodies.

In concrete terms, the **Mountain Forest Protocol** is aiming at extensively regulating the conservation and the sustainable management of forests in the alpine region in an international convention for the first time. Thus, the parties to the protocol are committed to preserving the mountain forest as a near natural living space, to developing or extending the mountain forest wherever necessary, and to improving its stability. At the same time, in order to secure the fulfilment of the multiple functions of the forest the necessary careful sustainable close-to-nature management of the mountain forest is supported.

**In Article 1 (2) of the mountain forest protocol the contracting parties commit themselves to taking all necessary steps that, above all:**

- natural forest regeneration procedures are applied
- a well structured, storied establishment of the stand with site-specific tree species is aimed at
- autochthonous forest propagation material is used
- soil erosion and soil compaction are avoided by means of careful harvesting procedures.

The designation of natural forest reserves constitutes a contribution of mountain forestry to nature conservation just like the fulfilment of its individual forest functions. Among these its protective function is devoted primary attention. A crucial question regards adequate measures of support and compensation payment. In view of the more difficult economic conditions in the alpine region an adequate and performance-related claim for compensation payment is also legitimate in cases where services are consumed that go beyond existing legal commitments and thus are to the advantage not for the forest owners themselves, but for the entire population.

Among the other protocols especially those regarding “soil conservation”, “conservation of nature and landscapes” along with “land-use planning and sustainable development” are of importance in forest-related issues.

#### **e) Austria**

With a total forest area of 47.2% Austria is among the most densely forested countries of Europe. Detailed infor-

mation on qualitative conditions and quantitative changes in the Austrian forests are provided in the Chapters 3.1.1 and 4.1. The proportion made up of public forest, 18 % of the total forest area, is much lower in Austria than in most of the other European states. Furthermore, the wood-processing industry is highly export-oriented (see Chapter 3.1.1). The situation of forestry in Austria is characterized by a high number of small-forest owners (see Chapter 3.1.2). Over 80% of the Austrian forests are in private ownership. Experience shows that **private ownership** is an important mechanism to promote sustainable development, as the owner’s confidence in the legal security increases his/her identification with the property, which in consequence also leads to a more careful use. There are a number of **principles provided for under constitutional law** (e.g. the “principle of ownership”) and of **societal arrangements** (e.g. “polluter-pays principle”, “common burden principle”, “compensation principle”). The protection of property guaranteed under constitutional law and the accommodation of public and private interests can require measures for the reconciliation of interests.

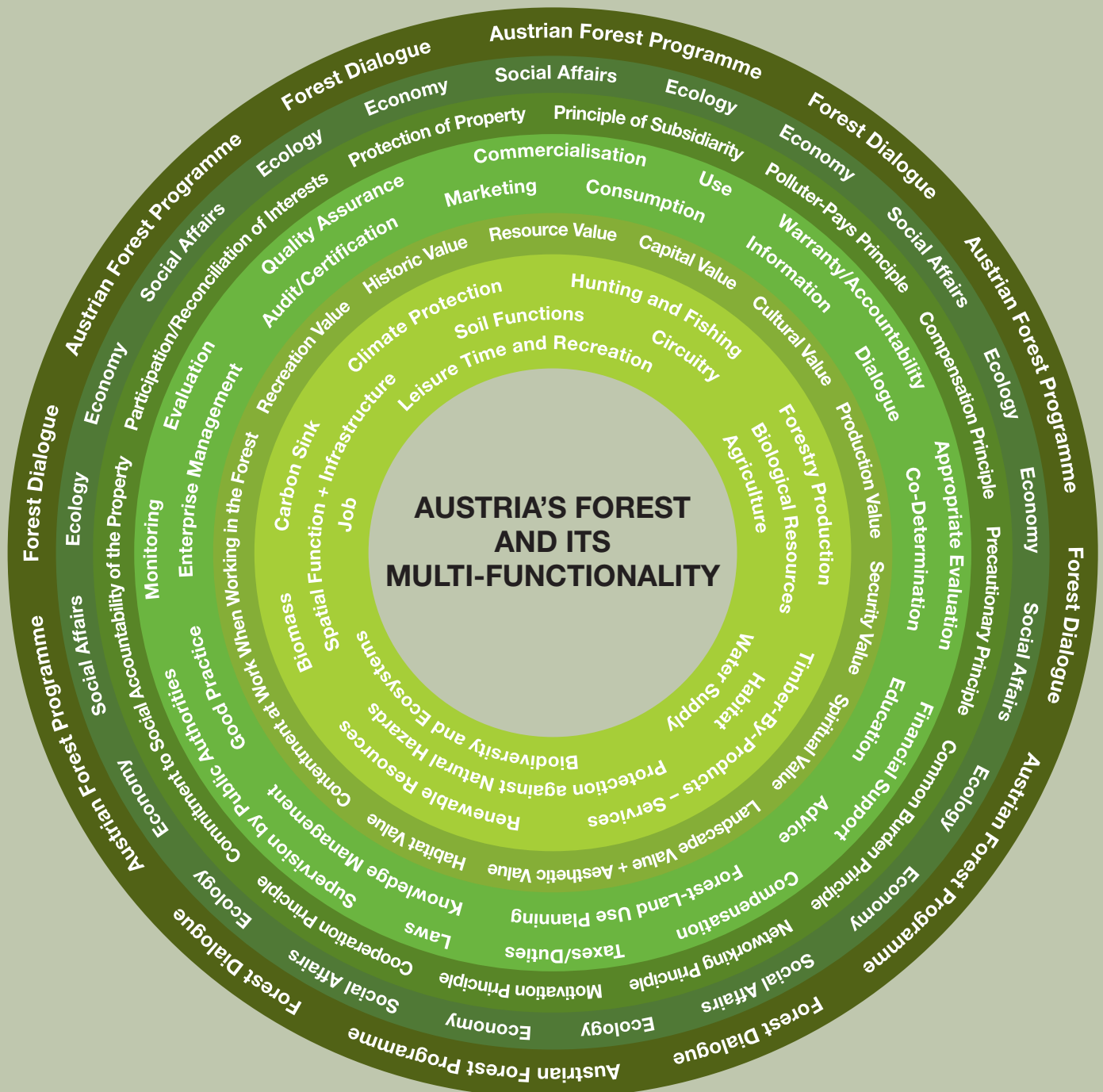
In view of the great importance of the forest for society it is the central aim of the Austrian forest policy to secure and to improve on a continuing basis the economic, ecological and socio-cultural functions of the forests on a continuing basis. A prerequisite in this regard is a sustainable, sound, and possibly near natural, management of the forests.

#### **i) Multi-functionality of the forest**

For Austria with its manifold habitats an adequate proportion of forest area with the best possible fulfilment of its functions in terms of wood utilisation, protection, welfare and recreation (multi-functionality), is vital. The majority of the roughly 170,000 forest owners ensure that the forest is conserved and constantly improved in line with its multi-functionality and in conformity with forest-related laws. Around 250,000 Austrians live directly (at least partly) or indirectly from the forest and its products, especially forest owners as well as people employed in the forest and wood-based industries. Raw wood remains the main source of income of the Austrian forest enterprises. In the population it’s primarily the cultural services specific to the country’s woods that are enjoying particular attention and appreciation. These services, such as the opportunity for recreation in nature, tourism, or the services rendered by forests in terms of conservation of nature, landscape, soil, climate and drinking water, as well the protection against natural hazards, characterize the forests’ multi-

## Multi-functionality of the Austrian Forest

Based on a model of the OECD 1988 and on proposals of the Austrian Association for Agricultural Research (Österreichische Vereinigung für Agrarwissenschaftliche Forschung) and the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW), adapted in the course of the Austrian Forest Dialogue (Fig. 1)



- Effects
- Values
- Tools
- Principles
- Sustainable Development





functionality. It is thus of highest priority to forest, environmental and also societal policy to safeguard a sustainable multi-functional forestry.

Based on a model of the OECD 1988 and on proposals of the Austrian Association for Agricultural Research (Österreichische Vereinigung für Agrarwissenschaftliche Forschung) a concentric ring model of the multi-functionality of the Austrian forest was developed by the Forestry Department. In the course of the Forest Dialogue, drawing on a number of suggestions, it was subsequently adapted (see Figure 1). The ring model consists of the following elements (from the outer to the inner circles): In the two outermost circles **generally recognized basic principles of society** are depicted, which were articulated in the course of strategy developments in the area of sustainable development (with its interwoven components economy, ecology and social matters). In the next ring examples of **tools** that have been applied and that are applicable are listed, ranging from regulatory to voluntary tools. The ring “values” shows the spectrum of **societal values**, whilst the innermost ring enumerates the **effects** of goods and services as well as **functions** of multi-functional agriculture and forestry.

The ring illustration shows the complex connections among all elements of sustainable forest management and can be looked at and analysed not only in a static but also in a dynamic way. With the help of this model analyses of **priority setting** according to individual interests, and determination of CURRENT states and TARGETED states are possible..

## ii) Sustainable Forest Management – Forest Act

The improvement of the protective, welfare and recreational effect as well the sustainable utilisation of the forest (with due regard to economic, ecological and social aspects) are important concerns of forest policy. For more than 100 years sustainable management has been integrated in a well-established legal institutional and economic framework in Austria. A range of **regulatory, financial** and **informational** tools are being applied to safeguard a sustainable management, conservation and development of the forests.

With the **Amendment to the Austrian Forest Act** (2002) the intentions of the sustainable forest management were further consolidated. Additionally, the ecological necessities of the habitat type “forest” were taken into account to a higher degree. The primary objective is to ensure an

extended sustainability of forest management and to thus secure the different functions of the forest (multi-functionality) if possible for the entire forest area.

“Sustainable Management in the sense of the Austrian Forest Act means the stewardship and use of forests in a way, and at a rate, that durably preserve their biological diversity, productivity, regeneration capacity, vitality and potential to fulfil ecological, economic and social functions on a global basis, and that does not cause damage to other ecosystems, now and in the future. It is especially to be safeguarded in the management of forests – taking into account the long forest production period and possible already existing plans – that utilisation according to forest objectives is reserved for future generations.”

*There are diverging opinions on the degree of sustainability applied in forest management in Austria. While the majority of the organizations taking part in the Forest Dialogue regard the sustainability and the tools used as sufficient, some of the environmental NGOs (e.g. Greenpeace, the WWF) take the view that the regulatory financial and informational tools in Austria are not reflecting the new international understanding of sustainable forest management (social, economic, and ecological sustainability) in a sufficient way. According to the WWF the habitat function of the forest is not given the same status in the Forest Act as the other functions of the forest and that ecological concerns are thus curtailed. In that regard the Forestry Department points to the fact that with the 2002 amendment to the Forest Act the legislature has made clear that each forest represents a habitat and in particular the new regulations (e.g. §32a) have markedly improved the possibilities of co-ordination between forestry and nature conservation bodies. Moreover, a number of statutory provisions like e.g. the nature conservation laws of the Provinces deal with the way and extent of a permissible management of forest biotopes. Representatives of forest bodies and forest owners take the view that the forest law regulates the concept of sustainability also on the level of enterprises.*

*Environmental NGOs and the political party “Die Grünen” (the Austrian Green Party) are of the view, drawing on experiences of individual enterprises or experiences on the regional level along with inventory results (under- or overutilisation), that although the Forest Act sufficiently regulates sustainability at the enterprise level, action is needed in the implementation of legal regulations related to sustainability. The Labour Chamber and Austrian Alpine Association underscore that with relation to the social*

*component of sustainability the traditional rights of the public – like e.g. the principle of the opening of the forest for recreational purposes in its current state – are not to be put into question.*

Apart from the Austrian Forest Act the ecologically-oriented financial support, rates and taxes, land-use tools (e.g. forest development plan, forest management plan), measures of the torrent and avalanche control, awareness building education and extension, research, public relations as well as extensive monitoring systems (e.g. forest inventory, forest decline monitoring system, monitoring of game impact) are important instruments for the implementation of sustainable forest management. Further information on the various instruments that safeguard the framework for a sustainable management on a legal, financial and informational basis is provided in the respectively latest “Austrian Forest Report” (Österreichischer Waldbericht) – [www.lebensministerium.at](http://www.lebensministerium.at). Apart from that there are a number of regulations relevant to forest matters also in other policy areas like e.g. in the nature conservation, the hunting and the land-use policy of the Federal Provinces.

*The WWF states that the “by far largest part” of the forest support is not ecologically oriented, and it bases this statement on the fact that the “largest” part of support for forest matters is directed to the establishment of new forest roads. In this regard the Forestry Department stresses that in 2004 indeed approximately 36 % of the financial support for forest matters was used for the forest road network, but points out that in many cases the improvement of the forest road systems is also indispensable for the achievement of ecological objectives.*

Rising, often uncoordinated, challenges posed to the forest increasingly lead to utilisation conflicts. Against the background of these framework conditions the Austrian forest policy more strongly supports the interdisciplinary and intersection cooperation among the various interest groups. In order to optimize the reconciliation of interests “bottom-up-instruments” like information, advice, dialogue and participation as well as “top-down-instruments” like legal direction measures and protective laws are applied (see Figure 1).

### **iii) Strategy for Sustainable Development and National Environmental Plan**

The **Austrian Strategy for a Sustainable Development** was adopted by the Federal Government in 2002. It was



developed within the context of the European Strategy for Sustainable Development and was presented at the World Summit on Sustainable Development in Johannesburg (2002). The Austrian Strategy for Sustainable Development shows which current problems are preventing a sustainable development (e.g. congestion, climate change accelerated by greenhouse gases, loss of biodiversity, uncontrolled urban spread, soil sealing of green land, diseases caused by civilization, demographic development, material and energy-intensive consumption). It comprises 20 concrete objectives in the following fields of action: quality of life, business location, habitats, and international responsibility. In key objective 12 – preserving the diversity of species and landscapes – there are three sub-objectives related to forest matters: Increase of utilisation of wood as a renewable and environmentally friendly raw material; conservation and increase of the biological diversity in the forest; protection of health and increase of the vitality of forests. It describes how the objectives can be implemented and monitored on the basis of annual working programmes. Reports of their success are to be provided on an annual level. Additionally the Strategy for Sustainable Development is to be continuously developed further by drawing on the latest scientific knowledge and with participation of the population.

The **National Environmental Plan**, passed by the Federal Government in 1995 and approved by the Parliament in 1997, consists of a wide range of subjects. A systematic implementation, evaluation as well as perpetuation of its objectives and measures have not yet been carried out. In part, however, an implementation within the framework of the Austrian Strategy for a Sustainable Development and of already existing sectoral programmes (e.g. Austrian Climate Strategy) is taking place.

Both documents are relevant to the Austrian Forest Dialogue, as part of their contents concerns different subject areas of the forest. In the process of the Austrian Strategy for Sustainable Development it is also planned that the different sectoral working programmes, like e.g. the Forest Programme in hand, are regularly monitored with respect to whether they are in harmony with the objectives of the Strategy for Sustainable Development in procedure and contents. This monitoring is to be carried out on the one hand in the form of an annual progress report – the first was presented to the Federal Government in mid-2004. On the other hand an external evaluation by an interdisciplinary group of independent scientists was made in the autumn of 2005.

Further Austrian Strategies relevant to the Forest Dialogue are the “National Climate Strategy” (see Chapter 1.1) and the “National Strategy for the Implementation of the Convention on Biological Diversity” (see Chapter 4.1).







## II. Thematic Areas of Forest Policy

### Thematic Area I

# CONTRIBUTION OF AUSTRIAN FORESTS TO CLIMATE PROTECTION

**1.1 CURRENT STATE:** All over the world indications pointing to an acceleration of climate change on a global scale are becoming more and more frequent. The increase of the concentration of atmospheric greenhouse gases like methane, ozone, chlorofluorocarbons (CFCs), di-nitrogen oxide, and especially carbon dioxide, results in warming of the earth's surface in the long run. These gases wrap the earth like a blanket and thus impede the escape of the earth's heat. Carbon monoxide is contributing to this anthropogenically caused "greenhouse effect" at a rate of 50 per cent.

Forests represent an accumulation of living and dead substances and the most important element of these substances is carbon. Carbon is extracted from the air during the photosynthesis in order to build up biomass. All decomposition processes (e.g. combustion, natural decay) reconvert the fixed carbon into carbon dioxide, which is released into the atmosphere. When dead organic substances are decomposed on the forest floor the process takes place at slow pace while in combustion this happens very fast. Forests have a great **potential** for moderating the global increase of the carbon dioxide (CO<sub>2</sub>) concentration and of the temperature.

This potential lies in the substitution of fossil fuels by renewable sources of energy as well as in the carbon storage function of forest biomass and wood products. Thus, other materials, that when produced require large quantities of fossil energy, can be appropriately replaced by the renewable regrowing raw material timber. The net storage capacity\*) of the global carbon cycle is not constant: After the forest utilisation the carbon is contained

in various timber products (with different durability) and is then released into the atmosphere again in the form of CO<sub>2</sub>. In contrast, carbon sequestration in the soil is a long-term option, as the carbon pool is stable and large.

Therefore changes in small percentages do have big effects. Furthermore, there are passive pools where the carbon remains in the soil for an extremely long period of time. However, there are high uncertainties involved, as with a rise in temperature the microbial activity in the soil can increase, so that organically fixed carbon that gets into the soil is released as CO<sub>2</sub> into the atmosphere right away by means of respiration processes. Thus, climate changes of only very minor scale are sufficient to turn forests into carbon sources.

The fossil emissions that are released in the course of energy utilisation cannot be compensated by fixation in the terrestrial biosphere in the long run. With the substitution of non-renewable resources and fossil energy sources by wood the Austrian carbon balance is markedly enhanced.

\* An ecosystem is a carbon sink if it absorbs more CO<sub>2</sub> than it releases. If it releases more than it absorbs, it is a source of CO<sub>2</sub>.



Wood and wood products replace energy sources after they have been used as fuel and release only that amount of CO<sub>2</sub> that was fixed from the atmosphere when it came into existence. Wood products require a much lower proportion of fossil energy in production as comparable products made of metal or synthetic material.

Due to its current utilisation rate of only less than two thirds of the annual timber increment there is still a considerable potential of supply of forest wood. In order to protect forests in their function as intact ecosystems it is urgently necessary to counter the predicted climate change, which is primarily caused by carbon emissions from fossil sources (around 70 %), to the highest possible degree. Within the framework of the international climate change policy Austria signed the **Kyoto Protocol** in 1998 and committed itself to reducing its greenhouse gas emissions by 13% in comparison to the level of emissions in 1990. This reduction is to be achieved until the period of 2008 to 2012. According to the Austrian Climate Strategy that was adopted by the Austrian Federal Gov-

ernment in June 2002 and that comprises a whole range of measures in all relevant sectors, this target cannot be reached entirely through measures confined to Austria. Experts estimate that the necessary share of climate protection projects targeted at a reduction of emissions in other countries would amount to a reduction of approximately 3 to 5 million tons of greenhouse gases. In view of the global dimension of the greenhouse effect, a global commitment for a reduction of the greenhouse gases and for a long-term protection of the climate has to be reached.

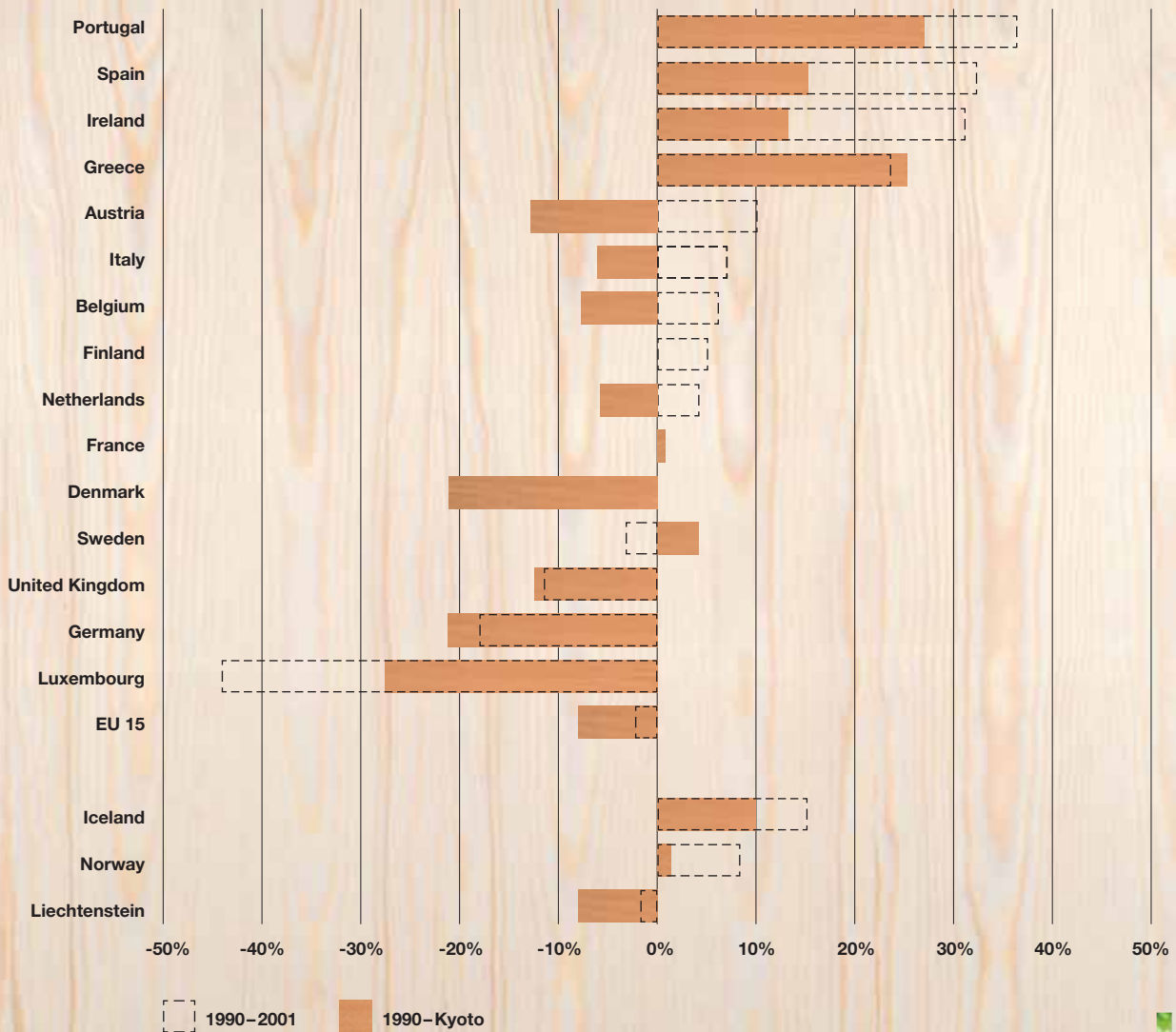
In **Austria** greenhouse gas emissions amounted to 85 million t CO<sub>2</sub> equivalent in 2002. The emissions have risen by 8.5% in comparison to the base year 1990. Within 40 years in Austria as much carbon will be emitted into the atmosphere as is fixed in the forests in total.

In 1990 the Austrian forests stored 1200 million tons CO<sub>2</sub> in the biomass and 1700 million tons in the soil. The forests have fixed 9 million tons CO<sub>2</sub> annually between 1961 and 1990; this corresponds to 10% of the total



## Kyoto Targets and Development of Emissions in the Period 1990–2001

Changes in per cent from 1990 until the target (Kyoto 2008–2012) (Figure 2)



Source: European Environment Agency



emissions of greenhouse gases. The enlargement of the carbon pool could be realized since (1) the total forest area has increased, (2) the productivity of the forest has risen and (3) utilisation has lagged behind the increase.

The results of the Austrian forest inventory still exhibit a continual **increase in forest area** (currently of approximately 5100 ha annually). The creation of new forest cover is due to afforestation to a small extent only. The major part of the increase takes place by means of natural

seed flight, on agricultural land that is often not used any more, like alpine pastures. Forest losses occur in areas, where the utilisation changes in favour of other public and private interests, like e.g. the land settlement system, the system of communications and the power economy, after the forest had been cleared in compliance with the Forest Act. Thus, forest loss does not occur in the course of forestry activities. Given the high share of forest area of 47% in Austria and the intensive utilisation of the other land types there are no real possibilities of extending the

forest area in terms of afforestation. Especially in districts rich in forests such an extension is controversial, for example in connection with the preservation of the man-made landscape and the “darkening” of the landscape.

The **additional increment** of the Austrian forests is due to synergies between increasingly longer vegetation periods as well as the fertilizing effect of higher nitrogen uptake, and higher CO<sub>2</sub> concentration in the air. The optimization of carbon sequestration in the forests takes place via long rotation lengths through the preservation and protection of the forest floor (avoidance of disturbances of the ecosystem) on the one hand, and in the medium or long term by the preservation or conservation of stable forest stands (e.g. by avoiding decay phases or by timely regeneration) on the other hand. Forest management has to be carried out in the sense of multi-functionality and specific to sites in the best possible way. Carbon management and maximization of carbon storage thus represents only one of a number of objectives to be aimed at. Along the lines of medium-term or long-term orientation the optimization of the forest stand stability has got to be the primary aim. Additionally, the raw material supply of the wood processing industry and the satisfaction of the increasing demands for energy wood have to be secured.

In the **Kyoto Protocol** provisions have been made that specific strategies and measures in the field of forests can be implemented to preserve and enhance this greenhouse sink potential, and the carbon reductions of CO<sub>2</sub> attained thereby are accountable. In the course of the negotiations on the implementation of the Kyoto Protocol for the period after 2012 Austria is supporting the strategy of an obligatory accounting of the carbon content in long-lived wood products; a feasibility study has already been commissioned by the Ministry of Life in that regard. *The Green Party is in favour of waiting for the results of this study before making further political commitments.*

Although Austria has committed itself to a 13% reduction of emissions in comparison to the level in 1990 to a higher degree than other industrial countries and European Union in total in accordance with the distribution of tasks within the EU, from an experts' point of view it cannot be guaranteed or it is at least controversial that the reduction targets agreed upon will be sufficiently effective in the protection of the forest ecosystems. *The Federal Economic Chamber of Austria (WKÖ) believes that these issues should be dealt with within the framework of the evaluation of the national climate strategy. The WWF critically argues*

*that international evaluations have drastically indicated the enormous need for action in order to reach the Austrian climate targets and claims that also long-term targets for reduction shall be developed until 2020.*

In order to meet Austria's commitment to reduction of emissions afforestation, reforestation and deforestation implemented since 1990 have to be fully taken into account. For activities on already existing forest areas in order to increase the carbon fixation Austria was allocated a quota of a maximum of 2.3 million tons of CO<sub>2</sub> (or 0.63 million tons of carbon). The full utilisation of this quota seems basically desirable in view of the initial situation – which in terms of the current emission trends is already difficult – for the achievement of the Kyoto target. However, Austria currently has not yet all data at its disposal that are necessary for a report and the proof, and is thus uncertain about the actual extent of the contribution.

Figure 2 shows the Kyoto targets for selected countries as well as the development of emissions in the period of 1990 to 2001. This goes to show that in Austria enormous additional efforts are necessary to achieve the reduction of emissions as set out in the Kyoto target. The brown columns depict the situation of emissions in 2001 in comparison with that in 1990; the columns outlined in black show the Kyoto target according to the distribution of tasks in the EU.

The differing targets of the individual states are the result of intensive political negotiation rounds. In total, the reduction targets of the Kyoto Protocol represent only a first little step towards countering climate change. *Experts doubt, however, that reductions according to Kyoto Protocol 2008–2012 can safeguard a sufficient protection of forest ecosystems.*



## 1.2 Principles and Goals

### Principles

---

- (P1)** Preservation of the vitality and adaptability of forests that enable them to act as a carbon sink
- (P2)** Best-possible mitigation of greenhouse gas emissions in the atmosphere, in particular those from fossil sources
- (P3)** Promotion of renewable and locally produced energy sources, raw materials and products

### Goals

---

- (Z1)** Increased utilisation of wood as a renewable raw material (material and energetic use) – best possible substitution of fossil fuels
- (Z2)** Expansion of forest areas in regions with low forest cover, paying attention to ecological, economic and social compatibility and special respect to provisions of forest land-use planning
- (Z3)** Improved knowledge in climate impact research, in particular, and further research on possible impacts of global climate change on the Austrian forest, its health and functions
- (Z4)** Enhanced dissemination of information, motivation, and strengthening of measures for active climate protection in all relevant fields in compliance with international agreements binding on Austria
- (Z5)** Increased use and enlarged possibilities for the use of wood (long-living wood products), and assessment of possible accountability of carbon stocks in wood products
- (Z6)** Stabilisation of forest ecosystems in the face of pending climate change by promoting and, where necessary, improving sustainable forest management as well as development and implementation of appropriate adaptation measures

## 1.3 Fields and Sets of Measures

### Thematic Area 1

#### Contribution of Austrian Forests to Climate Protection

#### Field of Measures

##### 1.1 Climate protection and climate change

#### Set of Measures

- 1.1.1 Development and implementation of a recognised monitoring system
- 1.1.2 Strengthening climate impact research of regional evidence and soil research related to carbon sinks
- 1.1.3 Development of adequate adaptation strategies for forest stands (scenario-related basic research, development of knowledge-base, counselling and promotion – with regard to silvicultural and forest protection measures in particular)
- 1.1.4 Reduction of emissions of climate-related gases in all fields, especially by imposing the state-of-the-art and paying special attention to the implementation of the Austrian climate protection strategy
- 1.1.5 Adequate strategies for the best possible substitution of fossil fuels and raw materials for renewable raw materials (biomass in particular)
- 1.1.6 Evaluation of possibilities for accounting carbon storage in wood products: Elaboration of accounting rules in the international context



## Thematic Area 2

# HEALTH AND VITALITY OF AUSTRIAN FORESTS



**2.1 CURRENT STATE:** The condition of the forest, especially in the light of the fulfilment of its different functions for society, is influenced by many factors. On the basis of results of the forest inventory and the forest decline monitoring system the forest condition in Austria all in all is rated as good in the medium term.

The extensive forest dieback as feared at the beginning of the 1980s has not taken place in Austria, yet individual tree species are regionally threatened with dying off. This is above all due to the input of harmful substances, precipitation deficits, game impact and selection of tree species. Effects on an area scale are found in protection forests and in some places in lower areas, where the tree species composition is more markedly different from potential natural forest communities than this is the case at other altitudes. *The National Federation of Agricultural and Forest Enterprises, the Land & Forstbetriebe Österreich, points out in this regard that they do not accept the approach of the “potential natural vegetation/forest community”. The Forestry Department of the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) states that it is an internationally recognized scientific model, which has constituted the essential*

*basis of the current silvicultural practice for the last decades.* According to the study “Hemeroby of Austrian Forest Ecosystems” irrespective of the altitude around 7%, which corresponds to roughly 280 000 ha, are reported as artificial. In further 27% reported as altered to a high degree spruce is overrepresented by 26%. After evaluation of the forest condition on the basis of needles and leaves losses in the crown (crown condition inventory) around 10% of the trees exhibited a high to medium degree of crown transparency and further roughly 30% showed a low degree of crown transparency in 2002 (BFW 2004). In the following, important factors influencing the forest condition will be dealt with.

### 2.1.1 Game as an Influential Factor

Especially hoofed game is an important factor influencing the **regeneration** of the forest. According to the data of

the Austrian Forest Inventory of 2000/02 (BFW 2004) damage from browsing of hoofed game is the cause for a lack of regeneration in 24% of the forest areas in need of regeneration. Furthermore, game constitutes a cause for **stem damage** in trees, adversely affecting wood quality and in consequence the economic success of forest enterprises. Almost a quarter of all pole crop areas, which corresponds to 8% of all trees of the Austrian forest, exhibit damage from peeling which is regionally caused by hoofed game. Overall, the tendency of peeling damage is on the rise. According to the Austrian Forest Inventory new peeling damage amounted to 1.1 million stems per year in the periods 1992/96 and 2000/02.

The forest damage caused by hoofed game is especially critical in the **protection forest**. In order to be capable to fulfil its protective function, the protection forest has to be characterized by an uneven aged structure. Only then a stable permanent stocking is possible. Thus, a productive protection forest requires a very high extent of regeneration. 67% of the protection forests are in need of regeneration; 70% of these forests, however, had no regeneration at all. In the non-productive protection forest 25% of the area is in need of regeneration; in 80% of the forests no regeneration occurred. In areas requiring regeneration but actually lacking it, possible factors impeding regeneration were determined: e.g. floor vegetation, erosion, damage through game, forest pasturing, lack of light, humus, and microclimate. Thus, game management, hunting and the influences of forestry and tourism on habitats are assigned great importance, particularly in the debate on the efficiency of the Austrian protection forests. Also, according to the Alpine Convention “the size of population of hoofed game has to be limited to such a size that allows a natural regeneration of mountain forests suitable for the site without any particular protection measures”. The data of the Austrian forest inventory 2000/02 show that on 23% of the productive protection forest area expecting regeneration, and of 22% of the non-productive protection forest area, damage through browsing is the cause for the lack of regeneration. According to Austrian inventory manuals “Forest areas in need of regeneration” are defined as following: stands in the last fifth of their rotation length, detached juvenile areas below a plant height of 1.3 m and unstocked area.

Furthermore, as reported in the Forest Inventory of 2000/02 the proportion of areas on which damage through game impact was evaluated has decreased as compared with the last inventory period of 1992/96. On









areas with a sufficient number of stems of juvenile plants not taking into account target tree species a little more than a third of the areas have to be classified “damaged through hoofed game” (36% in comparison to 55% in the previous period). If the areas without a sufficient number of stems as well as the target tree species appropriate for the site are taken into account as well, almost **three thirds** of the forest area in need of regeneration are to be classified as damaged (73% in contrast to 78% of the previous period). On these areas a secured regeneration with the tree species required according to silvicultural methods, within the periods prescribed by the Forest Act, is not possible or is possible only with the help of protective measures. Until 2004 surveys differing from each other as they were tailored to the Federal Provinces, were conducted on the game impact (browsing). For a better comparability of the surveys under the leadership of the Federal Research and Training Centre for Forests, Natural Hazards and Landscape (BFW), in a working group with representatives of the Forestry Department, the Provincial Forest Service and the hunter community a uniform nationwide game influence monitoring system was developed, that is now being implemented in the whole of Austria.

The situation of wildlife in Austria is to a large extent determined by the activities of man. In the course of increased land use the habitat of the game has been subject to continuous reduction and changes, but has at the same time been extended through migration of the game stock to new ranges (e.g. distribution of red deer, forest chamois, wild boar). Another important influential factor is **hunting and game management**. Hunting has a long tradition in Austria. Moreover, it constitutes an important economic factor for forest owners (lease of hunting grounds), the economy and ultimately also for insurance companies and the state (taxes). From the lease of hunting grounds a higher profit can be gained than through utilisation of the forest. This holds true especially for sites with low growth. *From the point of view of the forest authorities with over-preservation of game the protective function of the forest is lost and it can be restored only at a high financial, technical and public cost.*

Compensation of game damage is made to forest owners according to the hunting law. *In the view of the Austrian Alpine Association the economic importance of hunting has got to be relativized insofar as other forms of forest utilisation, like e.g. the forest as a place of recreation in the “hikeable” Austria, are by far more important for the economy, the insurance companies and the national*

*budget. The Umweltdachverband, an environmental umbrella organization, and the Austrian Green Party point in this respect to the need for comprehensive monetary assessments, that also include the costs related to a limited or lacking natural regeneration of the forest as well as to peeling damage. Apart from the economic importance also the ecological significance of hunting is undisputed. In terms of an orientation of hunting towards a sustainable development, especially in the field of ecology, there is still need for debate.* The living space for the game and thus the susceptibility of the forest to damage caused by game can be influenced positively or negatively by **forest management measures**. It is thus increasingly necessary to take into account the needs of the game and of hunting in the decision-making process of the management of forests and other land-use types. The aim is an optimization, in which forest management (land culture) has to be of primary importance. As regards the interrelated subjects forest damage, game browsing and peeling damage it has got to be taken into account that most forest owners do not have a direct influence on hunting due to area dimensions. Only in coherent real estates of 115 ha or more (minimum hunting area) the landowners have the right to hunt and are thus to a considerable degree also responsible for the extent of game damage in their forest.

### 2.1.2 Grazing Stock as an Influential Factor

In Austria around 40.000 agricultural enterprises are afforested with 170,000 “*Rindergräsern*” (old volume unit). The majority of pasturage rights (95%) affect the property of the Austrian Federal Forests. Forest grazing constitutes a further influential factor with respect to regeneration of the forest. According to the data of the Austrian Forest Inventory 2000/02 (BFW 2004) **browsing through grazing stock** is the cause for a lack of regeneration in 13% of forest area in need of regeneration.

With regard to the conflicting fields forest management and practice of forest grazing special need for action is seen in the field of protection forests, as in contrast to the commercial forest not only private interests, but to a very high extent also public interests are affected. According to the Austrian Forest Inventory 2000/02 (BFW 2004) grazing damage is cited as impeding factor on the productive protection forest areas expecting regeneration to 21% and on the non-productive protection forest areas in need of regeneration to 23%.

The ecological influences of forest grazing can be evaluated differently. Apart from possibly hampering forest



regeneration, forest grazing can also have positive effects in terms of nature conservation, of wildlife ecology and landscape aesthetics. In 2003 around 7% of the total forest area in Austria was used for grazing. Within this period 30 projects aiming at separating forest and pasture were concluded. Clearing of pasture areas for grazing only was necessary to the extent of 88 ha. The share of forest areas utilized for forest grazing has continually decreased over the past years; the number of animals has, however, remained constant.

**Grazing rights on other people's property are a component of the rights of afforestation confirmed by legal documents, which are legally subject to agricultural authorities. The different afforestation implementation laws on the level of the provinces regulate grazing in forests in the following solution approaches that sound almost identical:**

- Separation of forest and pasture
- Redemption of rights by means of transfer of (pure) grazing areas
- Redemption of rights by means of transfer of minority shares to agricultural communities
- Redemption of rights by means of compensation payment (with limitations, i.e. the permanent dispensability of the forest grazing right must be granted for the real estate enjoying it)

In extension to the fundamental law of 1951 all exercising laws of the Federal Provinces on dealing with forest and pasturing utilisation rights include an extensive paragraph on the redemption of such rights and also regulations on the implementation of a dis-entanglement of forest and grazing. According to the regulations of the afforestation law the separation of forest and pasture and also the compensation can be carried out officially upon claim of the obligated landowner, of the person entitled to the rights or if it is necessary in the interests of land improvement. Like every public law also the regulations of the provincial afforestation law in force can be implemented also against the will of the person subject to the regulation, i.e., "with force" by the executive authority in charge. Redemption of rights is carried out against the will of the obligated party or the party enjoying the rights by the executive authority also by means of a decree. This seems justified in those cases where the effectiveness of protection forests with a high object-protecting function is at risk.

The Forest Act as a legal means of regulation can be referred to only in exceptional cases (possibly in protected

forests by official notice). Basically the Forest Act stipulates that forests with afforestation have to be managed by their owners in such a way that the exercise of the afforestation rights is safeguarded. According to the Forest Act rights vested in regulation documents remain untouched. The Mountain Forest Protocol of the **Alpine Convention** includes a call for giving priority to the preservation of functioning mountain forests over forest grazing. Forest grazing shall thus be reduced to an extent that still allows regeneration of forests suitable for the site, avoiding soil damage and above all ensuring that the protective function of the protection forest remains intact, or it shall be completely stopped if necessary. Agricultural forest policy is called upon to take these objectives into account to higher degree.

*According to representatives of the afforestation association (Einforstungsverband) the existing legal framework in the area of forest grazing still requires explanations and amendments. The execution is regarded as not being efficient enough. Furthermore, an enhancement of the cooperation between forest and agricultural bodies, the forest owners with a pasture burden, the farmers exercising forest grazing, as well as the interest groups is regarded as advisable. From the angle of agriculture the partly inflexible attitude of the forest authorities in terms of clearing permits for the creation of pure grazing areas is criticized.*

Reasons for the inefficient implementation of the legal solution approaches lie primarily also in inadequate personnel resources, especially in executive authorities, lack of coordination across the provinces, infrastructural bottlenecks (e.g. lack of pure grazing areas) and partly in the fact that it does not constitute a political priority.

In practice there are different ways of solution, like e.g. the conversion of forest pasturage rights into rights to procure wood from the forest area in question, or the redemption of forest grazing rights by cessation of land ownership at the market value. The partly only limited success and the high costs of the procedures applied so far in order to achieve a forest-pasture dis-entanglement indicate that in addition to the tools laid down in the statutory provisions there is a need for flexible solutions, to be implemented within the framework of a voluntary reconciliation of interests among all parties involved. Within the framework of projects of the avalanche and torrent control characterized by an economic utilisation of space, generally already now a reorganisation of the afforestation rights is aimed at.

### 2.1.3 Damage through harmful insects

The threat posed by bark beetle calamities is still present. The year 2003 saw one of the highest levels of wood loss (1.8 million m<sup>3</sup> of timber harvested according to harvest volume report) due to bark beetle in Austria since the records started more than 50 years ago. A problem lies in the extension of the infestation area into higher altitudes as a result of climatic changes, which is further aggravated by insufficient forest hygiene. Additionally, the natural forest communities rich in spruce are more susceptible to bark beetle infestation because of the (prognosticated) climate change. A stand decline at these altitudes would also have an adverse effect on the protective function of the forest. Thus, strategies are required also for these spruce forests. The Umweltdachverband (an environmental umbrella organization), the Nature Conservation Federation, and the "Kuratorium Wald" regard bark beetle calamities as a frequent intermediate stage of the natural succession processes and stress the great importance of insects, among other factors, for the biodiversity of the forest. Therefore in protected areas (national parks, natural forest reserves) there would not be any need for measures or at least the implementation of only limited and adapted forestry measures would suffice. *From the point of view of the forest authorities there are clear legal provisions in this regard (§ 32a of the Forest Act). The Forestry Department points to the fact that for example with contractual nature conservation programmes like e.g. the "retirement of trees" good solutions supported by all parties could be found.* For current numbers of wood loss and affected areas refer to the current Austrian Forest Report as well as the harvest volume report.

**Insect calamities** correlate with the extreme weather incidents (e.g. storms, drought). Climate change further influences the occurrence of insects and diseases. As a consequence of an expected warming the distribution area is extended (what can already be observed). The migration of harmful insects across country borders represents a major influential factor. Many harmful insects also profit from worldwide trade and travel.

*Participants in the Forest Dialogue refer to scientific findings (the WWF views this as "undisputed"), according to which second-growth pure stands, especially in lower areas, generally exhibit a higher disposition for infestation by harmful insects, and a possible approach for a solution is seen in a stronger orientation towards natural flows of processes in the forest. From the forestry point of view it has to be stated that particularly over the last few years*

*the predicted distribution areas has been markedly extended and shifted (horizontally and vertically). Likewise current experience with natural or close-to-nature forest stands (e.g. in the National Park Kalkalpen) shows that harmful insects can extensively endanger forests, which make preventive and counter strategies necessary that are especially harmonized between forest management and nature conservation, and are science-based.*

The conversion of pure spruce stands that were established partly already centuries ago on sites that were not optimal for the species, takes quite some time. According to the Austrian Forest Inventory 2000/02 the establishment of pure conifer stands is declining sharply. In consequence, there are more broad-leaved trees and shrubs in Austria and spruce is decreasing. With the 2002 Amendment to the Forest Act new regulations for forests with special habitats (Biotope Protection Forests) were introduced, allowing the authorities under certain circumstances to defer explicitly cited forest protection regulations (§ 32a), thereby creating the legal background for a reconciliation of forest-related interests and other public interests (like e.g. strategies of the nature conservation policy).

### 2.1.4 Forest Utilisation as an Influential Factor

Human activities influence the occurrence and the extent of the other biotic and abiotic agents having an impact on the forest factors as mentioned in Chapter 2.1. Examples of these factors are the selection of tree species as well as their origin, the selection of the harvest and regeneration method, and the selection of **silvicultural measures** in structuring and mix of forest stands. Measures within the framework of sustainable forest management safeguard the stability of the forest stands. *The National Federation of Agricultural and Forest Enterprises, however, points to possible natural disasters, that might not be within the scope of human influence.*

Countermeasures to calamities of insects damaging the forest and strategies for safeguarding and restoring the protective function of forest stands (within the framework of provincial protection forest concepts) require forest management measures. Experience in the past has demonstrated that the impact of insects and storms on forests can be influenced positively or negatively. In the case of extreme storms, though, the damage is as a rule independent of the type of forest management applied. However, clear-cutting systems can, depending on their type and size, increase its susceptibility. In the case of low wind speed experts see a connection between the

composition (texture and structure) of the site and its border with the susceptibility of the forest. Thus, an appropriate selection of tree species, the harvest type and the selection of regeneration procedures particularly adapted to site and stand conditions, as well as adequate forest tending measures become important factors for the vitality and stability of forest ecosystems. Another example for human influential factors constitutes the disturbance of the game through human activities (e.g. certain forms of forest visits, the exercise of sports and hunting), which in consequence can be conducive to forest damage through browsing. The manifold utilisation of the forest can also directly lead to damage, especially to stem and root injuries through wood utilisation. According to the Austrian Forest Inventory 2000/02 (BFW 2004) around 6% of the stems in commercial forests exhibit **damage through timber harvest**. The development of damage in the course of timber harvesting has shown a downward trend in the last decade, what can probably be attributed to the increased application of careful harvest methods in stands.

### 2.1.5 Climate Change as an Influential Factor

New and ever more reliable scientific findings prove that the major part of the global warming observed over the last two decades can be attributed to human activities. Since 1961, the beginning of systematic meteorological records, the global mean temperature has risen by 0.6+/-0.2 °C. The mean surface temperature of the Northern hemisphere has probably risen to a larger extent than in comparable periods of the last 1000 years. It is feared that until the year 2100 the temperature will rise by between 1.4 and 5.8 °C as compared to 1990 (IPCC 2001). A change of temperature of that dimension would be bigger than all natural oscillations in temperature observed during the last centuries. Likewise, the dynamic, that characterises these processes, is unusual. The changes in temperature occur at a pace not seen in the last 10,000 years.

In Austria, for instance, the temperature has risen by 1.8 °C in the 20th century, affecting all altitudes. A further increase in annual mean temperature due to climate change is expected. In this connection it has also got to be stressed that the rise in temperature in the alpine region is much greater than in the global mean. The latest scientific results (Hadley Centre in Great Britain) indicate an increase in temperature in summer by between 5 and 11 degrees at least for the West of Austria. This increase is thus many times higher than predicted in previous forecasts. Predictions with respect to precipitation vary according to the climate model applied, in terms of the direction of the

changes as well as regarding the extent and the seasonal distribution to be expected. It can be assumed that especially precipitation changes can be regionally different to a considerable degree. Generally, an increased occurrence of extreme weather conditions can be expected (storms, periods of drought, high volumes of precipitation). In the light of these consequences of the anthropogenic climate change, that can already be observed, and of the fact that these consequences will be even more pronounced and more frequent in the decades to come the living conditions for forest ecosystems will be greatly changed in the medium and long term. The efficiency of the possibilities of silviculture of exerting an influence is to be doubted. Yet, the development and implementation of measures (e.g. the selection of tree species, stand composition, management concepts) in order to achieve an adaptation to the consequences of climate change is regarded as vital.

**A study of the year 2001 (Lexer et al. 2001) on the consequences of a possible climate change for the Austrian forest, on the basis of an assumed scenario of a rise in temperature by only up to 2°C and a reduction of precipitation by up to -15% for the year 2050 had the following results:**

- In the next decade in lower areas partly drastic consequences due to tree mortality have to be expected. Especially secondary spruce forests in lower areas will be affected. A regulated management of these spruce stands on often unfavourable sites seems not to be possible any more at that stage. Remark: The Federal Research and Training Centre for Forests, Natural Hazards and Landscape (BFW) points to the fact that this kind of stand represents only a small share of forest area, and is on the decrease due to forest policy efforts.
- According to the results of the model in higher altitudes effects in the short to medium term will not be that obvious. Calculations indicate that a higher productivity of the forest stands (rise of the wood increment) can be expected.
- The expected long term consequences will probably be more important in high altitudes than in lower areas. This is due to the fact that given the warmer conditions it will also be possible for broad-leaved trees to compete with the conifers dominating today. Forest managers will therefore have a much wider scope of possibilities.
- In the lower areas that are warmer already today beech will remain as a potentially natural tree





species, while oaks will become more competitive in comparison with beech trees.

- “Risk of steppization” is to be feared only for few sites that are of an extreme nature already today. Dry areas are, however, very sensitive to only small changes in precipitation regimes.

For the practice of forest management, science can and shall provide the basis for planning and the taking of decisions. Very promising in this respect are dynamic forest ecosystem simulation models, as they allow quantitative assessments. The results of these models are to relativate insofar as it has taken a very long time for forest ecosystems to develop today’s characteristics. The current prognoses, that indicate a very fast pace of climate changes, constitute a reason for concern about the fact that the **natural adaptability** of forest ecosystems will not be far-reaching enough to ensure the preservation of the

stability and the ecological functioning as well as the satisfactory fulfilment of the multi-functional forest effects. In terms of possible consequences of a climate change with respect to increased bark beetle infestation and increased risk of forest fires also refer to Chapters 2.1.3 and 2.1.7.

There are considerable difficulties for forest management to adapt to the continuously changing conditions. Firstly, prognoses are characterized by uncertainty factors and secondly, extreme individual incidents can assume high significance, concealing, whether predicted trends actually would have proven true. With regard to the actual possibilities and effects of adaptation measures taken by forest management planning in the light of an orientation in the short, medium and long term there are knowledge gaps and possibilities are limited by natural factors. In view of the experience made so far it can be assumed that as a rule close-to-nature forest stands and stands with natural

selection appropriate for the site exhibit a much wider amplitude of adaptation than artificially established stands with non-native tree species mixes. With respect to possible advantages or disadvantages of the cultivation of exotic/ alien tree species expert views differ.

**In the Helsinki Resolution H4 the signatory states, and therefore also Austria, have committed themselves to promoting research in order to**

- record the consequences of a possible climate change for the forest ecosystems and forest management
- examine the capacity of the forest ecosystems to adapt to climate changes and forest management
- explore possibilities for contributions of forest management to an assessment of the negative effects of the climate changes

**In the Annex to the Helsinki Resolution H4 the following need for investigation is laid down:**

- development of a genetic monitoring
- recording of changes in the reproduction of forest trees
- investigation of the effects of silvicultural treatments in terms of the genetic composition of the stands with special consideration of their adaptability
- establishment and analysis of provenance tests along temperature gradients.

#### 2.1.6 Storms as an Influential Factor

At **several years' intervals** severe hurricane-like storms occur in Europe, causing a high degree of damage also in Austria. According to the Austrian timber felling report 2003 in the year 2003 5.3 million m<sup>3</sup> underbark of wind-thrown wood were recorded. For the annual amount of storm-damaged wood (like also corresponding time series), and the area affected refer to Austrian Forest Report and the timber felling report. Experience shows that very frequently forest stands are affected irrespective of their degree of naturalness, but in dependence of the regional intensity of the storm incidents. In the light of the climate changes expected, it can be assumed that also the intensity and perhaps the frequency of storm incidents and in consequence also the risk of storm damage will rise.

**The consequences of storm incidents observed or possible are manifold:**

- considerable changes in the ecosystems in the short term, like e.g. changed succession dynamics, loss of species and destruction of habitats
- difficult challenges for forest management, like e.g. increased time and effort in forest management





planning, changes in forest utilisation, difficulties in the harvesting of timber, increased logistic effort

- timber market: sales difficulties, price reductions, logistic problems
- consequences for the natural scenery and possible impediments in the development of the rural area (loss of utilisation options) etc.

### 2.1.7 Forest Fires as an Influential Factor

Forest fires **do not play a prominent role** in Austria. In Austria small forest fires occur every year, most frequently in the East of Austria. Large forest fires, however, occur only very rarely. The increased drought and the deficit in precipitation have not only in global terms but also in Austria led to a peak of forest fire incidents in 2003. Internationally, Austria is a role model in the field of forest fire prevention through demand-oriented legal regulations as well as through counselling and awareness training. With the establishment of a working group Austria has reacted to the increased demands. Intensified measures of public relations work, information of the bodies concerned and international cooperation are planned. Also planned are a classification of areas into different fire risk categories and the provision of differentiated precaution measures in accordance with European guidelines.

### 2.1.8 Ambient Pollution as an Influential Factor

The forest constitutes an important sink for harmful substances. **Sources** of substances harming the forest are industrial point emitters, traffic, domestic fuel, and agriculture in Austria and partly also in other countries. The elevated input of harmful substances into the forest in comparison with the respective input into non-forest areas is caused by higher filtering properties of the forest due to the larger leave area in contrast to the crown canopy area, the surface roughness of the crown canopy and the property of leaves and needles of storing harmful substances (litter fall, extraction of biomass occurs much more rarely than in other ecosystems). **On a small area scale** the Austrian forests are endangered especially by the harmful atmospheric substances sulphur dioxide, nitrogen oxide and fluorohydrogen, as well as road salt, and volatile organic components. **On a large area scale** the domestic forests are stressed by ozone, eutrophication and acid depositions as well as by diffuse inputs of heavy metals and harmful organic substances. Thanks to significant success of the Austrian clean air policy, by international standards considerable emission reductions could be achieved, especially in the areas of industry and trade.

The total of the emitted harmful substances sulphur dioxide, fluorohydrogen and the volatile hydrocarbons and lead has markedly decreased in Austria in the period of 1980 to 2000. This means that concentrations of sulphur dioxide in the atmosphere decreased noticeably, while nitrogen dioxide concentrations and nitrogen uptake fell only slightly.

Effects of elevated input into forest ecosystems of part of the harmful substances are scientifically well documented and atmospheric limit values for the protection of the forest are available. There is, however, also an increased uptake of harmful substances in forest ecosystems, where the effects are still unknown (e.g. highly toxic, accumulating organic harmful substances like dioxin). A special sink for accumulating heavy metals (e.g. lead, cadmium) and for organic substances that are brought into the atmosphere is the forest soil. Negative consequences of the input of harmful substances not only concern the forest vegetation but also the herbivores as well as other parts of the food chain including humans (e.g. via mushrooms, berries and wild animals).

Experts point to additional risks for the forest ecosystems and the health of humans, animals and plants in connection with the creation of “secondary atmospheric pollutants” (e.g. ozone that is also built by means of photochemical reactions from primary atmospheric pollutants) and call for new sets of measures or the further development of those already existing.

Irrespective of the by international standards very ambitious emission reductions it has to be stated that the **legal regulations** currently in force do not safeguard a comprehensive protection of forest vegetation from ambient pollution. No regulation takes into account the synergistic effects and the fact that also sub-toxic concentrations or doses can indirectly have negative effects.

***In Austria the following legal regulations for the protection of forest vegetation from atmospheric pollutants are in force:***

- **Second Ordinance against Forest-damaging Air Pollutants** (FLG 199/1984), that only refers to industrial plants, and thus does not include e.g. domestic fuel and line sources like traffic routes. There is de facto a protection by law only for a small part of the Austrian forest area, i.e., for that area, where emissions can be clearly attributed to one or more sources and have caused a measurable damage to



the forest floor and natural forest cover. The regulation does not comprise limit values for NO<sub>x</sub> and ozone or the synergistic effects of the harmful substances. Additionally, it is not taken into account that the effects of ambient pollution in winter have to be evaluated as strictly as those in summer.

- **Ambient Pollution Control Act** (FLG 115/1197): For a comprehensive protection of the vegetation the law lacks binding SO<sub>2</sub> and NO<sub>x</sub> threshold values on the basis of daily and half hour means supplementing the already existing annual mean. Threshold values for acidifying and eutrophication inputs are also lacking, as this represents first and foremost a border-crossing issue, which must be solved at the European level. With the provisions of the EU with regard to the positioning of the measuring points (measurements at only few kilometres' distance from conurbations or streets with heavy traffic) there is a risk that an exceedance of an ambient pollution threshold value cannot be detected. In contrast, the Economic Chamber of Austria states that the existing legislation seems to be sufficient. Because of the topographic structure of Austria with its great number also of large valleys many parts of the forest are not included. An overview of the exceedance of threshold values of the Ambient Pollution Control Act-Air (IG-L), and its regulations is provided in the report to the National Council prepared every three years according to § 23 IG-L.
- the **Ozone Law** contains target values and long-term objectives for the protection of human health and vegetation. The target values have to be adhered to as of 2010. The long-term target will be in force as of 2020. Measurements have shown that target values for Ozone are currently being highly exceeded.

The analysis shows, firstly, a certain need for development of a legal basis especially in terms of a modernization of the regulation against air pollution damaging to forests and, secondly, the need for a consequent execution of existing fields of law along with an optimization of the positioning of measuring points in order to ensure a more efficient protection of forest ecosystems.

#### **Need for research is seen in the following areas:**

- Explanation of the discrepancy between the bad nutrition situation with the main nutrition element nitrogen that characterizes large areas, and the increased input of atmospheric nitrogen or exceeding of critical loads.

- Establishment of critical loads maps for the whole of Austria.
- Definition of socio-economically justifiable input scopes in terms of harmful substances.
- Evaluation of a possible threat to the quality of drinking water through current inputs of harmful substances into forest ecosystems.
- Establishment of ozone risk maps by taking into consideration the stomatal conductivity, pre-industrial concentrations of ozone as well as naturalness.
- Combination of the ozone risk map with further monitoring results on a nationwide level.
- Evaluation of the stress situation of selected forest areas on the basis of stress indices tested.
- Combination of Austrian data of the Austrian forest bio-indicator grid with the Geographic Information System for the data base-supported presentation of the effects of sulphur ambient emissions and the nutrient situation concerning certain regions and the whole of Austria.
- Derivation of critical loads for heavy metal inputs.

#### **2.1.9 Degraded Forest Soils as an Influential Factor**

Forest soils have been subject to far reaching changes and burdens **through historical ways of land use** (e.g. litter removal, pollarding, pasture, shifting cultivation, deforestation and reforestation with tree species partly not appropriate for the site) especially during the last decades through increased inputs of harmful substances.

But not all forest soils are acidified because of human influence. There are also forest types where the soil is inherently acidic, like for instance acid-soil high altitude spruce forests and acid-soil pine forests. A base saturation in the mineral soil of less than 10% generally points to a need for melioration. These types of soils are found in 10% of the areas covered within the framework of the Austrian Forest Soil Condition Inventory. Extremely poor in bases (with a base saturation that drops below 5% in the mineral soil) are roughly 2% of Austria's forest soils. These sites with an insufficient supply of bases are, however, more frequent in certain areas, which require soil rehabilitations.

According to the latest state of knowledge, for forest trees there is currently in large parts of Austria probably no immediate threat through the examined heavy metals. Relativizing this, it has to be remarked, though, that only a selection of heavy metals has been investigated in larger areas so far and that knowledge about the effects of



heavy metals on forest ecosystems is still very fragmentary. The higher altitudes, that are inherently already of a very sensitive nature, are increasingly affected by the ambient pollution due to their exposed situation. In this regard not only possible damaging effects of accumulating heavy metals have to be kept in view, but also their nature as (easily detectable) indicators of ambient pollution, since with the heavy metals also other harmful substances are deposited in the forest ecosystem and finally on the forest soil. Furthermore, locally there are forest areas in the proximity of sources, where already now a many times elevated input of heavy metals can be registered.

In terms of **soil compaction** through the use of wood harvesting machines there is still need for research, especially in relation to the whole-tree harvest and the consideration of the weather conditions at the time of harvest. Through certain utilisation techniques in the timber harvest (no utilisation of brushwood and bark) nutrient losses and sources of acidification can be minimized. Certain enterprises have refrained from applying the whole-tree harvest method on sensitive sites (e.g. with shallow, sandy soil) due to internal instructions for action. In this way, the removal of nutrients in forest harvesting is reduced and increment losses in the remaining stands or succession stands are avoided.

From the fact that to a large extent only in forests soils with a natural structure are found, it can be concluded that a traditional form of forest management that treats the soil carefully has been applied. Especially because of forest and climate policy targets the generation of energy from biomass is to be pushed. In this regard, it has to be taken care, however, that the removal of biomass rich in nutrients (needle and leave mass, small branches) has an adverse effect especially on sensitive sites (e.g. with shal-

low, sandy soil) and can result in considerable increment losses. In the applicable version of the Forest Act of 1975, among others, the objective was laid down that the forest soil and its productive force are to be sustainably preserved. Special regulations like e.g. the prohibition of improper fertilization and the dumping of waste products (e.g. sewage sludge) provide the essential legal basis in that regard.

The Advisory Board for Soil Fertility and Soil Protection of the Federal Ministry of Agriculture, Forestry, Environment and Water Management has published regulations on the appropriate application of plant ashes in the forest. Plant ashes from natural (not chemically treated after harvest) plant parts that comply with certain provisions constitute valuable secondary nutrients for agriculture and forestry.

An essential precondition for forest soil protection is the knowledge of the respective soil condition and of its changes. Monitoring projects (Soil Condition Inventories) are a prerequisite in this respect, allowing the implementation of adequate measures. The European Commission is currently working on a draft for an **EU Soil Protection Strategy**, that includes the endeavour to develop legal regulations for a monitoring of soils across land-use options covering the whole of Europe. On an international level and by way of a European soil utilisation strategy the importance of organic substance in the soil as a carbon sink and therefore at the same time its significance for climate and climate changes is underscored (Kyoto Process). In this respect there is also a call for dedicated concepts of management to retain and increase the organic substance in the soil. Also the Protocol "Soil Protection" of the **Alpine Convention** signed by the Republic of Austria aims at a reduction of qualitative and quantitative soil impediments in the Alps.

## 2.2 Principles and Goals

### Principles

---

- (P4)** Sustainable conservation of operating forest ecosystems and of all forest functions
- (P5)** Best possible protection of forests against biotic and abiotic risks
- (P6)** Medium and long-term improvement of degraded forest soils, to comply with environmental quality goals to be established
- (P7)** Reduction of air-pollution emissions and climate-relevant gases to an extent tolerated by the forest and with due regard to the precautionary principle

### Goals

---

- (Z7)** Application of ecosystem-oriented (silvicultural) management methods (particularly adapted to specific site and stand conditions) in the framework of sustainable forest management (including appropriate planning and execution)
- (Z8)** Sound balance of requirements for forest protection, game stock density, pasture management and of private and public interests in forests, taking into account forest land-use planning
- (Z9)** Consistent execution of existing laws of relevance to air pollution control and further development of the statutory protective provisions regarding forest-damaging air pollutants based on scientific expert opinions
- (Z10)** Enforcement of forest site mapping in order to implement the provisions of the Alpine Convention according to existing relevant recommendations, periodic realisation of a forest soils survey and further development towards a monitoring of soils across land-use options
- (Z11)** Maintaining and improving the resistance of forests against abiotic and biotic risks
- (Z12)** Best possible reduction of emissions according to the state-of-the-art in the fields of transport, industrial plants and domestic fuels in Austria and, in particular, in the countries whose air pollutants reach Austria due to long-distance transport



## 2.3 Fields and Sets of Measures

### Thematic Area 2

#### Health and Vitality of Austrian Forests

#### Field of Measures

2.1 Protection against pollutants

2.2 Soil protection

2.3 Forest protection

#### Set of Measures

2.1.1 Legal incorporation of thresholds and synergetic effects of emissions according to the present state-of-the-art

2.1.2 Evaluation of existing measuring networks, their forest concern and possible adaptation

2.1.3 Reduction of forest-related air pollution emissions in all areas, by means of enforcement of the state-of-the-art and evaluation of local load situations

2.2.1 Emphasis on site typologies and cartography, and Austrian-wide soil inventories via a single monitoring system, according to internationally agreed methods

2.2.2 Elaboration of consultation documents in forest management, especially on ecologically sensitive sites, and intensification of related counselling activities

2.3.1 Further development of site and stand specific risk assessment methods with regard to impacts of abiotic and biotic damage factors; risk assessment; establishment of methods for monitoring, prognostic and control of pests and pathogens; evaluation and expansion of quarantine lists; improvement of the empirical knowledge base





## Thematic Area 3

# PRODUCTIVITY AND ECONOMIC ASPECTS OF AUSTRIAN FORESTS



**3.1 CURRENT STATE:** There are various raw materials from the forest, wood in particular, that are used and processed. Also, the forests and forest managers deliver many services to society.

### 3.1.1 The Forest as an Economic Resource

#### *Forest area and tree species composition*

According to data from the Austrian Forest Inventory 2000/02 (BFW 2004) the actual **forest area** has increased to a share of 47.2% of the national territory, i.e. 3.96 million hectares. Since the introduction of the nation-wide forest monitoring with the first inventory period in 1961/1970, the forest area has **increased** by a total of 270,000 hectares to date. In comparison with the previous survey period of 1992/96, the increase of forest area has slightly slowed down to 5,100 hectares annually. 90% of the total increase of forest area takes place in small-scale forest farm holdings of less than 200 hectares, particularly along forest borders. Major increases of forest area are noticed in both higher pasture regions and regions of supposedly weak infrastructure, where the interest in intensive agricultural use is decreasing. A significant increase in forest area has also been noticed in the traditionally low forest cover regions of Eastern Austria. The potential **need to react** to the increase of forest area must be evaluated depending on each site. On the one hand, forest cover increase may improve protective func-

tions and carbon storage capacities, but on the other hand – besides a possible loss of aspects of biological and landscape diversity – it may lead to a significant reduction of important open spaces for the population and tourism. From the point of view of nature conservation, emphasis is placed on the fact that a loss of open areas often concerns special sites and rare biotopes such as humid grassland, dry and nutrient-poor grassland, mowed mountain grassland etc., and that consequently valuable living habitats for specially adapted plant and animal species may disappear due the encroachment of scrubs or reforestation. In some communities with a high forest cover, attempts are already being made to oppose a further increase of forest area by measures of agriculture.

According to the Austrian Forest Inventory the **commercial high forest** accounts with 76% for the highest share of forest area. About 19% of forest land is **protection forest**, i.e. forest under special management regulations because of its ecological sensitivity and direct importance for society. One third (7%) thereof is productive protection forest, and two thirds (12%) are non-productive protection forest.





Non-productive protection forests are protection forests of difficult or impossible access and stands of naturally very little growth production. 2% of the forest area is coppice forests. The remaining 3% are non-productive forest land. With regard to forest functions, reference can be made to data from the Austrian-wide forest development planning, which indicates that the primary function of 64.6% of the Austrian forests is the productive function, of 30.7% the protective function, of 3.6% the social function and of 1.1% the recreational function. However, generally every forest fulfils more than one function at the same time. The above mentioned data refer to the primary functions assessed in the field in the framework of the WEP revisions (every 10 years) and which are deducted from the evaluation of the highest public interest.

Regarding **tree species** and mixture, a tendency towards mixed stands with a higher share of broad-leaved trees and a simultaneous decline of pure spruce stands can be observed independently of the ownership structure. The share of broad-leaved species and shrubs in Austrian forests is generally increasing (BFW 2004). This is an indicator of a more close-to-nature forest management. In the long run, this development can lead to an increased offer of hardwood in comparison with softwood from Austrian forests.

#### ***Growing stock and utilisation potential***

The tendency of increasing **growing stock** in the forest which has prevailed for many years now has been continued. Results from the Austrian Forest Inventory 2000/02 (BFW 2004) show that in Austria the annual utilisation amounts to 18.8 million of m<sup>3</sup> standing whereas the forest increment is 31.3 million m<sup>3</sup> standing. This means that only two thirds of the annual increment of wood is used in forestry. The total growing stock in the forests has increased to 1.095 billion m<sup>3</sup> standing.

The reasons are again the significant increase in **increment** and the parallel decrease in the utilisation of trees. Unlike the increment, which can only to a limited extent be controlled by economic measures, the development of **utilisation** provides a different picture depending on the ownership category: whereas utilisation in small-scale forests has decreased by 10% in comparison with the survey period of 1992/96, it has increased by about 12% for the large-scale holdings over 1000 hectares. For the Austrian Federal Forests (ÖBf) it has decreased slightly by 2% (BFW 2004). In total, in Austria like in the whole of Europe, only part of the annual forest increment is utilised. **Utilisation reserves** exist mainly in small-scale forests (forest holdings smaller than 200 ha). As opposed to large-scale forests (forest holdings of more than 200 ha, not including

the ÖBf) with a utilized share of 68%, and the Austrian Federal Forests (ÖBf) with 81%, in small-scale forests only 46% of the increment are used. In the survey period of 2000/02 the highest utilisation of increment of 95% took place in large-scale enterprises of more than 1000 hectares. Differences exist also between coniferous and broad-leaved forests. Whereas 64% of the increment in coniferous wood is used, the corresponding value for broad-leaved wood is only 44% (BFW 2004).

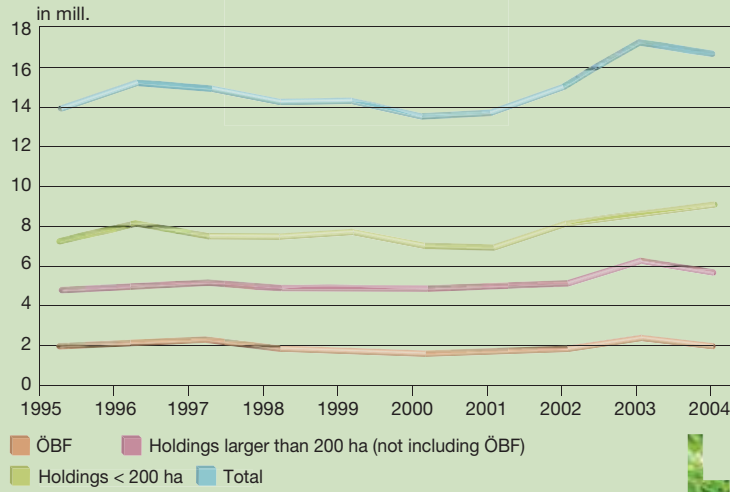
There is almost no difference in the proportion of the utilisation of increment for commercial high forest (61%) and productive protection forest (62%). However, the utilisation in coppice forests amounts to only 42%. When linking the forest management system with the forest ownership type, it turns out that small-scale foresters use only 46% of the increment in the commercial high forest, and, with 54%, a little bit more in the productive protection forest. Quite to the contrary, the large-scale forest holdings and the Austrian Federal Forests, respectively, use 87% and 83% of the increment in the commercial high forest, but only 68% and 66% in the productive protection forest (BFW 2004). The theoretically possible felling volume lies above the average felling volume of the last 10 years. Under sustainable forest management, however, it is not possible to use the whole timber increment for forestry, due to natural mortality of trees, for example, or to insufficient productivity of the harvesting measures on particular sites. Usually, the reachable utilisation potential on favourable sites lies above average, and below average on sites where extraction is difficult. If the overall sustainability criteria as indicated in the Forest Act are complied with and if there is an adequate demand for wood (no price decline due to additional offers), a higher utilisation of the annual timber increment is reasonable because it creates economic and entrepreneurial advantages (e.g. job security) and ascribes an adequate value to wood as a renewable and reproductive raw material.

According to the **timber felling report 2004** (BMLFUW 2005b), the timber harvest in Austrian forests amounted to 16.48 million m<sup>3</sup> under bark in 2004. This was 3 % below the value of the previous year (17.06 million m<sup>3</sup> harvested), 10% above the five-year average (5-Ø; 2000-2004, 15.03 million m<sup>3</sup> harvested), and 12% above the ten-year average (10-Ø; 1995-2004, 14.68 million m<sup>3</sup> harvested) (see Fig. 3). The total removal in 2004 can be divided into 8.61 million m<sup>3</sup> unterbark. of saw logs with a diameter > 20 cm (52%), 1.41 million m<sup>3</sup> unterbark of saw logs with a mid-diameter < 20 cm (9%), 2.92 million m<sup>3</sup>



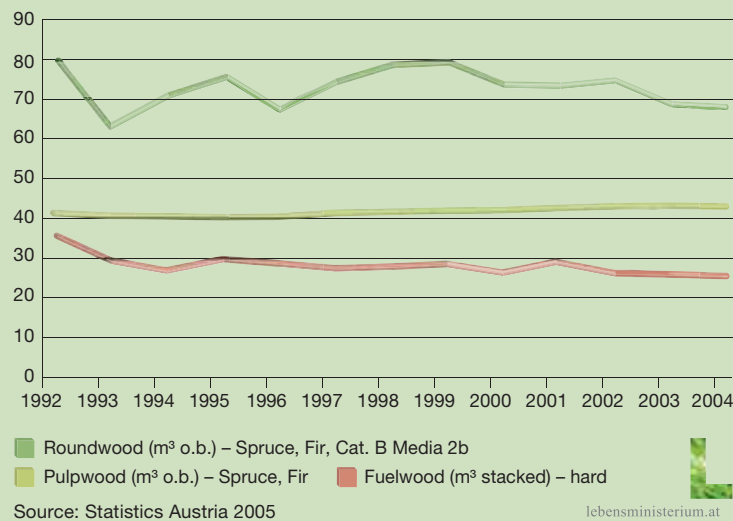


## Wood removals by type of ownership

in m<sup>3</sup> unterbark (Fig. 3)

## Development of timber prices

in EURO (Fig. 4)



unterbark of pulpwood (18%) and 3.54 million m<sup>3</sup> unterbark of fuelwood (21%). The share of damaged wood amounted to 5.55 million m<sup>3</sup> harvested (34%) and was thus by 33% below the record value of the year 2003. The share of conifers in total removal amounted to 85%. Small-scale forest owners (forested area <200 ha) felled 8.93 million m<sup>3</sup> unterbark, 5% more than in 2003. The share of small-scale forests in the total removal was 54%. In large forests (forested area of more than 200 ha, not including the Austrian Federal Forests) the removal decreased by 9% to 5.53 million m<sup>3</sup> unterbark. The total removal share was 34%. The Austrian Federal Forests decreased felling by 19% to 2.02 million m<sup>3</sup> unterbark and had a share of 12% in the total removal (see Table 1).

Figure 4 illustrates the development of timber price over time. In 2004 sawmills paid an average of EUR 67.88 per m<sup>3</sup> of spruce/fir saw log, Cat. B, Media 2b, which was 0.1% less than in 2003. The mixed price for spruce/fir pulpwood/mechanical pulpwood of EUR 27.45 per m<sup>3</sup> was by 2.1% lower than the average for the previous year. The price for pulpwood (spruce/fir) of EUR 25.67 per m<sup>3</sup> was 1.4% lower than in the previous year. The price for mechanical pulpwood of EUR 31.54 per m<sup>3</sup> was by 2.3% lower. The price for hard fuelwood remained almost unchanged at EUR 43.07 per m<sup>3</sup> (-0.3%), and so did the price for soft fuelwood with EUR 27.49 (-0.3%).

The removal from intermediate felling amounted to 4.60 million m<sup>3</sup> u.b. in 2004, i.e. 28% of the total removals. This represents a surplus of 7% compared with the previous year, a surplus of 3% compared with the 5-year average and a surplus of 7% compared with the 10-year average. The reason for the relatively low degree of utilisation of the quantitative potential of wood production lies in the fact that it is not economically sound under the present framework conditions to produce and harvest for commercial purposes on every forest area.

Particularly in mountain areas forestry is often faced with conditions that make profitable forest production increasingly questionable (e.g. difficult accessibility, forests unavailable for mechanical operation, unprofitable wood qualities). Therefore, it is expected that **unfavourable sites** will be excluded from regular management more frequently. Consequently, the potential of actually available raw material will decrease and at the same time the capacity of forest enterprises to invest in the conservation and improvement of forest assets (e.g. forest land, growing stock, business infrastructure, personnel) will decrease as



**Wood removals 2004 in the 10-year average in m<sup>3</sup> u.b. (Tab. 1)**

Type of ownership	Removals 2004 in million m <sup>3</sup> u.b. (in %)		Removals 1995–2004 in million m <sup>3</sup> u.b. (in %)	
Small-scale forest (smaller than 200 ha)	8.93	(54%)	7.62	(52%)
Large forest (larger than 200 ha, not including ÖBf)	5.53	(34%)	5.01	(34%)
Austrian Federal Forest Company (ÖBf)	2.02	(12%)	2.05	(14%)
<b>Total</b>	<b>16.48 million m<sup>3</sup> u.b.</b>		<b>14.68 million m<sup>3</sup> u.b.</b>	

Source: BMLFUW 2005 | Timber felling report 2004

well. Limitation or withdrawal of management can have strong impacts particularly on those protection forests that only can fulfil their function if appropriate tending measures take place.

**For small-scale forest owners the following additional reasons account for the low rate of utilisation of wood increment:**

- lack of work force and competence for the work in the forest (external labour is rarely employed for cost reasons; family labour force, for example, is mainly used for scheduled work in agriculture)
- often extreme underestimation of business-specific potential of utilisation (no planning documents, e.g. forest management plan)
- small structure, little size of forest holdings and little quantities for marketing per forest owner
- low degree of mechanisation and bad accessibility of the forest
- low timber prices

Part of the forest resources are not available for the economy either because some of the owners, namely the growing number of urban forest owners who are not familiar with agriculture, have other interests than obtaining economic income from forests (Hogl, Pregernig, Weiss 2003). The changes in ownership structure towards the “new” farm-distant forest owners in the past years have led to knowledge gaps with regard to the possible utilisation of wood reserves and the need of forest management.

From the forestry point of view, a more intense utilisation of yield potentials is only reasonable if required by the market conditions. With low demand and/or low timber prices higher felling rates can lead to a decline of timber prices and insufficient profit margin undesired by forestry. Small-scale forestry reacts most strongly to the current

price level, and due to its high flexibility regarding the felling volume it has a quantity and price stabilising market function.

The aforementioned reasons for the partial utilisation of the annual increment show that the actually possible potential is below the theoretical potential of utilisation. Further **analysis is needed** with regard to the actually possible potential of utilisation. In addition, strategies for raising these potentials must be developed.

With regard to **quality**, the theoretical yield potential is often not exploited either. A number of qualitative factors such as distribution of tree species and wood quality can only be influenced or improved by means of silvicultural methods over very long periods. Game has also an essential influence on the qualitative yield potential (see Chapter 2.1.1). Other qualitative factors such as the comparatively unfavourable distribution of assortments in small-scale forests, indicate structural problems.

**Types of forest management**

Several types of forest management (silvicultural methods) serve to fulfil the respective objectives of the forest enterprises. Each management system has special economic and ecological effects depending on site-specific conditions. Chapter 4.1 deals with the ecological impacts of forest management systems (e.g. the role of silviculture on naturalness and biodiversity of forests). In the following, the economic impacts (e.g. costs, respective timber assortments) of several forest management systems and harvest methods shall be presented (e.g. the role of silviculture for wood quality and site productivity).

Data of the Austrian Forest Inventory 2000/02 (BFW 2004) relating to results of utilisation according to **harvest methods** show that, compared with the results from

### Harvest methods as represented in the annual overall harvest separated by types of forest ownership in percent (Tab. 2)

Harvest method	Small-scale forest (Forest area < 200 ha)	Large forest (Forest area > 200 ha, not incl. ÖBf)	ÖBf
Natural mortality	7%	6%	9%
Clear cutting > 500 m <sup>2</sup>	6%	34%	26%
Thinning incl. increase of growing space	14%	13%	10%
Regeneration felling incl. final felling	22%	26%	37%
Small-scale felling incl. unregulated felling and clearing	32%	20%	18%
<b>Total</b>	<b>100% (9.0 mill. m<sup>3</sup> o.b.)</b>	<b>100% (7.1 mill. m<sup>3</sup> o.b.)</b>	<b>100% (2.7 mill. m<sup>3</sup> o.b.)</b>

Source: BFW 2004 | Austrian Forest Inventory 2000/02

### Extraction techniques as a percentage of the average overall felling in percent (Tab. 3)

Extraction methods (tendency)	5-year average (2000–2004)	10-year average (1995–2004)
Manual ground skidding (decreasing)	6.1%	7.7%
Animal skidding (decreasing)	0.3%	0.5%
Ground machine skidding (decreasing)	57.4%	59.3%
Cable logging (increasing)	19.4%	17.6%
Forwarder (increasing)	15.2%	12.9%
Other (decreasing)	1.6%	1.9%

Source: BMLFUW 2005 | Timber felling report 2004



1992/96, yields from thinnings have decreased by 20%. Single tree harvesting together with regeneration felling and final felling, however, have increased by 13% which indicates an increased application of **natural regeneration methods** in the past years. In the meantime, almost three quarters (72%) of young forest stands result from natural regeneration. Harvest volumes from clear-fellings of more than 500 m<sup>3</sup> have remained on the same level as in the period 1992/96 and amount to 29% of the total utilisation. The proportion of various harvest methods separated by types of forest ownership is presented in Table 2. On the one hand, with the increase of growing stock and the higher density of forest stands the number of dead wood and the mortality of trees have increased; on the other hand, the reserves in **large (saw log) trees** have risen as well. The growing stock of stems with a breast-height diameter of more than 50 cm has increased from 27 million m<sup>3</sup> o.b. in the period of 1986/90 and 32 million m<sup>3</sup> o.b. in 1992/96 to 49 million m<sup>3</sup> o.b. in the period of 2000/02. Thus, approximately one third of the growing stock results from tree stems of a breast height diameter of more than 35 cm. In general, this development shows a growing **extensivisation** of forest management.

According to data from the Timber Felling Report (BML-FUW 2005b), 10% of timber (in m<sup>3</sup> u.b.) were extracted by means of harvesters in 2004. Different extraction techniques are shown in Table 3.

### Access to the forest

Forest management requires adequate infrastructure according to the harvesting methods. The forest road network in Austrian forests consists frequently of only temporary skid roads and tracks as well as dirt roads and paved roads of different categories (see also Chapter 5.1.1).

According to the latest available data about forest roads in Austria (Forest Road Inventory 1992-1996) there are on average 38.1 linear m/ha of truck roads in the forests and on the edges of productive high forests, 8.7 linear m/ha in productive protection forests, and 31.3 linear m/ha in coppice forests; the total average network of truck roads amounts to 35.4 linear m/ha in production forests. *In the course of the Forest Dialogue, experts pointed to significant regional differences with regard to the accessibility of the forest. Some parts of Austria do have future-oriented plans of forest access roads.*

The Forest Act stipulates that permanent forest cable ways for material transport, inter alia, are always subject

to authorisation. The same applies to forest roads that pass through areas of torrent and avalanche control or through protection or protective forests or that touch specific public interests. Forest roads which need no authorisation are also under the supervision of official authorities as they must be notified in due time before construction work begins. According to forest law regulations, the construction of hauling installations is only allowed with respective planning and under the supervision of competent personnel (that are defined as such by law). Apart from the Forest Act, other legal regulations, such as the nature conservation laws of the provinces must be considered according to the project.

*Representatives of forest owners point out that the main part of the forest road network is financed by themselves and receives no public support. However, without subsidies from public authorities for the access to the forest, the economic utilisation would be more difficult in many forest areas. According to estimates by public representatives, approximately two thirds of the hauling installations subject to authorisation are subsidised with up to 35% of the investment costs at present.*

### Non-wood forest resources

According to the hunting statistics of the provincial hunting associations, the total number of **furred game** shot in Austria was 691,050 in the hunting year 2002/03. Out of this number the share of red deer was 45,607, of roe deer 276,809, of chamois 26,083 and of hare 162,469. 297,955 **game birds** were bagged, mainly pheasants. Over the last ten years (since 1993/94) the shooting of red deer has increased each year (by 14% in total). In 2000/03 it has reached the highest level since 1977 and the forth highest number ever. Since 1997/98 the shooting of roe deer has increased continuously and has reached the highest level ever registered in 2002/03. The data illustrate a six fold increase of the shooting of hoofed game in the period of 1948-2002 (data compilation related to the Austrian Forest Report).

Unless expressly prohibited by the forest owner, anybody is free to pick **woodland berries** for private purposes. Under the Forest Act, unauthorized gathering of more than 2 kg of **mushrooms** is forbidden in the forest.

The Nature Conservation Acts of the Federal Provinces partly contain stricter provisions for the protection of mushrooms. No statistics are being compiled about the gathering of berries and mushrooms.



Forests are used for a broad range of other non-wood products. This includes the use of forest land to extract **mineral raw materials**, notably gravel. **Water** constitutes also an important economic asset. The city of Vienna with more than one and a half million inhabitants, for example, is supplied with freshwater from its own water collection forests. Furthermore, there are pilot projects in forest enterprises dealing with the specific marketing of water and related services. The total **supply of water** available for use in Austria is estimated at 84 billion m<sup>3</sup>/a, approximately one third of which is groundwater. The total annual consumption of freshwater is on average 2.6 billion m<sup>3</sup>, which corresponds approximately to 3% of the supply, whereas in many European countries the share is significantly higher mainly due to the short water supply. In total, the demand for drinking and industrial water is ensured by 50% from spring water, by 49% from groundwater and by less than 1% from surface water. 87% of the Austrian population live in areas with central water supply systems. The water consumption in Austria amounts to 145 litres per day and person, of which only two litres are actually drunk.

### 3.1.2 Macro-economic Framework Conditions

#### *Global dimension*

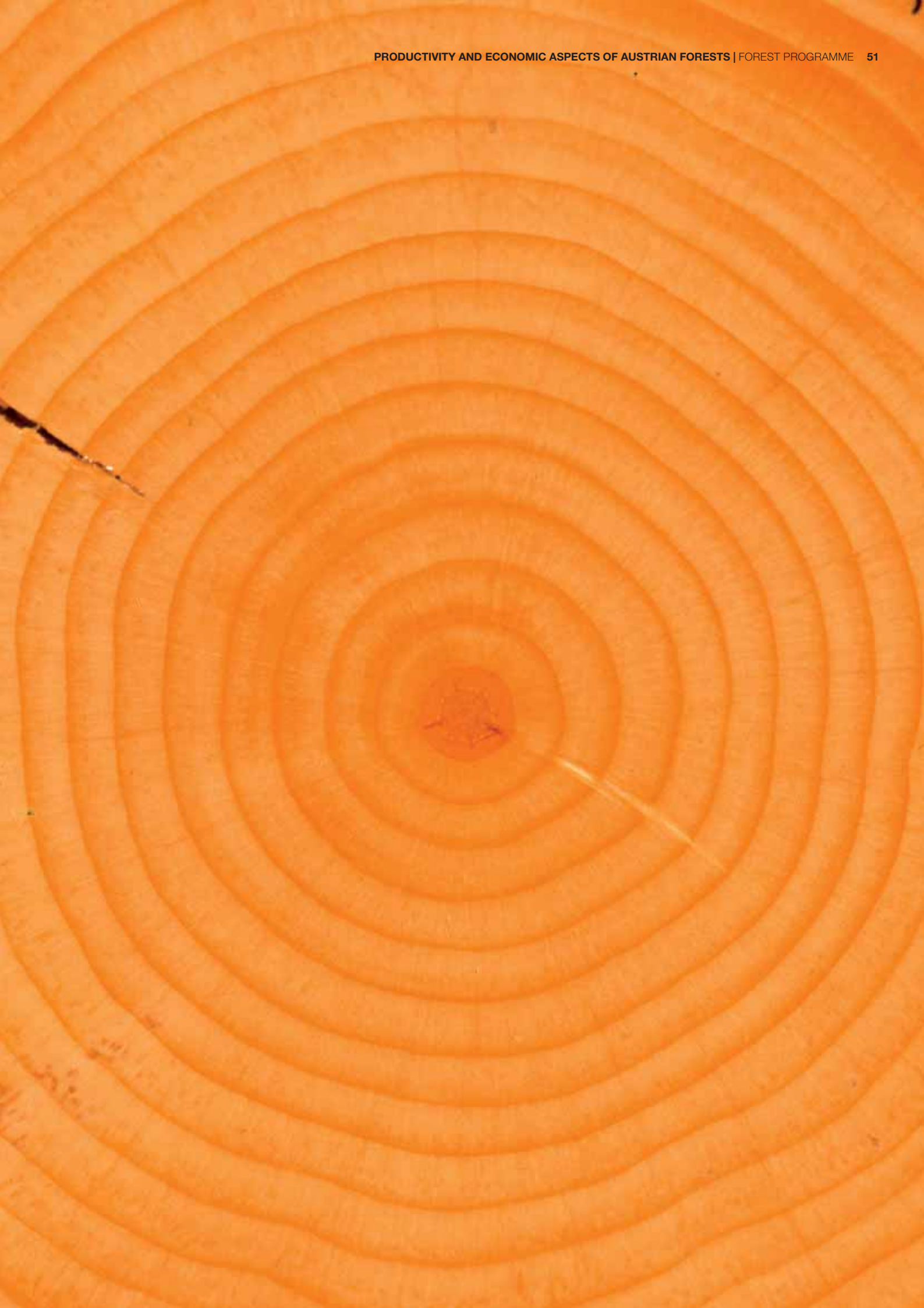
Globalisation, new economy, new information technologies, competition, substitution etc. have also great impacts with different effects on Austria's forest and wood-based industries. An example for such an effect that is of disadvantage from the economic point of view constitutes the fierce replacement competition wood is subject to, competition from other materials such as steel, aluminium, concrete etc., or fossil raw materials. The growing cost burden and the development of the timber prices on the world markets require appropriate management measures to be taken by Austria's enterprises in order to secure the important position of Austria's timber forest and wood-based industry on a global level in the long run. Positive aspects are the opportunities of opening up new markets and the efforts to reduce trade distortions that may have negative environmental and social effects.

Economic considerations require a linking of views on the national economics and business administration levels and must take into account all aspects of a sustainable development: the economy, ecology and society. Given the mentioned inter-relationships, the following text passages must be considered in a holistic way. Reflections on the international responsibility of Austria with a view to strengthening sustainable forest management also on the global level are provided in Chapter 7.1.

#### *European dimensions*

With the accession of the Scandinavian timber countries Sweden and Finland, as well as Austria to the European Union in 1995, the European forest policy was given new weight. Although a common forest policy was not included in the Founding Treaties and also does not form part of the present Constitution, a Forestry Strategy for the European Union based on an Austrian initiative was adopted in 1998.

The European Forestry Strategy emphasises the importance of the multi-functional role of forests and of sustainable forest management based on social, economic, environmental, ecological and cultural functions for the development of society and rural areas in particular. Essential elements of the Strategy are: sustainable forest management, the principle of subsidiarity, appropriate measures at community level, development of national forest programmes, active participation in all forest-related international processes, improved coordination, communication and cooperation on all levels, conservation and improvement of biological diversity, utilisation of wood and non-wood products, securing of income and employment etc.. At the same time, the connection with the Regulation on Support for Rural Development was established within the framework of the Agenda 2000. In order to implement this regulation, Austria has elaborated a programme for rural development where forestry has a subordinate position. In 2003, a study evaluated extensively the efficiency of the support funds used for this purpose.



## Ownership and number of forest enterprises in Europe (Tab. 4)

Country	Reference period	Forest area by type of ownership (in 1 000 ha)	
		public	privat
<b>Europe total</b>		<b>1 001 321</b>	<b>114 284</b>
Albania	2001	1 019	11
Austria	1992–1996	712	3 212
Belarus	1997	8 936	0
Belgium	2000	301	393
Bosnia and Herzegovina	1995	2 125	584
Bulgaria	1995	3 903	n.a.
Croatia	1996	1 651	454
Cyprus	1999	157	229
Czech Republic	1996	2 212	418
Denmark	2000	188	391
Estonia	1996	1 978	184
Finland	1991–2000	6 491	16 391
France	1995–1999	4 228	12 761
Georgia	1995	2 988	0
Germany	1987	5 762	4 978
Greece	1992	5 331	1 182
Hungary	2001	1 116	757
Iceland	1985	39	91
Ireland	2001	397	268
Italy	1995	3 687	7 155
Latvia	1997	1 678	1 317
Liechtenstein	1995	6.9	0.5
Lithuania	2001	1 513	606
Luxemburg	1997	41	47
Malta	1996	0.35	0
Moldava	1997	355	0
Netherlands	1995	173	166
Norway	1989	2 936	9 064
Poland	1997–2001	7 518	1 524
Portugal	1995	258	3 091
Romania	1997	6 320	360
Russian Federation	1998	881 974	0
Slovakia	2001	1 047	959
Slovenia	2001	350	844
Spain	1985–1995	5 608	20 376
Sweden	1998–2001	6 175	24 385
Switzerland	1996	878	326
Turkey	1999	20 745	18
Ukraine	1996	9 494	0
Great Britain	1995–1999	1 030	1 741



Forest area, growing stock, increment and removals in Europe (Tab. 5)

Country (in 1000 ha)	Forest area (in 1 000 ha)	Growing stock (in mio. m <sup>3</sup> )	Increment (in 1 000 m <sup>3</sup> )	Removals (in 1 000 m <sup>3</sup> )
<b>Europe total</b>	<b>1 039 251</b>	<b>116 448</b>	<b>2 247 382</b>	<b>620 413</b>
Albania	991	80	969	245
Andorra	n.a.	n.a.	n.a.	n.a.
Austria	3 886	1 110	29 433	19 821
Belarus	9 402	1 436	36 866	9 550
Belgium and Luxemburg	728	159	5 289	3 701
Bosnia and Herzegovina	2 273	250	n.a.	1 200
Bulgaria	3 690	480	12 310	4 852
Croatia	1 783	358	9 651	4 600
Czech Republic	2 632	684	22 915	16 345
Denmark	455	56	4 946	1 715
Estonia	2 060	321	9 830	4 028
Finland	21 935	1 945	79 129	67 500
France	15 341	2 927	102 096	65 006
Germany	10 740	2 880	100 722	48 584
Greece	3 599	163	4 118	n.a.
Hungary	1 840	320	11 973	7 287
Iceland	31	1	58	n.a.
Ireland	659	49	3 500	3 089
Italy	10 003	1 450	30 822	8 746
Latvia	2 923	509	16 500	8 010
Liechtenstein	7	2	28	16
Lithuania	1 994	366	11 904	5 972
Malta	n.a.	n.a.	n.a.	n.a.
Netherlands	375	60	2 538	1 561
Norway	8 868	785	26 209	11 632
Poland	9 047	1 930	80 439	36 810
Portugal	3 666	299	19 054	12 733
Republic of Moldova	325	42	1 140	483
Romania	6 448	1 373	34 650	8 525
Russian Federation	851 392	89 136	1 339 166	130 179
Serbia and Montenegro	2 887	321	n.a.	n.a.
Slovakia	2 177	552	13 601	8 525
Slovenia	1 107	313	6 925	2 614
Spain	14 370	632	30 120	12 639
Sweden	27 134	2 914	101 598	72 345
Switzerland	1 199	404	9 831	7 451
Macedonia	906	63	n.a.	n.a.
Ukraine	9 584	1 719	33 757	11 300
Great Britain	2 794	359	21 300	9 500

**Per capita consumption of coniferous sawn timber** (Tab. 6)

	2001	2002	2003	2004	2005
Finland	0,947	1,011	0,997	1,035	1,007
Canada	0,782	0,902	0,872	0,948	0,818
Austria	0,616	0,626	0,608	0,617	0,621
Sweden	0,583	0,592	0,561	0,611	0,615
Norway	0,585	0,574	0,516	0,674	0,543
Latvia	0,266	0,360	0,490	0,526	0,710
USA	0,451	0,451	0,452	0,471	0,459
Denmark	0,418	0,405	0,393	0,376	0,371
Germany	0,179	0,200	0,205	0,214	0,220
Belgium	0,188	0,179	0,183	0,187	0,181
UK	0,165	0,162	0,171	0,170	0,166
France	0,163	0,167	0,165	0,169	0,173
Netherlands	0,187	0,172	0,162	0,161	0,163
Italy	0,115	0,127	0,126	0,128	0,127
Spain	0,109	0,108	0,105	0,115	0,114
Greece	0,080	0,080	0,078	0,078	0,078
Russia	0,060	0,046	0,046	0,048	0,050

Source: Professional Association of Wood-Based Industries 2005

***For the forestry sector, the enlargement of the European Union by another 10 countries brings about the following changes:***

- **Forest land** (see Table 5) including other wooded land of the EU increased from 136 million hectares to 160 million hectares, representing an increase by 18%. Commercial forest land has even increased by 22%. This means that also the economic aspect of forestry gains in importance.
- Standing **timber volume** has grown by 35% to reach 20 billion m<sup>3</sup>. The reason for the obvious differences of forest area and growing stock are the poor timber volumes of the Mediterranean and boreal forests of the previous EU countries. Since the ratio of removals to increment in the “new” member states is even less pronounced than in the “old” EU states, the volume of growing stock will continue to increase because of the low level of utilisation of forest resources. With an average growing stock of 143 m<sup>3</sup> o.b./ha in relation to the total forest area (not including other wooded land) of the EU 25, the creation of timber volume is generally not a problem. In some areas, however, (e.g. in protection forest or in high-yield commercial forests), it is considered to be an issue, just like the insufficient exploitation of the wood resource.
- Important increases of forest areas are taking place already now as a consequence of **new forestation** in the new member states, in particular by afforestation of marginal agricultural lands. There will probably be even more of these new forest areas in the future. Hungary, for example, plans to afforest around 500,000 hectares of agricultural land in the next 10 years. Cooperation in these afforestation projects offers economic opportunities for Austria’s forest and wood-based industries. In order to evaluate whether these afforestations are desirable from the Austrian point of view, complex framework conditions must be taken into account (e.g. international agreements on biodiversity, social and economic aspects of sustainability, CO<sub>2</sub> sequestration for climate protection, and prevention of steppe formation in regions of low forest cover). New afforestations can produce medium-term changes in the timber market.
- Particularly with regard to forest policy activities on the European level, special attention has to be paid to the fact that, with the enlargement, the share of state forests has increased (see Table 4). On the one hand, large-scale **privatisation** takes place or has taken place in all new Eastern-European EU member countries (State of Europe’s Forests 2003, MCPFE 2003). On the other hand, compared to the present situation, large areas of state forests will remain. For both the current privatisation processes and the organisation of independent forest authorities

there will be an enormous need for know-how in the coming years.

***The wood industry expects the following changes:***

- Consumption of sawn timber in the new member states amounts to 0.1 m<sup>3</sup> /person/year, i.e. approximately 50% below the average of the EU 15. Austria, for example, consumes 0.62 m<sup>3</sup>/person/year. In the new EU member states, the consumption of different paper products amounts only to 30% of the consumption of the EU 15, but shows a dynamically growing tendency (see Table 6).
- The new EU countries are still exporters of roundwood and, to a growing extent, sawn timber. With an improvement of the standard of living, however, a substantial increase of the internal demand and consumption is to be expected on a medium-term basis.
- Unlike Poland, Slovenia, the Czech Republic and Western Hungary, other new EU countries have a very small-structured wood-based industry. They have almost no board and paper producing industries and comparatively large gaps in the technology sector and the entire knowledge sector. The Austrian Federal Economic Chamber (WKÖ) points out that international companies have made important investments for many years and have built up substantial capacities.
- The environmental standards are at a clearly lower level in the new EU countries at present. Their accession, however, will bring about a campaign regarding environmental technologies and standards.
- The degree of self-supply with timber and wood products has increased to more than 95% in the EU 25.
- With the enlargement, the number of persons employed in forest and wood-based industries has increased from 4 to approximately 5 million.

Experts in national economics estimate that the enlargement will generally produce an enormous expansive force in the different industrial sectors in the new EU member states. However, the wood-based industry will be below average, although it is expected that the expansion rates are significantly higher than the ones registered in the EU 15. Initially, the forestry sector may even experience a shrinking effect due to restructuring measures. The related expansion of productivity values will only take place on a medium and long-term basis.

On a short and medium-term basis, the present competition in the field of sawn timber and roundwood will continue

to grow. However, owing to the net product achieved, the **new** EU countries will concentrate more strongly on exporting sawn timber and reduce the exports of roundwood as far as possible. It is expected that the increased self-supply will gradually ease the competition of sawn timber. In return, there will be a **stronger roundwood competition**, insofar as the wood-industry countries of the **old** EU 15 can no longer count upon the current import volumes of roundwood. A slight decrease has already been noticed in the past years. This will increasingly put pressure on the wood-based industry with regard to roundwood supplies. On the one hand, industry must expand its capacities for competitive reasons, while on the other hand, import possibilities decrease. The raw material competition is also intensified by the utilisation of wood for energy production. If the supply situation becomes critical for the wood-based industry, a competition with regard to better locations is to be expected in the long run. This implies the need to a search for new locations which offer a secure supply. A further transfer of the wood-based industry to the accession countries or, generally speaking, to countries outside the European Union, can be expected. This situation can be countered only if the national forest industry guarantees the supply given the enormous potential it generally has available because of the low utilisation of increment. For the agricultural and forestry enterprises in Austria this is a prerequisite that forestry will have a corresponding share in the net product.

***National dimensions***

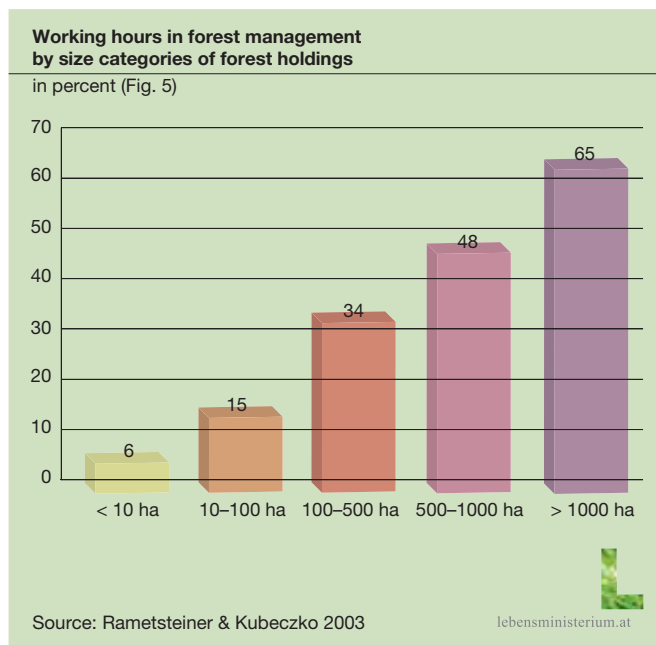
Currently, forestry in Austria is facing important changes. They are a result of economic internationalisation and the related structural changes in the wood-based industry, advances in harvest technologies and changes in the forest owners' perception of the forest.

**Ownership structure**

The major part of the Austrian forest area, approximately four fifth, is under private ownership. This includes the right of gaining income from forest management. Private forest owners are predominantly small-scale forest farmers with holdings of forest areas smaller than 200 hectares (96% of all forest holdings are smaller than 50 hectares), and manage around 50% of the total forest mainly with family labour. Most of these approximately 170,000 small enterprises own agricultural land in addition to the forest. Management of the other half of the Austrian forests is taken care of by around 1,400 enterprises with over 200 hectares of forest area.



Besides the large private forest enterprises with 22% of the forest area, and the community forests of around 10%, the Austrian Federal Forests play a special role. Organised as a share-holder company, the Federal Forests Company manages 15% of the national forests. It is, thus, the, by far most important forest enterprise in Austria. Participants of the Forest Dialogue (e.g. Labour Chamber, Umweltdachverband, Kuratorium Wald, Nature Conservation Federation) point to the special ownership structure and the legal basis of the Austrian Federal Forests (ÖBf) and demand that the ÖBf accounts for this position in its management policy. In this regard, close-to-nature management and securing of full employment in rural areas are of special importance.



Apart from the Federal Government, some Federal Provinces and communities own forests (in total around 3%). Altogether, the share of the State-owned forest amounts to 18%, which is by far lower than in most of the other European countries (Forest statistics, Ministry of Life 2005a).

Massive structural changes have taken place in agriculture and forestry in the past years. A reduction of the traditional bonds of forest land ownership with agricultural enterprises and the increase of “**new**” forest owners with little linkages to the traditional agricultural enterprises is observed. A recent study (Hogl, Pregernig, Weiss 2003) describes the continuum from traditional farm forest owners (40%), to groups which only have a loose agricultural

relationship (28%), and, eventually, to the urban forest owners distant to agriculture (32%). For the approximately one third of “new” forest owners, working in agriculture and forestry or gaining income therefrom, has no or no considerable importance. In small-scale forestry, in particular, it is often the case that the forest sector is subordinate to an agricultural mother enterprise, that management is oriented towards the own subsistence, and that markets are supplied only sporadically (“intermittent production”).

Due to the decreasing interest in the forest shown by some small-scale forest owner categories certain forests are not managed any more. However, it is also possible that new models of management develop: forest management associations take over the care of the forest, which means primarily the task of marketing and organising the timber harvest. **Cooperation between enterprises** increases the efficiency of forest management. *In the course of the Forest Dialogue concern has been expressed with regard to the fact that a more uniform management on larger scale and the lacking silvicultural orientation would transform currently highly structured small-scale forest areas into more monotonous and poorly structured forests.* The results of the Austrian Forest Inventory apparently do not confirm this concern.

#### Effects on employment

At present there are no recent comprehensive studies available on the employment situation of the Austrian forest sector. However, relevant conclusions can be drawn from indices (e.g. wood removals/hour by timber harvest) of the wood volumes harvested by ownership category (figures from the Austrian Forest Inventory, ÖWI). According to the Central Association of Social Insurance Institutions 4,770 forest workers and, according to the Forest statistics of the Ministry of Life 3,200 employees and civil servants with forest education were employed in enterprises and administrations of the Austrian forest sector in 2003. These figures illustrate only partly the employment situation in rural areas. The forest sector is also an important customer for farmers

doing piece-rate work and for trade industries. As has already been mentioned, small-scale forest ownership is predominant in Austria (around 96% of all forest holdings are below 50 hectares). According to the Austrian Forest Inventory (ÖWI), around 9 million m<sup>3</sup> u.b. are utilized in these enterprises. The Austrian forest sector constitutes an essential employment factor and is an important pillar of rural development.

**Employees and civil servants with forest education (Tab. 7)**

Year	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993
Number	3.202	3.195	3.217	3.062	3.003	3.043	3.172	3.217	3.406	3.607	3.574

Source: BMLFUW 2004 | Data compilation related to the Austrian Forest Report 2004

**Working hours** spent in forest management are proportional to the forest area under management. Owners of small forest areas under 10 hectares use only 6% of their working time on average for managing the forest, whereas owners of areas of more than 1000 hectares use 65% (see Fig. 5) of their time. Table 7 illustrates a 10-year time series related to the development figures of employees and civil servants with a forest education.

In the course of the 2002 amendment of the Forest Act the provisions related to the **appointment** of forest officials in forest enterprises were modified. This implies that owners of forests of more than 1000 hectares must appoint an executive forest officer. For forest areas of less than 3,600 hectares this obligation is fulfilled with the employment of a forest guard (with civil service examination). For more than 3,600 ha, a forest engineer (university degree in forestry with civil service examination) must be appointed. For areas over 6,600 hectares more than one forest official must be employed. *In this context, different opinions were expressed in the course of the Austrian Forest Dialogue: Forest owners see an opportunity for an increase of the rationalisation potential and for better management of the forest areas across enterprises with the inclusion of areas untended up to now. The environmental NGOs and the Green Party fear another batch of dismissals.*

*Representatives of silvicultural sciences and of the provincial forest authorities fear that a further decrease of forest operational personnel may be another threat to the compliance with the pan-European criteria for a sustainable forest management in addition to rationalisation due to harmonising tendencies (e.g. homogenisation of forest structure). Measures must be taken to prevent negative effects related to the dismissal of personnel in order to secure a sustainable forest management on all areas.*

**Planning documents**

Planning documents for forestry exist on an industry-wide level and on the enterprise level, on both on a legal and

voluntary base. These planning documents have a direct and indirect impact on the management of forests and enterprises.

***In order to avoid conflict of interests between the many “users” of the forest, interdisciplinary planning and guidance gains in importance. Often such planning and guidance occur in the framework of industry-wide plans at the regional and national levels:***

- Industry-wide, legal planning documents are the Forest Development Plan, the Hazard Zone Planning of the Forest Engineering Service in Torrent and Avalanche Control, legal provisions related to nature protection (such as national parks, biosphere parks, nature protection areas, European protection zones and Natura 2000 areas and others) and the related management plans or other legal provisions of communities, the Federal Provinces and the Federal Government.
- Additional official planning documents are protection forest mapping, for example, biotope cartography etc.
- Industry-wide planning documents established on a voluntary basis are maps related to the natural forest associations, site maps, soil maps, vegetation maps and geological maps, the hemeroby mapping of the Austrian forest and land-use planning related to wildlife ecology (which may also be legally binding on the basis of provincial legislation).

At the **enterprise level**, written management plans are established on a voluntary basis and relate mainly to enterprise specific planning. There is no legal obligation for such plans in Austria. Examples for voluntary plans are: operational management plans (management plans over a period of ten years established by the forest enterprises), forest maps, areas of special treatment like rare biotopes, protection forest cartography, soil and vegetation maps etc. For the operational planning, other tools are used in addition. Their results contain above all general, yet comparative information such as the results of the Austrian Forest Inventory, the network of reference enterprises and the figures of the Statistics Austria.

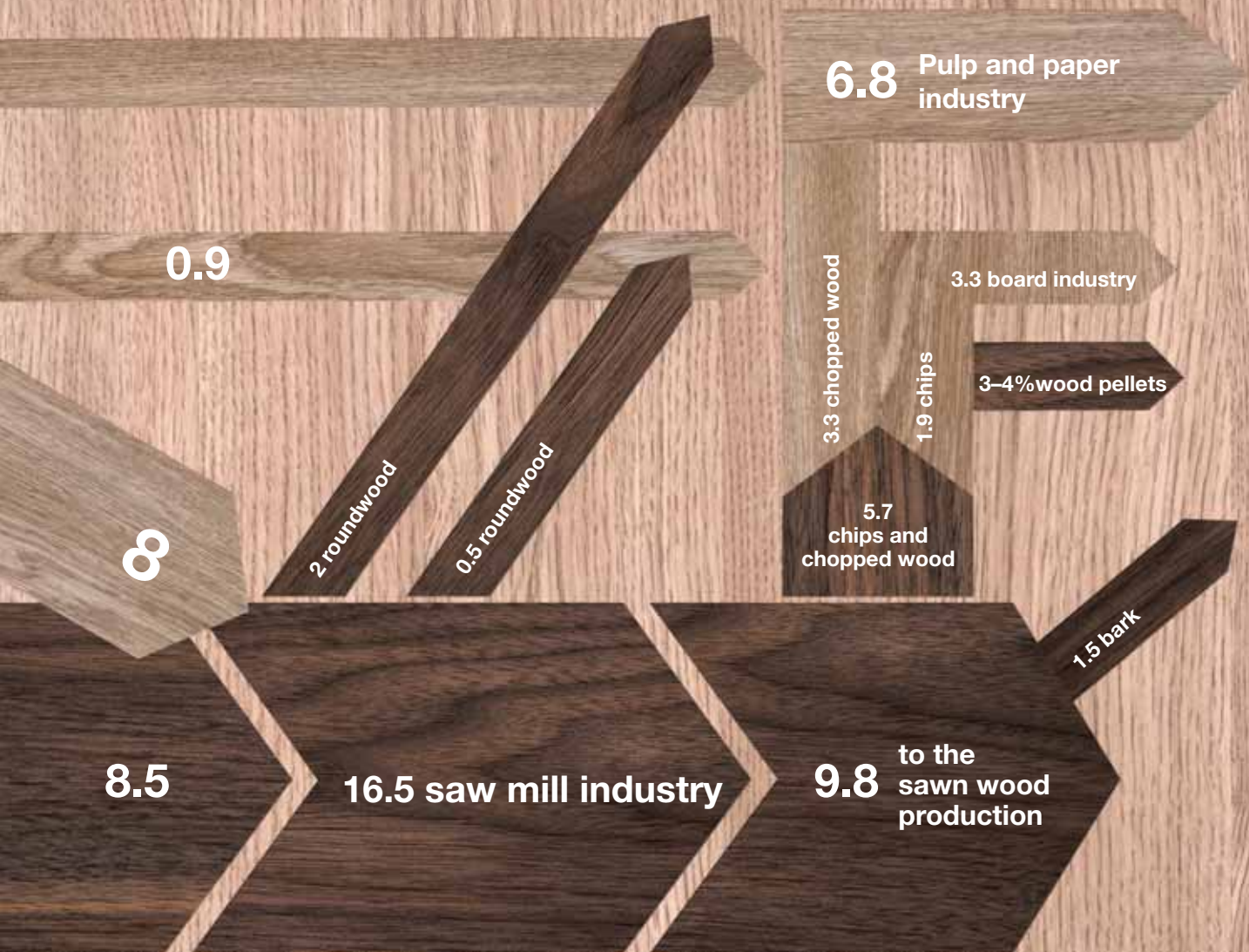


# Wood flows in the Austrian national economy 2001

in million m<sup>3</sup> (Fig. 6)

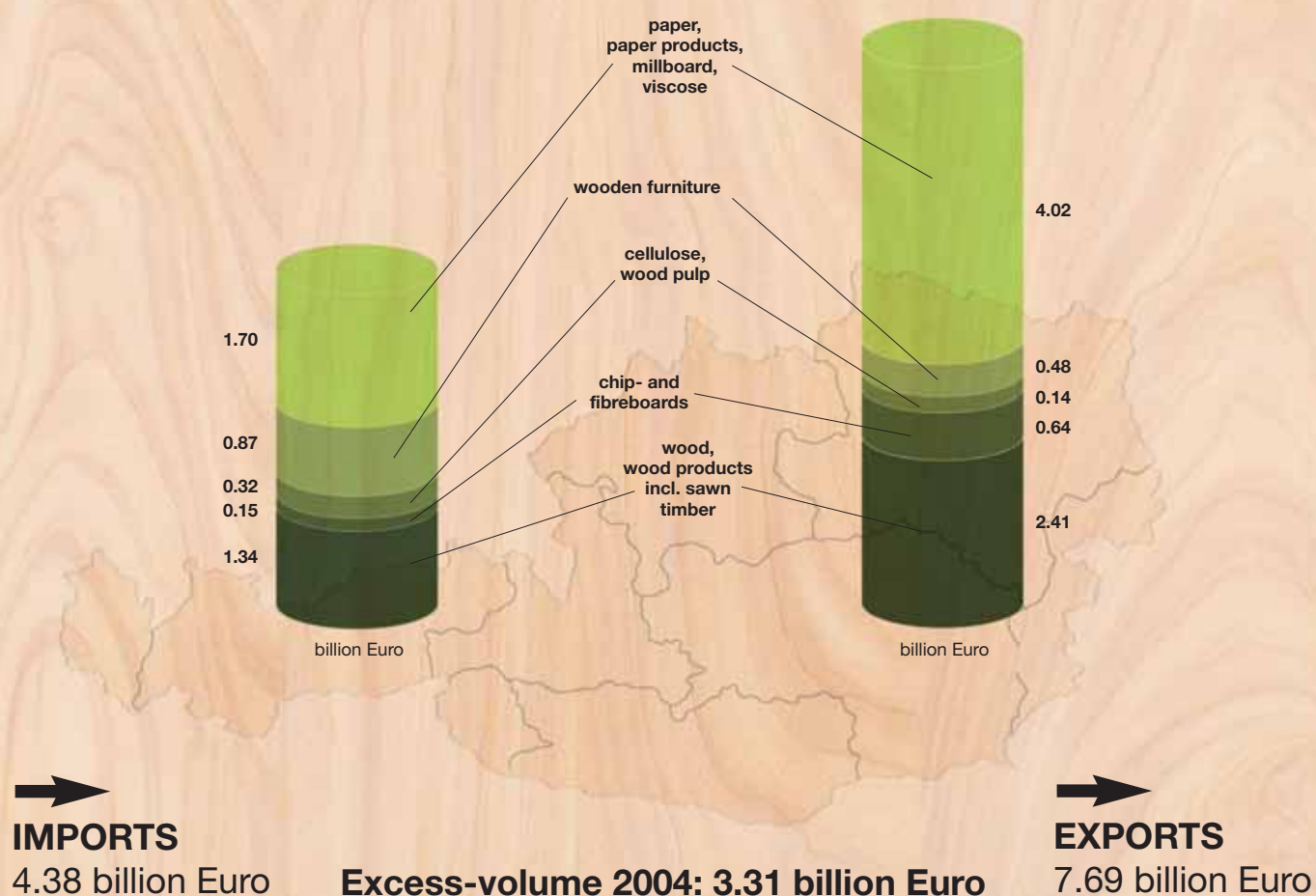






# Exporting wood

Austria's imports and exports of wood and wood production in 2004 in Euro (Fig. 7)







### 3.1.3 Timber Market and the Austrian Wood-based Industry

Wood flows in the Austrian national economy (see Fig. 6) give information about the security of supplies of the Austrian wood-based industry, about security provisions made for situations of crisis and the bioenergy reserves.

More than 90% of the national wood harvest are processed in Austria or used for energy purposes. Out of the 20.7 million m<sup>3</sup> roundwood processed in Austria in 2003, 13.1 million m<sup>3</sup> come from Austrian forests. In 2003, 7.6 million m<sup>3</sup> were imported, mainly from EU countries bordering on Austria, namely Germany (2.7 million m<sup>3</sup>; Bavaria, in particular); Czech Republic (2.4 million m<sup>3</sup>) and Slovakia (0.7 m<sup>3</sup>). Slightly more than one third of the wood volumes processed in Austria originate from **imports**. These imports have risen continuously in the past ten years. There are various reasons for the increase of wood imports, which are evaluated from **different points of view**. *Whereas the wood-processing industry sees the imports as a means to balance the discontinuous use in Austria, the Green Party thinks that the imports put pressure on the Austrian timber prices (the average cost for imported timber free delivered is not much lower than Austrian*

*roundwood). For the representatives of the forest owners imports compensate primarily the insufficient utilisation of wood in Austria.*

Although an increase of forest areas, better tending measures and discarding of forest pasture land have contributed to increasing removals of wood in a sustainable way in the past decades in Austria, the output capacities of the sawmill industries have risen much faster.

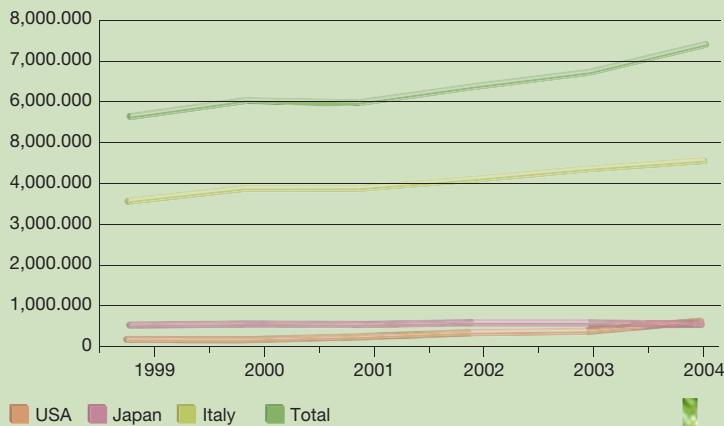
The imports of timber and wood products amounted to approximately 4.4 billion Euro in 2004, the exports to 7.7 billion Euro (values include cellulose, paper and millboard). This results in an excess volume of 3.3 billion Euros. A more detailed illustration of Austria's imports and exports of timber and wood-based products is given in Figure 7.

About 60% of the wood products from Austria are **exported** (e.g. approx. 60% of sawn timber, approx. 80% of paper), 66% of these exports go to the EU countries, 21% to the United States of America and Japan, and 11% to Eastern European countries (see Fig. 8). The high export quota already indicates a distinct competitive capacity. The excess volume of the trade balance of the entire forest and



**Exports of coniferous sawn timber between 1999 and 2004**

Export in m³ (Fig. 8)

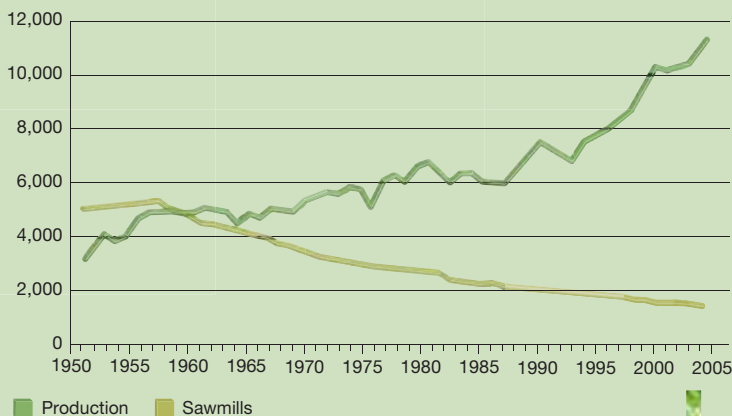


Source:  
Professional Association of Wood-based Industries Austria 2005

lebensministerium.at

**Number of sawmills in Austria and related production of sawn timber**

Output in 1,000 m³ (Fig. 9)



Source:  
Professional Association of Wood-based Industries Austria 2005

lebensministerium.at

wood-based sector, which amounted to 3.3 billion Euros in 2004, gives a more informative picture.

The trade balance excess is achieved in the European Union and the overseas markets, whereas trade with Eastern Europe shows only a marginally negative balance. Austria ranks fifth among the countries exporting sawn timber in the world. For Austria's wood-based industry, particularly the sawmill industry, **Italy** is an extremely important market. On the one hand, this creates a certain dependency, but on the other hand it offers also further opportunities, as Italy is one of the markets with the greatest purchasing power in Europe.

Until 1995 the European Union was a net importer of timber. With the accession of Austria, Finland and Sweden to the EU, this role has changed and Europe has become a net exporter of timber. New markets in Japan and the United States of America were opened up and cooperation in the framework of the European timber context was initiated and enlarged towards the new EU countries. In the long run, markets in the Asian sector might drop out again. The paper and board industries express concerns about a possible shortage of supplies of raw material caused by the increased **competition** of processing wood for wood-based products and energy purposes (see Chapter 3.1.6).

1,775 **enterprises** of the wood-based industry, among them 1,400 sawmills, achieved a production volume of close to 5.5 billion Euros in 2003. With approximately 30,500 jobs, the wood-based industry is among the most stable and most important industrial branches in Austria. The number of employed persons varied only slightly in the long-year average of the last 20 years. The wood-based industry is structured in small and medium-sized enterprises and there are also several large companies. The enterprises are almost all in private ownership, generally run by families. Sawmills offer about one third of all jobs in the whole wood-based industry.

A **process of business concentration** has taken place in Austria's wood-processing industry for many years. This has resulted in the abandonment of many plants in the pulp and paper industry and in the concentration on some larger production sites. In the sawmill sector, very few enterprises have meanwhile taken over the major part of sawing activities (see Fig. 9). In 2003, 1,400 sawmills, 30 pulp and paper companies, and 5 paperboard enterprises were available on the free market as partners for the approximately 170,000 forest owners. In 1955 there were



still about 5,400 sawmills in Austria, and they processed half the volume of roundwood processed today. Since then a significant transfer of the production activities to large companies with more than 100,000 m<sup>3</sup> sawn timber per year has taken place.

Industrial timber is mainly purchased by two companies. Small and medium-sized sawmills are important for serving the niche markets. However, their number is slowly decreasing, and this has a negative impact on the job market in some regions.

Due to the tough competition, Austria's wood-processing industry depends on raw materials at internationally competitive prices. Since **timber prices** are world market prices, the Austrian industry has little room for action. *Environmental NGOs and the Green Party consider the dominant position of two co-operative purchasing companies on the industrial timber market to be another reason for the constantly falling timber prices.*

There is an emerging tendency that enterprises establish timber processing and manufacturing plants abroad (mainly in Eastern Europe). Sawmill plants in Eastern European countries constitute an important economic complement to the enterprises located in Austria. In view of the swiftly rising transport costs and the favourable salary costs, these capacities can serve the local markets.

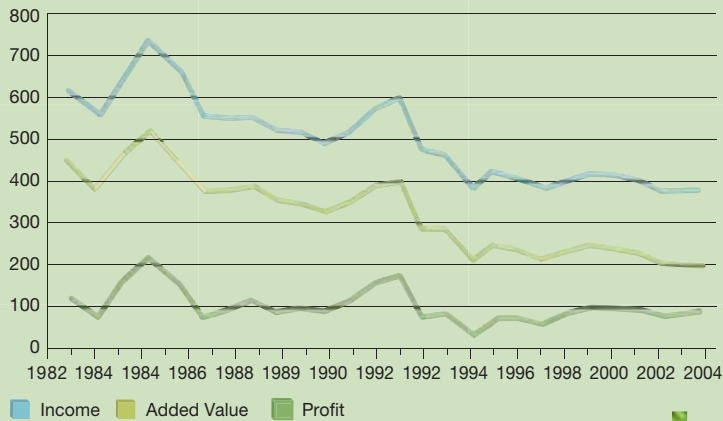
*Environmental NGOs and the Green Party fear that the destructive competition will result in only a few large international companies dictating the market conditions. The Federal Austrian Economic Chamber (WKÖ) states that the world's largest timber companies do not even cover 1% of the world market. Consequently, a process of business concentration would not have the same impacts as in other branches for a long time.*

Austria's timber industry was marked by a low **value generation depth** (few semi-finished and finished products) in the past. A distinct increase in value generation has been registered in the recent years (e.g. in the furniture sector). The continued increase of value generation constitutes an essential challenge and an opportunity for the future. Action is needed in view of the fact that innovation in the timber industry is at present only achieved by machine engineering companies.

In the roundwood-processing industry a strong concentration of processing enterprises and a marked increase of roundwood volumes per company have been observed in the past decades. In order to be able to survive in the intensified international competition, the full utilisation of existing processing capacities plays a decisive role. In order to guarantee this utilisation, a permanent and **continuous supply** of the national sawmills, pulp, paper and board industries with roundwood is mandatory. Extreme

**Added Value and Profit of Forest Enterprises in Austria**

Enterprises with forest areas of more than 500 ha in EUR per ha (Fig. 10)

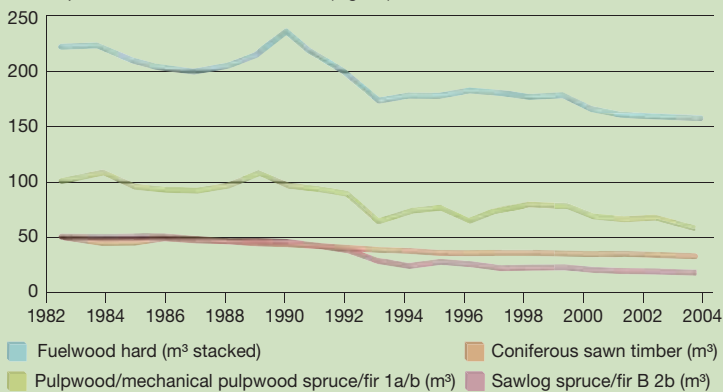


Source: Agriculture & Forest Enterprises Austria, Evaluation Sekot 2004 | Network of reference enterprises in Austrian large-scale forests

lebensministerium.at

**Annual Average Prices of Assortments of Sawn Timber and Roundwood**

in EUR per m³/o.b./stacked, basis 2003 (Fig. 11)



**Coniferous sawn timber:** Prices of 1983–1984 incl. planing products; Estimated price for 1996, because of change of the statistical system in Austria  
**Roundwood** (Logwood, mixed price pulpwood/mechanical pulpwood, fuelwood): Prices ex forest road accessible by truck

Source: Statistics Austria 2005 | Professional Association of Wood-based Industries 2005

lebensministerium.at

**variations** between excessive and insufficient supply constitute a special problem because they cause great logistical difficulties. Excessive supply (e.g. after wind-throw events) additionally produces marketing problems for the forest enterprises. **Potentials for improvement** exist with regard to permanent and continuous supply and purchase of roundwood from Austrian forests, transport logistics and the related cooperation between the wood-based industry and the forestry sector.

**3.1.4 Income Situation in Forestry**

Despite intensification of volumes, the real **income** per ha of **forest holdings larger than 500 ha** shows a clearly downward tendency, and has decreased by about one third in the past 25 years (see figure 10). The **added value** gained, i.e., the sum of the income produced directly through economic activity (employer's revenue, profit and operational taxes) has even decreased by approximately one half. Thus, the economic potential of timber production is decreasing strongly in the long run. Satisfactory operational results obtained in individual years cannot change this general situation.

The real **operational profits** in percent are subject to strong fluctuations, so that statements about tendencies are particularly vague. However, despite a mathematically clear downward tendency, there is a certain continuity with regard to the fulfilment of economic objectives. The majority of the larger forest enterprises increasingly concentrate on their core business activities. Their own capacities of labour and machinery are reduced and replaced by external services, which allows for the necessary operational flexibility. Turnover profit is clearly above 15% in most years.

**Small-scale private farm forestry** contributed some 5.4 % to the profits of agriculture and forest enterprises in 2003 (Network of reference enterprises in Austrian small-scale forests **below 200 ha**, evaluation by Sekot 2004). A comparison of efficiency with large forest holdings is difficult because it depends on how family work is evaluated. The superiority of forest working productivity is impressive; on average it is 20% higher per family working day in forestry than in agricultural management. At the same time, however, the productivity per hectare of agricultural or pasture land is significantly higher than per forest ha. From a multi-year perspective, the average wood income per cubic meter in small-scale forests reaches only 90% to 95% of the comparative value for forests larger than 200 ha. The increase of timber felling in small-scale forests as





compared with the large forests also yielded a higher income per ha of 60% to 70% on average in the past ten years.

The sharply decreasing economic potential of timber production in the long run is reflected by the very low interests that forest capital earns in comparison with other investment types. Within forest enterprises there is often cross-financing of income earned from productive areas to the credit of less profitable forest areas. The decreasing income in real terms and lower added value from forest production **call for action**.

Like many other branches, forestry is also faced with a real decrease of product prices (see Figure 11) on the one hand and with higher cost factors on the other hand. The forest sector is exposed to a particularly high **rationalisation pressure**. This is partly due to the fact that timber markets are purchase markets where the customers dominate the fixing of the prices. It is also due to the very limited chances for forest enterprises to reach advantages through business growth. It is also true that production value stagnates despite growing productivity. In real terms, **value generation** shows a **downward trend** both in absolute values and by unit area. This means clearly that the income gained from timber production is decreasing more and more. *Participants in the Forest Dialogue (e.g. Umweltdachverband, Kuratorium Wald, Nature Conservation Federation) point to the increasing demand of wood for energy production and underline the fact that a better compensation of the costs of sustainable wood production could bring about new income opportunities for the forest sector. At the same time, the contribution of forestry to regional value generation was stressed in particular, and that stronger attention should be paid to this factor.*

It has already been mentioned that, with the timber **prices falling** for decades and very limited chances for an increase of wood production, the revenues that forest enterprises gain from timber sales decrease as well. Moreover, forests – especially if they are under close-to-nature management – are labour intensive, which means higher prices due to **higher salary costs**. In forestry, the labour cost factor does not only include working costs but also productivity. By international standards, Austria is in a good position regarding the salary costs per piece. Due to selective felling close-to-nature silviculture leads to higher timber harvesting costs, which are compensated by a better piece to volume ratio. The higher expenditure

for personnel for the selective timber marking is compensated by the lower cost for afforestation and tending. In recent years, large forest enterprises could counteract the price-cost divergence only with drastic **measures of rationalisation**. *In this context, Austria's agriculture and forest enterprises refer to a 10% decrease of timber and administration costs while maintaining the level of investments in silviculture.*

Marketing of timber represents the main opportunity for forest enterprises to earn income under the given framework conditions. At the same time the requirements of society regarding the multifunctional effects of forests and specific services of forest management are increasing. It is often the case, however, that supply and demand seem to exist, but no income can be generated. The reasons are manifold: common pool resources, difficult evaluation of services, the “free rider problem”. In order to make optimal use of other forest products and to satisfy demands of society, further strategies must be developed. In this regard, intense efforts are being made to develop evaluation and compensation models in the framework of the contractual nature protection, for example, and for forest management measures for protection against natural hazards.

### 3.1.5 Timber Production as an Economic Factor

With few exceptions, for the majority of forest owners wood production remains the only possibility to make a living without subsidiary earnings. The high importance of timber production for the Austrian forest enterprises can be seen in Figures 12 and 13. Although new markets have developed due to a changed demand (e.g. for timber felled according to the moon phases, or for winter timber), timber production becomes less attractive from an economic point of view. The world market timber prices require highest cost efficiency, and the permanently changing framework conditions – often caused by international prerequisites (e.g. conservation and promotion of biodiversity) – produce economic requirements and special challenges for forest management. Globalisation, which affects also the wood-processing industries to a growing extent, is changing the market conditions for forestry and makes adequate adaptations necessary.

*In the course of the Forest Dialogue the issue of marketing large diameter trees was discussed in particular. The sawmills have an increasingly lower demand of large tree assortments on the market, because the cost of sawing large timber sizes is higher at present than that of smaller*



dimensions. A conflict of interests exists between the representatives of the wood-processing industries and the nature conservation and forest owners. Environmental NGOs and the Green Party are concerned about the fact that the technical orientation of the sawmill industry towards small and medium-sized timber assortments entails an early felling of timber trees. This leads to a loss of animal and plant species, which use large and old-growth trees as habitats (e.g. tree-hole breeding species, capercaillie). The Federal Austrian Economic Chamber (WKÖ) points to higher cost in this regard. The forest sector and industry aware of their responsibility work intensively on finding a solution to this problem.

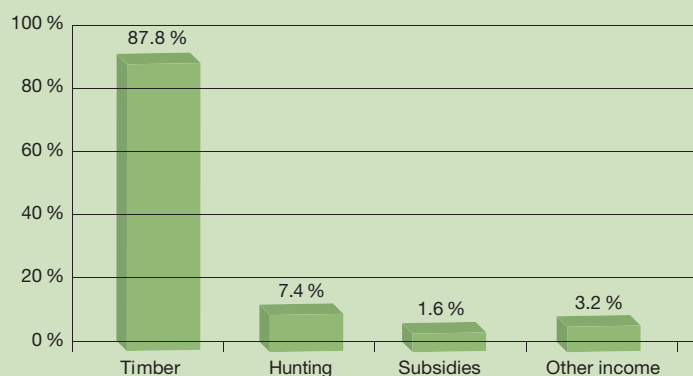
By international standards, timber production is accepted in positively in Austria. A study by Rametsteiner (2000) shows that about two thirds of the Austrians are satisfied with the state of the forests. Furthermore, the study indicates that the population has an increasingly positive attitude towards the economic utilisation of the forest. In the course of the Forest Dialogue, the Green Party, in particular, clearly stressed the fact that some forest owners do not fulfil the criteria of a sustainable forest management.

### 3.1.6 Other Products and Services as Economic Factors

When looking at the manifold socio-political concepts of values and the demands on the forest and its products, new “hope markets” appear for new products currently only filling niches and for new services such as drinking water supply of sufficient quantity and high quality, the particular management of special biotopes by promoting biodiversity, recreational facilities, special tourist offers, and the protection against natural hazards. In comparison with timber production, the commercialisation of **shoot-ing rights** (e.g. on private, municipal or cooperative hunting grounds) is currently only a small source of income. Forest owners on low-increment sites in particular, consider hunting revenue often to be their only source of income. In these cases, target conflicts appear with regard to the silvicultural requirements.

Figure 13 presents a synopsis of the economic importance of **timber production** and of **other products** and **services**. This figure illustrates that in forest management the product mixture increases in variety with the area managed. Sawn roundwood and industrial timber are clearly the main marketing products which constitute 62%–71% of the income from forest management. Fuel-

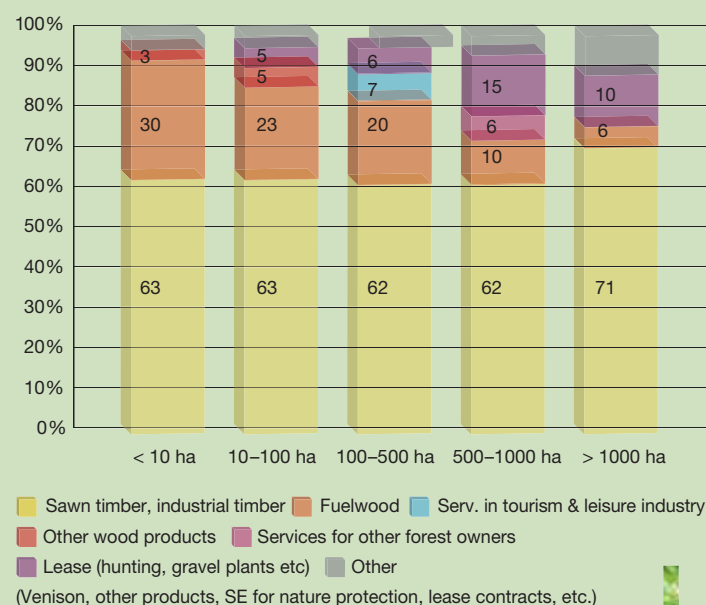
**Income Structure of Timber Producing and Hunting Enterprises in Austria**  
in 2002, of enterprises with more than 500 ha of forest area (Fig. 12)



Source: Agriculture & Forest Enterprises Austria, Evaluation Sekot 2004 | Network of test enterprises in Austria's large-scale forest

lebensministerium.at

**Distribution of Income from Forest Management by Different Products and Services (SE)**  
in percentage by forest ownership size categories (Fig. 13)



Source: Rametsteiner & Kubeczko 2003

lebensministerium.at



wood (incl. woodchips) is offered in almost equal quantity by the forest managers. For the small-scale forest owners, it represents between 20% and 30% of their income, for large-scale forest owners between 6% to 10% of the income. According to size categories, services have a share of up to one fourth of the income of forest managers. The importance of services fluctuates between the size categories. Lease contracts, in particular hunting contracts, represent more than 5% of the total income for individual size categories. Services in the tourist sector constitute an income share of 7% for categories of 100 and 500 ha. For forest managers of forest holdings of 500 to 1,000 ha, services for other forest owners amount to 6% and are, thus, a significant source of income.

*Opinions differ with regard to the economic importance of nature conservation-oriented management measures. According to representatives of the forest owners, utilisation of the forest resource for other purposes than timber production (e.g. use as nature conservation areas) does not offer a real alternative for economic income generation at present. Better opportunities for generating income could be realised by a stronger application of the contractual nature conservation (for further details see the chapter on services in nature conservation). For the participants of the Forest Dialogue, the use of forest resources for purposes other than timber production does not constitute a real economic alternative as long as related compensations or indemnities are essentially based on the loss of revenue from a possible timber production. In this respect, reference is made to the Austrian expropriation laws which allocate compensations only to proprietary disadvantages, and entitlement to compensation is measured on the basis of the timber value. Participants of the Forest Dialogue see a need for change here. In this context it was mentioned in the course of the Forest Dialogue that other approaches could be chosen with regard to contractual nature conservation. On the basis of partnership cooperation agreements on performances to be delivered (e.g. active implementation of measures, or renunciation of use) and a fair compensation could be achieved.*

In the course of the administrative reforms, restructuring measures and the creation of new organisation models (e.g. forest owners associations, forest management communities, protection forest platforms) in the recent years, room for action has been created that provides, together with the existing innovation potential, marketing opportunities for forest products and services. Study re-

sults (Rametsteiner & Kubeczko 2003), however, indicate that for important subsections no attractive business models have been developed and no specific markets have been identified up to date. There are also potential market opportunities depending on a better exploitation of existing margins in jurisdiction. Land owners, however, are faced partially with the “problem” of common pool resources, which are characterized by the lack of competition and the non-excludability of market demands or clients (society).

## **Detailed information related to selected production sectors**

### ***Energy from woody biomass***

Austria has an important forest area and a very high growing stock. Every year more timber is growing than is exploited (see Chapter 3.1.1.). The total wood volume of our forests has an **energy content** of approximately 7,560 petajoule (PJ), the annual wood increment amounts to approx. 205 PJ. According to Austria's timber felling report, the annual fuelwood supply amounts to approximately 3.3 million m<sup>3</sup>. This is about 20% of the total timber harvest. These figures show that direct energetic use of wood constitutes an important share of the Austrian energy supply. Apart from the production of wood for fuel, the energetic use of sawmill by-products, other secondary products of the wood-based industry such as paper waste and increasingly woodchips play an important role. At present, the annual volume of bioenergy produced in Austria amounts to 142 PJ (Energy Report 2002). Considering the actual utilisation rate of approximately 2/3 of the annual wood increment on national average, experts estimate that, under appropriate framework conditions, the additional annual energy supply obtained from woody biomass could amount up to 100 PJ on a medium term basis. There is no doubt that in order to give realistic figures of usable energy potentials, more detailed and region-specific studies would be convenient.

In Austria, the gross national consumption of energy is around 1,290 PJ per year (Energy Report 2002). If, in a mere hypothetical assumption, this high energy consumption in Austria would be covered by wood, the total volume of standing timber would be used completely within a few years only. This shows the enormous dependence on fossil energy resources at present. In total, more than three million apartments and households must be supplied with heat in Austria. Annually some 40% of the total domestic energy consumption is used to this end.

Currently, about 17% of Austrian households use wood for heating. Apart from individual installations, the growing number of biomass-based heating plants is encouraging. In Austria, there are currently 587 heating plants with output capacities of 730 megawatts in operation.

Both the integration of EU-directives into national legislation and the independent national programmes on securing energy supply and climate protection result in a fast growing desire for an increased energetic use of our wood resources. The integration of the EU directive on “Green Electricity” into the framework of the legislation on ecological electricity might produce an **increased demand** of energy wood assortments of around 2 million m<sup>3</sup> by 2008 in Austria. The general promotion of biomass use for energy in agreement with the government programme may cause a further increase of the demand for energy wood by the year 2010. Rural suppliers of **heating services**, in particular, have opened up new sources of income and increased their operational value by offering biomass-based district heating plants in cooperative associations, for example. *Some participants in the Forest Dialogue mention the development of interdisciplinary cooperation, others see a potential danger in the newly emerging competition with other energy supplying enterprises.*

*An increased competition for the raw material is emerging. Participants in the Forest Dialogue are worried that the use for energy of solid biomass favoured in the framework of the legislation on ecological electricity can lead to disturbances and financial burdens on the raw material market for pulp, paper and board industries unless there is a simultaneous promotion of comprehensive energy wood programmes. Increased competition is not only noticed as a result of higher energy and material uses of wood but also of the impacts of large biomass-based heating plants on energy wood prices and, thus, on the profitability of existing biomass-heating plants. Representatives of nature conservation support the growing use of renewable energy sources in principle. However, they are concerned about the related exploitation of forest stand beyond the conventional wood utilisation, which can cause an additional loss of nutrients. Here, it is within the competence of the forest owners to decide how much biomass can be reasonably extracted from the respective sites. Representatives of the authorities refer to the forest inspection, which functions in an exemplary way by international standards, and to the corresponding guidelines and expert statements. The WWF makes additional reference to possible conflicts of interest that come along with the*

*increased use of biomass and the claim of leaving dead-wood in the forest for protecting biodiversity, and asks for legal provisions in this regard. Representatives of forest owners oppose legal provisions but are ready to discuss contractual regulations.*

### **Water services**

Drinking water is scarce in many regions of Europe and the world. (25 nations suffer from chronic water shortage. It is expected that this number will rise to 90 in the coming years). On a global scale, water has become a more and more highly appreciated economic good. Water quality constitutes an important cost factor in international trade. However, the EU Water Framework Directive states clearly that water is not “a conventional commodity” but an inherited good that has to be protected, defended and treated accordingly.

Austria as one of the countries with the richest water resources in the world has to stand up to this position and can offer much knowledge with regard to the prevention of water pollution. It sees the particular need to get engaged in the search for solutions of problems related to water pollution and the conservation of drinking water on the international level.

In Austria water is allocated to the respective real estate. This means that owners have the free right of water consumption, generally for their own use. Additional use is subject to legal authorisation, and public interests must be respected in any case. Further provisions are applicable for the use of surface water (e.g. hydraulic power).

Water is an indispensable resource for life. Therefore, it has to be preserved in quantity and quality for as many uses as possible (drinking water, agriculture, industry/trade, energy supply, etc.). Society has high demands on the water resources. Since Austria generally has sufficient water resources at present, attention is mainly paid to the sustainable conservation of water and, on a regional level, to an improvement of water quality.

In Austria, **drinking water** originates more or less in equal shares from spring water and groundwater. For spring water it is important to secure its quality and a sustainable provision. Groundwater resources exist partially in the huge valleys and basins, which at the same time are exposed to an intense use of settlements, industry, agriculture and traffic. Thus, the water quality is threatened in the intensively managed agricultural lands of Eastern



Austria, in the Alpine foothills and in the basin areas in the South-East of Styria. Here special attention is given to management regulations for improved water quality.

Apart from territorial features like topography, geology and soil, land use and, in particular, forest cover and forest condition are of decisive importance for the functioning of hydrological processes. The most important protective functions of the forests with regard to a sustainable provision of drinking water resources are, thus, closely related with other **forms of land use**. Forest management can pay an important contribution to sustainably securing the quality of drinking water resources by avoiding erosion (humus decomposition) and guaranteeing a balanced water supply. The impact of forest (silviculture and management) in combination with site characteristics (soil types and organic matter) has to be considered in a very differentiated way according to annual run-off (discharge from spring and flooding), snow cover formation, interception and transpiration, etc.. This constitutes a big **challenge** and an **opportunity** for forest management at the regional and operational level. For example, in the framework of an integrated ecosystem based approach on water protection (Water Act 1990) and within the EU Water Framework Directive, potentials and offers of forest services in the field of “water protection and/or prevention of flooding” must be presented and developed (e.g. cooperation for an improved protection of water bodies including ecologically important areas near water bodies, conservation and creation of forest-wetland biotopes, contribution to the reconstruction of polluted surface waters and groundwater areas, maintenance of quality in view of the input of dangerous substances).

The number of **small hydro-electric power plants** operated by forest enterprises has markedly decreased in the past decades.

One reason for this development is the destructive competition among the Austrian energy supplying companies. Important framework conditions related to water services as an economic factor are contained in Chapter 5.1.3.

### ***Game management and hunting***

For many forest enterprises with the permission to hunt on their private land, the **lease of hunting grounds** or sale of **individual game animals to be hunted** is an important source of income. In the hunting year 2002/03, Austria had altogether about 12,100 hunting grounds and 116,390 hunters holding one-year hunting licenses, of







whom a little more than 6% were not Austrian citizens (data collection related to the Austrian Forest Report, Ministry of Life 2005a). The Austrian Federal Forests (ÖBf) are by far the most important hunting provider in Austria. In 2000, ÖBf had an annual turnover of 13 million Euro from hunting, compared to 78 million Euro earned from raw timber production. There are additional economic potentials from hunting, in particular in **community or cooperative hunting areas**. Important **framework conditions** related to game management and hunting as economic factors are contained in Chapter 2.

### **Protection against natural hazards**

Important framework conditions relating to the protection against natural hazards (protection of infrastructure and life) are contained in Chapter 5.1.1. In the sense of the Mountain Forest Protocol of the Alpine Convention, efforts are also being made to develop fair models for compensation of services that go beyond fulfilling the site-specific legal framework conditions. *Participants in the Forest Dialogue underline the need to guarantee management and tending of protection forest especially on sites where the actual economic framework conditions are insufficient. The forest authorities promote a remuneration of prevention measures against natural hazards, especially by protection forest management, in the public and private interest. In this respect, the relevant provisions of the forest legislation in force, especially with regard to object-protection forests, must be observed.*

### **Services for nature conservation**

*There are different opinions on the economic value of nature conservation services. Forest managers consider nature conservation predominantly as an income impediment and demand a comprehensive compensation of performances and yield. Environmental NGOs estimate the income potential of nature conservation in a different way. Whereas new and improved income opportunities are pointed out when announcing possible partnerships with forest managers, there is also a call for limiting payments in the framework of contractual nature conservation to the maximum countable value of compensation for increased management efforts.*

The prohibition of deterioration in Natura 2000 areas, which are important for the conservation of biodiversity, can cause management restrictions. Art. 6 of the EU Habitats Directive stipulates that the member states determine necessary conservation measures for particular protection zones. If needed, these may comprise appro-

priate management plans established for such areas or integrated into other development plans with appropriate legal, administrative or contractual provisions. The representatives of forest owners, in particular, refer to the compensation rules of the nature conservation legislation with regard to possible limitations and restrictions of existing utilisation and ask for an appropriate development of relevant and performance-oriented compensation instruments within contractual nature conservation. Important framework conditions relating to **nature conservation services** as an economic factor are contained in Chapter 4.1.

### **Recreational services**

Socio-demographic developments, life style trends and opinion polls demonstrate the growing importance of recreational services (availability of offers for the physical and spiritual human recreation in the forest). From an operational aspect there is not yet sufficient potential for such offers by the forest enterprises. Important framework conditions relating to recreational services as an economic factor are contained in Chapter 6.1.2 (and partly in Chapter 6.1.3).

## **3.1.7. Trends and Developments at Forest Operational Level**

The following comments refer to the aspects mentioned in the particular context of forest enterprises during the Forest Dialogue, and do not claim to be comprehensive. Special issues dealt with are: innovation, cooperation, marketing, mechanisation, and work safety.

### **Innovation**

Innovations are central elements of economic policy to reach classical targets such as economic growth, competitive power, creation of employments, and sectorial or rural development.

Recent research results in the forest and wood-based sector illustrate the links between innovation potentials, aspects of increased **added value** and the creation of new markets. Forest-related potentials for added value are influenced, *inter alia*, by the following factors: spectrum of forest resources-oriented thinking (e.g. narrow view concentrating on timber as a product), orientation on consumer demands and interests and on the experiences gained from other sectors and knowledge areas (interdisciplinary linkages), fixing of costs, fixing of offers, entrepreneurial risk, "groupthink". Development of **services** is about additional income earning. The market demand of services is generally a central issue of growing importance



in forestry. Under appropriate **framework conditions**, investments in new products, services or processes may **serve to develop new markets**.

### **Marketing**

Forest enterprises show generally a tendency towards less direct marketing, especially because the number of persons harvesting mainly fuelwood on their own account is decreasing. The existing marketing opportunities for trees species and their assortments as promoted and used by forest management are a determining factor for the profitability of a forest enterprise.

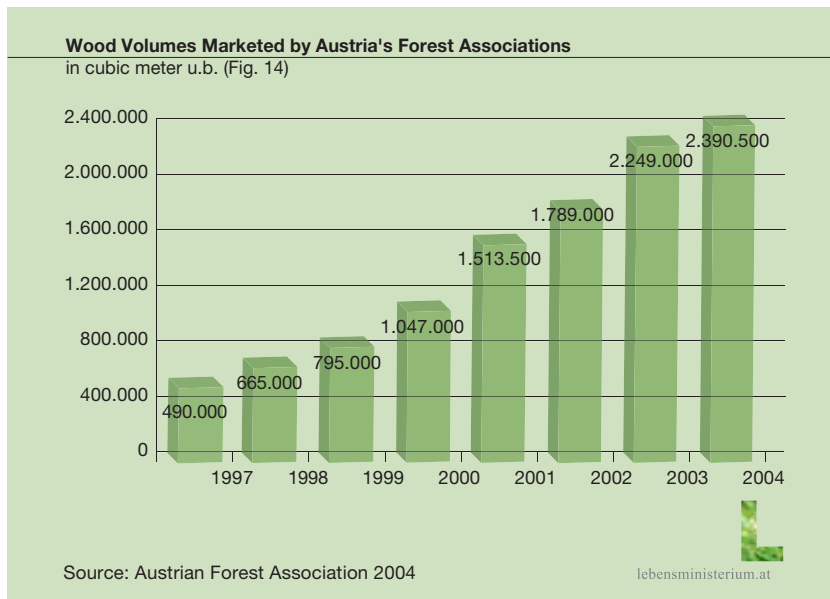
**Certification** of timber and wood products can be a market instrument. *The WWF sees it as an essential instrument for sustainable forest management. According to the environmental report of the OECD (2003) about Austria, certification has no such effects on forest management. In the opinion of the environmental NGOs, certification*

*serves for higher market transparency for securing and promoting sustainable forest management. In addition, it could contribute to obtaining higher revenues from timber and to opening new sales markets.*

*Consumers receive more information about the product and the conditions of its production, and forest owners are obliged to follow the sustainability criteria. If certification is applied only by a few forest owners, they occupy a market niche and can ask for higher prices. However, if certification is applied by the majority of forest owners – and large-scale environmentally friendly production is the objective – then certification is required to enter the market and higher timber prices become unreal.*

The 6th Environmental Programme 2001–2010 of the EU determines the support of reliable certification systems. In Austria, 100% of the forest is certified according to the regional approach of the PEFC (Program for the Endorse-





ment of Forest Certification schemes). Forest owner representatives indicate that active participation of forest owners who are committed to fulfilling the PEFC criteria, is continuously increasing. About 4,100 hectares of Austria's forests are certified according to FSC (Forest Stewardship Council).

*The WWF mentions the growing demand for reliably certified products. The wood-processing industry supports certification in general and requires a mutual acknowledgement of the certification systems represented in Austria. Representatives of forest owners endorse the PEFC certification system. The Austrian Labour Chamber, the Green Party and WWF accept only FSC certification as a reliable scheme and see PEFC certification as a mere marketing instrument; both certification systems are supported in different ways by the Austrian environmental NGOs (e.g. Nature Conservation Association Austria, Umweltdachverband).*

### Cooperation

**Horizontal cooperation** for the marketing of timber has heavily increased in Austria in the past decade (e.g. the cooperation agreement "Forest-Board-Paper") as a reaction to the changed structure on the global market. Cooperative timber marketing is done mainly by the **forest associations** whose members are both members of forest management cooperatives and independent forest owners. Forest management cooperatives are also active outside the forest associations. Austria's forest associations have been very successful and could reach felling increases on the basis of horizontal cooperation. At the end

of 2004, about 51,500 forest owners (compared to 2003 the membership figure is stable) were organised in forest associations. There are 30% of all statistically registered forest owners in Austria. They represent around 24% of productive forest areas in Austria, and 42% of productive forest area in small-scale forests < 200 ha, respectively. The wood volume marketed in total by forest associations amounted already to 2.39 million m<sup>3</sup> u.b. (+% compared with 2003) in 2004, see Fig. 14.

The primary objective of the forest associations is a significant reduction of logistics costs and the increase of productivity through the creation of additional potentials. Thus, higher revenues for the individual forest owner should be possible as compared with individual marketing. An important group are those forest owners who do not earn their main income from forest management (non-farming forest owners). Forest associations become more professional with an improved organisation of procedures. Forest service enterprises have been established by the forest associations for certain service lines (e.g. timber harvest) in Styria and Burgenland. The professionalisation of forest management associations shall go beyond timber harvest and marketing in the long run and include silvicultural counselling, establishment of forest management plans and participation in the development and supervision of wood energy projects, to name but a few.

Unlike horizontal cooperation, **vertical cooperation structures** are not very common in forestry at present. Cooperation of enterprises at different production levels

promotes saving of costs, work distribution in the performance programme, and the joint improvement of innovative capacity. The creation of vertical structures between forestry and sawmills could not only produce the desired synergy effects but also conflict situations (price policy). Nevertheless, Austrian examples show that the forest sector and the wood-processing industries are depending on partnership cooperation and that cooperation takes place in many fields.

### **Rationalisation and work safety**

In timber harvest **rationalisation** is a result of increased **mechanisation**. Mechanisation is an essential means of making forest work easier and preventing health problems. Progress in harvest techniques has also increased opportunities in silviculture. Fully and highly mechanised timber harvest makes cost-efficient thinnings in many layers possible. The wrong use of exploitation engineering can reduce the yield potential in the forest and cause a deviation from the objectives of sustainable forest management. Timber marking done by the operator of a full harvesting machine (harvester), for instance, cannot reach the same technical level as done on the ground. In this regard, the interests of harvester operators and forest owners are often differing. Possible root and soil damage due to the use of harvesting machines depend strongly on the forest site and the working conditions. Only a competent and site-adapted application of techniques corresponds with the objectives of sustainability in forest management.

Rationalisation is a danger for the recent success of close-to-nature silviculture. Some rationalisation measures in forestry have **negative impacts** on the quality of forest management as per the pan-European criteria and indicators for sustainable forest management and ecological diversity. Cost reduction is not necessarily linked to a deterioration of sustainability of the forest management. If forest areas are excluded from forest management due to the rationalisation pressure, this is generally not an ecological but an economic problem for the forest enterprise. New management models (e.g. in forest management cooperatives which take care of the forest), are another result of rationalisation efforts.

*Opinions differ with regard to the compliance with **working standards** for the management of forests for timber production. The Labour Chamber registers gaps in this regard in the supervision and a distortion of competition by enterprises that do not respect the legal standards. This can be detrimental to the affected persons employed*

*and the national economy. Representatives of the provincial forest authorities and the General Accident Insurance administration (AUVA) consider the legal work inspections as sufficient and do not confirm a distortion of competition.*



## 3.2 Principles and Goals

### Principles

---

- (P8)** Securing durable income and the creation of value for companies from sustainable forest management, with special attention to family forestry
- (P9)** Sustainable supply of the economy with forest products and services
- (P10)** Increasing the competitive capacity of the wood, pulp and paper industries as well as other wood-based enterprises (processing and manufacturing of wood and wood products) with special attention to small and medium-sized enterprise structures

### Goals

---

- (Z13)** Strengthening close-to-nature forest management and improving the use of site-conforming technologies of utilisation
- (Z14)** Maintaining and sustainably improving wood supply while conforming to generally accepted framework conditions
- (Z15)** Optimised value chain
- (Z16)** Improved cooperation between and across sectors (forest – wood – energy – tourism – water – education – research – agriculture – nature conservation – hunting etc.)
- (Z17)** Improved productivity in sustainable forestry and in wood processing and manufacturing industries through product diversification, new marketing lines and promotion of new income sources
- (Z18)** Intensification of education and vocational training, research, economic monitoring programmes and further employment of tools of forest and related land-use planning
- (Z19)** Strategic partnerships between rural and urban areas with special emphasis on preserving small and medium-sized enterprise structures
- (Z20)** Developing local strategies based on public-private partnerships, with a view to securing employment and innovation



### 3.3 Fields and Sets of Measures

#### Thematic Area 3

#### Productivity and economic aspects of Austrian forests

#### Field of Measures

#### 3.1 Sustainable forest management

#### Set of Measures

- 3.1.1 Analyses and necessary adaptations of the professional image of foresters, appropriate education and vocational training
- 3.1.2 Increased attention to forest management in related structure programmes, emphasis on the wood cluster, export initiatives, etc.
- 3.1.3 Analysis of structures in the forest and wood-based industry, development and implementation of appropriate measures for securing the future
- 3.1.4 Securing and increasing existing income sources: analysis, deduction and implementation of suitable framework conditions for improving the income situation, e.g. by placing stronger emphasis on adequate sustainable enterprise structures, support schemes and cooperation (forest owner associations)
- 3.1.5 Opening up of new income sources: potentials and market analysis in the fields of water supply, protection against natural hazards, forest culture, tourism as well as non-wood forest products and services
- 3.1.6 Securing and increasing wood production and supply, e.g. by raising potentials, structural strengthening of forest alliances, joint wood marketing, support, reduction of costs for example by improved logistics, forest economic alliances/co-operations, optimisation of forest cover
- 3.1.7 Securing and strengthening the phytosanitary situation, prevention of forest fires by extension, advice and promotional means (e.g. with regard to silviculture/fire control)
- 3.1.8 Securing, and, if necessary, improving forest management, e.g. by means of certification, management plans, expert advice, education and vocational training
- 3.1.9 Research policy strategies: gap analyses and corresponding orientations
- 3.1.10 Development of a data policy strategy relating to forest-related geo-data

**Field of Measures**

## 3.2 Renewable energy

**Set of Measures**

3.2.1 Assessment of potentials

3.2.2 Improved logistics: research, expert counselling, promotion

3.2.3 Increase in value and employment by improved economic framework conditions, e.g. suitable (efficient and CO<sub>2</sub>-related) rules for feeding energy from biomass, employment strategies, provisions for taxes and duties

**Field of Measures**

## 3.3 Wood as a raw material

**Set of Measures**

3.3.1 Supply and tendering regulations that give priority to wood as a regrowable and renewable raw material

3.3.2 Evaluation of the building code including necessary amendments for the use of wood

3.3.3 Appropriate orientation of related promotional provisions, especially in the area of residential building promotion: incentives for increased use of wood

3.3.4 Emphasis on sales promotion, advertising and public relations for wood and advertising wood products from certified sources

3.3.5 Strengthening of research and development

3.3.6 Further development of cooperation initiatives with all interested parties (architects, representatives of the forest, wood, pulp and paper sectors) at all levels of the value chain











## Thematic Area 4

# BIOLOGICAL DIVERSITY IN AUSTRIAN FORESTS



## 4.1 CURRENT STATE: Biological diversity comprises the variety of all life on earth, including the diversity of ecosystems, the diversity of all living organisms (animals, plants and micro-organisms), and the genetic diversity within species.

More than half of the biodiversity worldwide is found in forest ecosystems. Although forest ecosystems rank among the “hot spots” of biological diversity, the biodiversity of forests is **highly threatened** on the global level. Therefore, forests occupy an important position in the framework of biodiversity-related international contracts and political programmes.

*The following synopsis gives an overview of international and European instruments and programmes related to forests and the environment:*

The international **Convention on Biological Diversity (CBD)** of 1992 pursues three main objectives: 1. active conservation of biological diversity, 2. sustainable use of its components and, 3. fair and equitable sharing of the benefits arising from the utilisation of genetic resources. The ecosystem approach has been determined as the principal policy guideline for the implementation of the Convention. In the “expanded programme of work on forest biological diversity” adopted in 2002, parties are requested to determine national priorities in the programme of work and to incorporate these priorities in their national biodiversity strategies and national forest programmes. Austria has ratified the Convention and has, thus, integrated its

provisions into national law (FLG No. 213/ 1995). Consequently, Austria is committed not only to conserving its own biological diversity, but also to assuming responsibility for global biological diversity and to supporting developing countries in their related efforts. The “National Biodiversity Commission” founded in 1995 is responsible for the national coordination and harmonisation of implementation-related activities. The central implementation instrument is the “Austrian Implementation Strategy of the Convention on Biological Diversity” which has been adopted by the Austrian Federal Government in 1998. An important regional instrument for supporting the implementation of the CBD is the **Pan-European Biological and Landscape Diversity Strategy**, which was adopted by the European Ministers of the Environment in 1995. *In the Forest Dialogue, the objective adopted by Austria at the international level to stop the loss of species by 2010 has been reiterated and the relevant implementation strategies have been demanded with emphasis.* The **network of protected areas Natura 2000**, which has been set up on the basis of the **Habitats Directive** (92/43/EEC) and the **Wild Birds Directive** (79/409/EEC), plays a central role in the conservation of biological diversity in the European Union.

The establishment of the Natura 2000 network is also addressed in the **EU Biodiversity Strategy** and related **Action Plans**. Furthermore, biological diversity is also a topic included in the **6<sup>th</sup> Environmental Action Programme 2001–2010** of the European Union, which stipulates the following actions for the protection and sustainable development of forests: 1. Support of reliable forest certification systems; 2. Application of sustainable forest management *inter alia* through national forest programmes in combination with rural development plans; 3. Stronger efforts to incorporate environmental aspects into (agriculture, fishery and) forest policies. Furthermore, cross-sector activities are also relevant for the biological diversity of forests (e.g. the development of a soil strategy).

In the framework of the international forest policy dialogue of the Intergovernmental Panel on Forests (IPF) and the Intergovernmental Forum on Forests (IFF), more than 300 **IPF/IFF proposals for action** in the management, conservation and development of all types of forests on the international level have been adopted. Together with the Forest Principles of the United Nations, these proposals for action are among the most important international agreements in forest policy and must therefore be implemented by international, national and regional stakeholders. Furthermore, the biological diversity of forests has been dealt with by the **Ministerial Conference for the Protection of Forests in Europe** (MCPFE Strasbourg Resolution S2, Helsinki Resolution H2, and Vienna Resolution V4), and by the **European Forest Strategy**.

For Austria as a mountainous country, the **Alpine Convention** and its forest and biodiversity-related Protocols are also of special importance, in particular, the Protocols on land-use and sustainable development (FLG III No. 232/2002), e.g. art. 9(2) rural areas, lit.a: protection of areas suitable for agriculture, pasture and forestry), nature conservation and landscape management (FLG III No. 236/2002), mountain forests (FLG III No. 233/2002) and soil protection (FLG III No. 235/2002, e.g. art. 13: Silvicultural and other measures).

The success of international programmes for the promotion and conservation of biological diversity in forests depends essentially on the practical implementation at the national and local levels. However, the concern and the acceptance of international agreements are not very high on the part of the responsible stakeholders and the

general public. The conservation of biological diversity in Austria is basically possible by means of an efficient network of protected areas and close-to-nature forest management according to ecological criteria inside and outside of protected areas. Management measures in protected areas must be oriented along the respective objectives of protection. With a high share of roughly 47% of the territory, forests are the most important form of land cover with regard to quantity. Therefore, forests have a high value for biological diversity in Austria, and the major part of their areas has been managed for centuries.

Whereas sustainable forest management directly or indirectly supports many species and ecosystems, forestry interventions also cause a loss of species and habitats on some sites. An internationally exemplary study on “Hemeroby of Austria’s Forest Ecosystems (1992–1997)” carried out an area-wide evaluation of naturalness of Austria’s forests. The result indicates that 3% of Austria’s forests are considered natural, 22% semi-natural, and 41% moderately altered forests. 27% were evaluated as strongly modified, and (*in the Forestry Department’s view “only”*) 7% as artificial forests. In due consideration of the potentially natural vegetation and site-conditions, small-scale management types as well as the intentional absence of any kind of management enhance diversity in the forest.

In order to ensure the positive effects of forest management for conservation and promotion of biodiversity in the future, measures concerning also contractual nature conservation are under consideration. Existing forest promotion programmes include measures that enhance biodiversity, too. Conflicting objectives between forest management and the conservation or sustainable use of biodiversity may appear with regard to afforestation of poor sites (dry and nutrient-poor grassland) for example, selection of tree species, forest tending, forest cover and structure, phytosanitary measures or access to the forest.

#### 4.1.1 Area protection

Austria is home to a great variety of forests. An essential part of the protection of biological diversity in the forest are protected areas where human intervention is either totally forbidden or subject to certain restrictions. In a recent study (Schwarzl & Aubrecht 2004) 117,000 hectares of forest (3% of the total forest area in Austria) in protected areas under nature conservation law and in forest nature reserves under private law are categorized in class 1 (protection of biological diversity) according to the



Assessment Guidelines for Protected Forest Areas of the Ministerial Conference for the Protection of Forests in Europe.

A bit more than 900,000 hectares are classified in class 2 (23% of the total forest area in Austria), which places emphasis on landscape protection. This does not imply any restrictions to forest utilisation other than those provided by the existing legislation. *The WWF asks for an additional remark saying that only 0.7% of Austria's forest area is classified as area with "no active management" and that therefore "best status of protection" applies only to a limited area. Participants in the Forest Dialogue (e.g. representatives of forest authorities, representatives of forest owners, and experts in nature conservation) object and point out that an optimised area protection often requires targeted management measures. The WWF indicates furthermore that there exists a major backlog related to the development of detailed management plans (reference to the respective protection objectives and related measures) and that there is a need to increase protected areas. In this context, the forest department refers to experiences made already with specifically targeted forest plans and to recent developments in the implementation of the EU nature conservation provisions by the Federal Provinces.*

In view of the fact that the share of areas in which biodiversity of forest ecosystems is subject to stringent protection provisions is relatively low in international comparison, it appears expedient to undertake further measures for the protection, conservation and improvement of forest biodiversity in order to implement the goals of the MCPFE and those of nature conservation as laid down in European law. In many cases transboundary harmonisation of activities is reasonable.

The Red List of Austria's threatened forest biotope types is one possibility to evaluate the threat situation of the forest. The catalogue of biotope types lists 93 different forest biotope types, 53 (57%) of which are in a threat category. Five flood-plain forest biotopes are threatened with extinction. However, no forest biotope has completely disappeared in Austria up to date. 22 biotope types are not threatened. Another 18 forest biotope types were classified as "not of special concern" and therefore not evaluated.

The analysis of the threat situation shows regional differences. Generally speaking, the forests in intensively utilised lowland zones are more threatened.



In the high altitudes of the Alps the situation is much more favourable. Flood-plain forests, for example, are forest types that are particularly threatened. River regulation and construction of hydraulic power stations directly threaten four flood-plain forest types with extinction. More than 80% of the threatened biotope types have no or little potential for regeneration. This situation is particularly striking for biotope types characterised by typical abiotic factors that can hardly be restored or only over a very long period of time, such as peat, swamp or marsh forests. Many frequent biotope types of wide distribution are impaired in their ecological quality through intensive forest utilisation, among other things.

When signing the Resolutions of the Ministerial Conference on the Protection of Forests in Europe in Helsinki in 1993, Austria agreed to advance the establishment of a network of **natural forest reserves**. Natural forest reserves are forest areas destined for the free development of the forest ecosystem without any direct human intervention. Natural forest reserves contribute to the conservation and natural development of biological diversity, and serve the purpose of research, training and education (natural forest reserves are reference areas for applied research, in particular research on natural dynamics of forest communities). Natural forest reserves should represent as far as possible the distribution of tree species and stand structure of natural vegetation conditions or reach them in a near future. Instead of the conservation of the actual condition of certain parts of the forest, the primary objective is to tolerate their natural development. Although these forest areas were exploited intensively in former times, they return gradually to the state of the original virgin forest in their development dynamics the longer the period of non-intervention lasts. Immediate interventions that must be avoided are forest harvest, processing of deadwood and the artificial introduction of forest trees, but not hunting activities. The Federal Province of Salzburg started with the systematic establishment of natural forest reserves as early as in 1985. At present there are 14 reserves under nature conservation law, one of them being also incorporated into the federal network of natural forest reserves. Since 1995 work has been going on to set up the Federal Austrian Natural Forest Reserves Programme. The most important selection criterion is the representative coverage of the approximately 125 potentially natural forest communities in Austria's 22 growth zones. At present there are approximately 180 reserves (figures of May 2004) covering an overall area of approximately 8,300 hectares. Two thirds

of the existing forest communities have been registered up to now.

The **network of protected areas Natura 2000** plays a central role for the conservation of biological diversity at the EU level. Austria's Federal Provinces have already reported a total of about 16% of the federal territory (212 areas) as Natura 2000 areas. Approximately 50% of these areas are forest land. This network is composed of areas which comprise the Annex I natural habitat types, the Annex II habitats of species and protected areas registered according to Directive 79/409/EEC (Special Protection Areas (SPAs) for the protection of wild birds) and obliges the member states to ensure the maintenance or, if necessary, the restoration of a favourable state of conservation of the natural habitat and species habitats in their natural area of distribution. The afore-mentioned protected areas of wild birds are areas designed for those bird species indicated in Annex I of the Directive. Among them there are numerous bird species which totally or partially use or need the forest habitat.

Measures taken in line with the Directive aim at the conservation or restoration of a favourable state of conservation, but must also take into account economic, social and cultural requirements as well as regional and local particularities. The responsibility for the implementation of these legal prerequisites lies with the member states; in Austria, for constitutional reasons, the responsibility lies with the Federal Provinces. The necessary legal adaptations have largely been made. The management plans necessary under certain conditions have been drawn up or are in elaboration for individual regions. Furthermore, the instrument provided by forest law of the principally voluntary establishment of forest plans shall be applied more often.

The problem of **financing** conservation measures and financial compensations in Natura 2000 areas has not been fully clarified neither at the national nor at the European level. At present, there is no special European Commission funding for Natura 2000, with the exception of financial means that are applied in the framework of LIFE-Nature.

The European member states, however, may use other Community funds for the purpose of management of Natura 2000 areas. With the conditions for use of these funds and their targets being highly heterogeneous, a permanent EU co-funding of Natura 2000 is practically not possible. Vivid discussions take place at the Euro-









pean level and in Austria on whether the Programme for development of rural areas (according to EU-regulation 1257/99) could be a starting point for financing the management of Natura 2000 areas and to which extent classical promotion instruments of nature conservation could be used. For compensation payment for measures in Natura 2000 areas, other funds in addition to the “Rural Development” fund must be considered, mainly by the Federal Provinces, as they are the competent authorities for nature conservation affairs.

There are comprehensive discussions on whether the possibilities of rendering services for the maintenance and conservation of biodiversity represent an additional income potential for forestry, or whether prohibitions, rules, or requirements limit operational planning (see Chapter 3.1.6).

Forests in Austria’s National Parks play an important role. As mentioned already for the natural forest reserves, the areas of National Parks serve nature conservation, research, education and teaching purposes. Furthermore, National Parks gain also in economic importance (increase of regional generation of value, jobs, improved infrastructure, tourist activities etc.). In this context, reference has to be made to the high importance of existing and future biosphere parks for the area protection of forests. Biosphere parks (internationally: biosphere reserves) are areas that have been recognised according to international criteria within the framework of the UNESCO programme of “Man and Biosphere” (MAB). They comprise large-scale ecosystems of extraordinary importance for the conservation of biological diversity.

***UNESCO indicates three basic functions of equal importance of biosphere parks:***

- to contribute to the conservation of ecosystems and landscapes, of biological and cultural diversity and of genetic variation
- to foster economic and human development which is socio-culturally and ecologically sustainable
- to provide support for research, environmental monitoring, education and information exchange for a better understanding of the interactions between man and nature

Thus, the biosphere park concept of the UNESCO is a comprehensive protection and development tool. By combining protection with utilisation and considering human activities, it is tailored to cultural landscapes of high natural value.

#### 4.1.2 Species Conservation

Forests play a vital role for species conservation. Forests are home to many endangered animals and plants. Valuable biotopes, e.g. spring water, freshwater or swamps can be surrounded by forest. Therefore, their conservation and condition is also dependent on forest management.

**A great number of conventions and legal provisions regulate the conservation of species, among them the following few examples:**

##### **International Agreements:**

- **CITES** (Convention on International Trade in Endangered Species of Wild Fauna and Flora – Washington Convention on Species Conservation): Import and export restrictions for listed species.
- **Bern Convention** (Convention on the Conservation of European Wildlife and Natural Habitats): Conservation of listed wild fauna and flora and their natural habitats.
- **Bonn Convention** (CMS or Convention on the Conservation of Migratory Species of Wild Animals): Agreement on the conservation of migratory wild-living animal species.
- **CBD** (Convention on Biological Diversity): Obligation to conserve biological diversity (ecosystems, species, genetic resources) through national measures. National reporting to the Conference of the Parties.
- **Alpine Convention** (Convention on the Protection of the Alps) and Protocols: Obligation of the Alpine States including the European Union to pursue a comprehensive policy and cross-sector implementation in order to harmonise and establish consistent goals for sectors like nature and landscape conservation, mountain forests, mountain farming, transport, tourism, land-use management and soil conservation.
- **Ramsar Convention** (Ramsar Convention on Wetlands): Agreement on wetlands, particularly habitats for waterfowls and wading birds of international importance.

##### **International Strategies and Processes:**

- **MCPFE** (Ministerial Conference on the Protection of Forests in Europe) – Resolution H2 requires also the conservation of endangered species, Resolution V4 requires the conservation of biological diversity.
- **PEBLDS** (Pan-European Biological and Landscape Diversity Strategy): A framework programme which coordinates all existing activities in nature conservation and restoration, particularly the conservation of biological and landscape diversity, and promotes the transboundary cooperation in this field.

##### **EU-legislation:**

- **EC Habitats Directive** (Directive for the Conservation of Natural Habitats and of Wild Fauna and Flora) and **EC Birds Directive** (Directive on the Conservation of Wild Birds) – Annexes of habitats to be protected, of animal and plants species for which a network of protected areas must be created (**Natura 2000**); **LIFE-Projects** as instruments for implementation and financing.

##### **Federal laws:**

- **Forest Act**
- **Water Act**
- **Alpine Convention and Protocols**

##### **Provincial laws:**

- **Nature conservation laws:** animal and plant species protected (per decree); protected areas.
- **National park legislation, biosphere park legislation**
- **Hunting laws:** close seasons (per decree)
- **Fishery laws:** close seasons and minimum sizes (per decree)
- **Land-use planning laws** (of partial relevance for habitat and species conservation)

An evaluation of threats is published in **Red Lists of threatened species** drawn up by experts; these lists are considered as expert opinions. *Red Lists should be revised regularly in order to take account of changes in threat situations. There are often differences observed between the threat situation indicated in the Red Lists and the legal protection status. It can happen that less known low-key species are not sufficiently protected.*

*Quite the opposite may happen with some attractive species that are fully protected although the Red List does not advise any threat. Nature conservation representatives, however, argue that legal protection of attractive species in particular is meant to prevent them from becoming threatened and then figure in the Red List.*

##### **The following species in forest habitats are threatened:**

- **Open forest species:** Numerous flowering plants, insects and vertebrates (birds, reptiles) avoid dense and closed stands and live only in open forests, mainly in oak and pine-tree forests. Among them there are many endangered species. In the forests, the conditions for many light-demanding species (e.g. capercaillie, diptam) have deteriorated. On the one hand, this is caused by a different and more

efficient forest management (conversion of coppice forest into high forest, no more forest litter utilisation and grazing), and, on the other hand, increased nitrogen input (air pollution, nitrogen fixation of black locust) plays an important role. The capercaillie is an indicator for close-to-nature climax forests and represents many other species with similar habitat needs.

- **Wetland forest and swamp species:** Species that rely on swamps or swamp and peat forests are threatened in such only locally appearing habitats especially because of a decrease of the groundwater level and a related change in utilisation.
- **Flood-plain forest species:** Mixed broad-leaved forest communities in flood and flow zones of rivers. Regular flow and flooding and subsequent dry periods preserve this sensitive ecosystem. It is marked by a great diversity of species: forest next to the main water body, forests further away from the main water body, mixed oak forests, open savannah-like forest vegetation
- **Species of sporadic or disperse occurrence** (Fungi, lichen, insect species)
- **Inhabitants of deadwood:** Among the threatened beetles (e.g. *Rosalia alpina* and capricorn beetle *Cerambyx cerdo*), swamps and lichen, the group of deadwood inhabitants is prominent. Deadwood inhabitants have different requirements on lying and standing old growth and deadwood. As many of these species have only a small radius of action, the distribution of old growth and deadwood in the forest is of primary importance for them. Inhabitants of old growth and deadwood are threatened if there are not sufficient habitats at their disposal. Continuous activities (promotion of woodpecker trees and deadwood, creation of protected areas such as natural forest reserves, nature protection areas and Natura 2000 areas) support the conservation of the communities in these habitats. Phytosanitary instructions may be in contradiction to leaving deadwood in the forest. With the 2002 Amendment (§ 32a) to the Forest Act, the authorities can order exemption of phytosanitary measures by decree on request of a forest owner or of the nature conservation authorities, if they are not against the public interest of forest conservation.
- **Epiphytic lichen and mosses:** Species which are attached to the bark of broad-leaved trees are particularly endangered. Many lichen species (e.g. tree lungwort *Lobaria pulmonaria*) are also relatively light-demanding and react in a very sensitive way to

changes of the stand climate (humidity) that happen in the course of felling interventions.

A joint nature conservation statement of the Federal Provinces on threatened forest biotopes notes that currently no danger can be recorded for the mentioned biotope types in threatened forest biotope types. However, individual development phases are absent or do not exist to a sufficient extent in order to ensure the survival of specialised species. Consequently, in various forest habitat types it is important not only to conserve the habitat type, but also to preserve mature development phases in particular, such as climax and decomposition phases, which usually do not remain in commercial forests. In order to face this problem, special “subsidies for old growth islands” were created (e.g. in Salzburg) by way of contractual nature conservation.

#### 4.1.3 Conservation of Genetic Diversity of Forest Trees

Forest ecosystems with their various protective and beneficial functions are a basis of life for human beings and constitute an important reservoir of biological diversity. Biological diversity (biodiversity) refers to the variety of all types of organisms, diversity of ecosystems, diversity of species and diversity within species (genetic diversity). The genetic aspect of biodiversity is not visible in the forest with a few exceptions, and it is therefore often not taken into account. *Genetically modified organisms have not been liberated or used in Austrian forests up to date, and it seems that according to current evaluation they will not be of relevance in forestry practice in the future. The Green Party objects with emphasis to any liberation of genetically modified organisms.*

Starting from their refuges in Southern Europe in the glacial period, tree species have settled again in wide distribution areas in post glacial times. They have adapted to different environmental conditions – to high altitudes on the vertical level and from oceanic to continental climate ranges on the horizontal level. As compared to other organisms, forest trees species are characterised by a particularly high genetic diversity. Forest trees are long-living and stationary organisms, exposed to a wide range of abiotic and biotic environmental conditions. They cannot avoid stress impacts as they are bound to the site. The genetic diversity of a tree species guarantees the survival of populations at current environmental conditions (adaptedness) and constitutes the basis for further development under changing environmental conditions (adapt-









ability). However, only little is known at present about the extent of genetic diversity necessary for sustainable forestry.

The most important source of genetic diversity is sexual reproduction, when existing genetic information of parent trees is combined in a new way through accidental distribution. In the light of climate change, an intact so-called natural reproduction system is of special importance. In naturally regenerated stands, a particularly high natural selection from an extremely high number of genetically different individuals takes place. Long-term success in forestry with artificially regenerated stands depends on the choice of suitable forest reproductive material.

Seed and plant material of insufficient genetic adaptedness and adaptability cause a higher susceptibility to actual stress factors. Moreover, future tree generations are also handicapped by this false decision. This is valid for both the creation of highly performing stands for the production of the renewable material wood, and for the setting up of protection forests. In order to conserve genetic diversity and characteristics needed in forestry, the reliable identity of forest reproductive material that is sold nationally and internationally, is regulated by law.

Unlike the homogeneity found in agricultural and horticultural culture plant varieties, breeding has not modified forest trees, with a few exceptions (e.g. poplar clones). The forest tree species of Central Europe are mainly wild populations influenced by human intervention. Forest utilisation and management practised over centuries, and transfer of seed and plant material have produced strong regional changes in the forests. Therefore, only part of the actual stands can be considered as primary (autochthonous) stands. The dimension and location of these primary forests is largely unknown.

**Genetic diversity** can be quantified only indirectly in field trials or in the laboratory. An excellent evaluation of certain evolutionary influence factors (e.g. based on fragmentation) is possible thanks to biochemical and molecular methods; it is more difficult, however, to assess selection-based influences. In the medium-term perspective, genome research will also bring about improvements in this field. Genetic research contributes significantly to the solution of problems in this regard. It contributes knowledge on the selection process and minimum size of suitable seed stands, for example, on the determination of harvesting methods, the limitation of provenance areas and the establishment of recommended provenances. Furthermore, undesired hybridisation of wild forms of endangered species (e.g. black poplar) or of wild fruit species can be assessed. Emphasis is not on the maximisation of genetic diversity but on “genetic sustainability”. It is important to maintain and safeguard conditions, which ensure that the information pool generated in managed forest ecosystems or in natural habitats not in human use is preserved.

Genetic sustainability is needed for long-term stability and economic productivity of forests. Therefore, national biodiversity monitoring must take into account genetic aspects as well.

#### 4.1.4 Distribution of Alien Plants (Neophytes)

The term neophytes comprise all plant species that have been introduced into Austria intentionally or unintentionally by man after 1492. In Central European vegetation, neophytes are found primarily in biotope types with high anthropogenic or natural perturbation dynamics. In closed vegetation stands, the establishment of new species is difficult.

Several species of neophyte woods grow wild or are established in Austrian forests. Generally they are not

invasive. In the herb layer of zonal Austrian forests, parviflorous balsam (*Impatiens parviflora*) is the only widespread neophyte, some other species have been introduced locally. The number of neophytes decreases with increasing altitude and a rougher climate. In mountain altitudes, neophytes do not play a role any more in Austrian forests.

In the forests of the **Pannonian region of eastern Austria**, some invasive neophyte woods, especially black locust (*Robinia pseudacacia*) and tree of heaven (*Ailanthus altissima*) are partly massively invading the shrub and tree layers and cause major vegetation and site perturbations. In some **flood-plain forest types** neophytes are also gaining in significance. These types of biotopes are marked by a strong anthropogenic and natural disturbance that encourages the introduction of neophytes. The softwood wetlands of the lowlands are particularly rich in common neophytes. The ash-leaved maple (*Acer negundo*) is massively invading the tree layer of silver birch wetlands in the Pannonian region.

The Austrian Action Plan on Alien Species (neobiota) sets out objectives and activities in a detailed way. Some alien species are of high economic importance for forestry (also in view of the predicted global warming). With this Action Plan attention is given primarily to activities concerning invasive or potentially invasive species or those that cause problems or are of no economic relevance. Furthermore, greater attention shall be given to species with impacts on human health.

#### 4.1.5 Ecosystem Approach

According to the definition of the Convention of Biological Diversity (CBD), the ecosystem approach aims at reaching a balance of conservation and sustainable use of biological diversity. This means an ecosystem management across all land-use sectors and policy fields, and includes, in particular, the participation of interest groups and concerned parties in decision processes. The ecosystem approach and the existing concepts of sustainable forest management as defined for example by the Ministerial Conference for the Protection of Forests in Europe (MCPFE) have many things in common. The ecosystem approach does not exclude other management or conservation approaches.

Contents and objectives of the CBD as well as the tasks and central messages of the ecosystem approach are not well known among both forestry stakeholders and groups

acting outside the forest sector. Studies show that all forest-related land-use sectors are called upon to do more for the conservation and sustainable use of biological diversity than in the past. Various resolutions of the Conference of the Parties of the CBD provide for a regionally differentiated application of the ecosystem approach for the biodiversity of forests. In order to make these generally formulated principles more “tangible”, a practice-related implementation under the specific Austrian framework conditions and the establishment of a stronger relation to forest ecosystems is necessary.

The relationship between the two concepts of “ecosystem approach” and “sustainable forest management” is still subject of discussions. Therefore, no reliable comments can be made with regard to the mutual need of action and the potential of synergies.





## 4.2 Principles and Goals

### Principles

---

- (P11) Conservation, protection and, if necessary, improvement or restoration and sustainable use of forest biological diversity on genetic, species, ecosystem and landscape levels
- (P12) Enhanced cooperation between forest management and nature conservation
- (P13) Increased use of contractual nature conservation and market instruments (e.g. eco-sponsoring). Sound balance of user interests and, as far as necessary, securing of the protection objectives in a relevant regulation
- (P14) Conservation and protection of native forest biotope types and related plant and animal species and their genetic diversity, with special attention to the goal agreed upon on the international level: "Stop the loss of biological diversity in Austria by 2010"

### Goals

---

- (Z21) Development and implementation of a national monitoring programme for biological diversity
- (Z22) Orientation of forest management according to the potentially natural forest community while safeguarding the stability of the forest ecosystem concerned
- (Z23) Participatory development of strategies for the protection of forests (inside and outside of protected areas), including species protection programmes in connection with other relevant national programme developments
- (Z24) All types of forests occurring in Austria are to be recorded in a representative system of protected areas and tended in a coordinated manner
- (Z25) Maintenance and promotion of traditional types of forest management and silvicultural systems
- (Z26) Preserving and enhancing rare and endangered native tree and shrub species and responsible treatment of invasive alien species in compliance with relevant, agreed strategies
- (Z27) Integrating ecologically relevant elements into forest land-use planning and using them as an important basis of forest political decisions and to reach objectives relating to biodiversity, respectively

## 4.3 Fields and Sets of Measures

### Thematic Area 4

#### Biological diversity in Austrian forests

### Field of Measures

#### 4.1 Biodiversity protection and management

### Set of Measures

- 4.1.1 Establishment of appropriate biodiversity monitoring in the forest
- 4.1.2 Participatory development and promotion of voluntary establishment of regional management plans
- 4.1.3 Determination of a remuneration scheme for nature conservation measures
- 4.1.4 Settlement of financing issues: rural development, budget for nature conservation, eco-sponsoring
- 4.1.5 Balancing the needs of forest protection and biodiversity conservation with special regard to Art. 32a of the Forest Act
- 4.1.6 Collaborative development (in quality and quantity) of protected forest areas and species protection (e.g. rare and endangered tree and shrub species), especially by strengthening contractual nature conservation and the creation of a comprehensive network of protected areas in compliance with international obligations
- 4.1.7 Clarification of legal questions and ensuring the implementation of related legal prescriptions
- 4.1.8 Clarifying the connections between sustainable forest management (SFM) and the ecosystem approach according to the Convention on Biological Diversity
- 4.1.9 Implementation of the Austrian Neobiota Action Plan
- 4.1.10 Silvicultural and nature conservation advisory strategies with special regard to biodiversity, health and vitality of trees and forest stands







## Thematic Area 5

# PROTECTIVE FUNCTIONS OF AUSTRIAN FORESTS



## 5.1 CURRENT STATE: Forests contribute essentially to the protection of people and their constructions against natural hazards. And forests also protect important factors like soil, water and air.

### 5.1.1 Protection Against Natural Hazards

The flood disasters of 1870 made the importance of protection forests obvious. Based on the Imperial Forest Act, the Forest Engineering Service in Torrent and Avalanche Control was established and the “Torrent Control Act” was passed in 1884. In the 1940s and 50s it was acknowledged that engineering measures alone were not sufficient. So, biological measures were again applied to a higher degree. As a supplement to the “area management projects” initiated at the time, comprehensive high-altitude afforestation and protection forest programmes were started in the seventies. In the eighties, the current holistic, ecosystem-oriented strategy for protection from natural hazards was introduced following the worrying

results of the protection forest survey within the scope of the Forest Inventory. In the protection against natural hazards, flood prevention and protection play a special role. Flood disasters have always been a frightening natural catastrophe. The flood events of the past years show clearly that an increasingly interlinked approach to flood protection is required. Apart from territorial characteristics like topography, geology and soil, land-use and especially forest cover percentage and forest condition are of decisive importance for the development of hydrological processes.

The most important protective functions of forests in flood prevention are, thus, closely linked with other forms of land use. Therefore, interaction with land-use planning

is of special importance. In flood prevention, forest stands reduce run-offs (lower flood peaks), provide a higher infiltration capacity and better contribute to avoiding soil deterioration and erosion. The influences of forests (forest structure and management) in combination with site-specific characteristics (soil and humus types) have to be seen in a much differentiated way with respect to annual run-off (flood run-off), development of snow cover, interception and transpiration. The importance of the protective functions of forests related to various hazard types such as torrents, avalanches, rock fall, mud flow, erosion etc. has become a central issue in national economy. However, it has not yet obtained the public attention that would be needed from the strategic point of view concerning protection forests.

In 1991, a joint declaration by the Ministry and the Federal Provinces on measures to enhance the protective functions of forests was signed by high-ranking provincial politicians and the Federal Minister Dr. Fischler. Thereby it was agreed to elaborate **provincial protection forest concepts**, in particular to ensure the expedient use of the necessary budgetary funds.

On 16 January 2002, officials from ministries and provincial governments and representatives of the interests of forest owners, regional authorities, economy and hunting met in Salzburg to put their joint declaration of intention in writing and commit themselves to the **Austrian Protection Forest Strategy**. Protection Forest Platforms shall serve for deciding on the measures needed for the protection forests and harmonising the interests where necessary. Special importance has been assigned to forest and pasture management as well as to a forest management that meets the requirements of the protection forests and is adapted to the corresponding situation.

In the course of the Forest Dialogue, the Ministry of Agriculture, Forestry, Environment and Water Management has set up a Federal Protection Forest Platform. Protection Forest Platforms are already in place in the Federal Provinces of Upper Austria, Salzburg, the Tyrol and Vorarlberg; they are in preparation in Styria; they exist at civil service level in Carinthia, and they are in planning stage in Lower Austria and Burgenland. An essential objective of the Austrian Protection Forest Strategy is a closer collaboration between agriculture and forestry, hunting, tourism, nature conservation and other users of landscape in order to jointly provide efficient solutions for a sustainable provision of protective functions. It is also

necessary to use synergies because the allocation of public funds for the restoration of protection forest becomes increasingly difficult.

***The Protection Forest Strategy comprises the following general principles:***

- Forests are indispensable for the preservation of habitats and living space in Austria
- The protection function is of enormous and increasing economic importance
- The guarantee for the protection function is the preservation of protection forests as a whole, in particular the preservation of object protection forests, the safeguarding of sustainable forest management and its funding, the motivation of all forest owners and other stakeholders, an efficient and modern administration, a good attitude of all citizens towards forests, and the integration of everyone affected.

***With the 2002 amendment to the Forest Act, the legislator has set out important changes to forests of special treatment:***

The former “protection forests” are now referred to either as “site-protecting forests” provided they fulfil the taxative conditions or as “object-protecting forests” provided they protect people, human settlements, facilities, or cultivated soil, in particular, against natural hazards or damaging environmental impacts. Both types require special treatment to gain and ensure their protective or beneficial effects. The cost of the special treatment of site-protecting forests is to be borne by the forest owner, as far as he/she can finance it from returns of these forests in particular. For object-protecting forests, this is valid only if the necessary measures can be financed from public funds or payments by the beneficiaries.

No change has occurred with regard to the “protective forest (Bannwald) provisions”. Protective forests as per official notice are object-protecting forests that serve the direct defence against certain risks for people, human settlements or facilities, or cultivated soil, as well as forests the beneficial effects of which prevail over the use provided that national economic or other public interests are more important than the disadvantages caused by the restrictions on forest management by the ban.

Due to the high tending and harvesting costs in mountain forests – if they are productive protection forests at all – measures for conservation and improvement of protective functions are often a financial burden for the forest owner.



Managing and caring for the forest and thereby securing the protective functions must therefore also be seen as a service in the public interest. For services in protection forests that go beyond the legally prescribed standards forest owners require compensations in the sense of the provisions set out in the Alpine Convention (Mountain Forest Protocol) and for the implementation of new provisions on object-protecting forests in the course of the 2002 amendment to the Forest Act. They appear to be legitimate if protection impairments are not within the responsibility of the land owner.

***A great number of assessments take place in Austria's protection forests. Apart from numerous local and regional assessments in detail, there are various cross-regional large-scale surveys, such as:***

- **Austrian Forest Inventory:** For the survey period 2000/2002, 776,000 hectares or about 20% of the total Austrian forest area were identified as protection forests (out of this number 303,000 ha or 8% of the total forest area were classified as productive protection forests and 473,000 ha or 12% as non-productive protection forests). 10% of the non-productive protection forests are in a labile or unstable condi-

tion. Two thirds of the area of productive protection forests needs regeneration, but on 70% of the area no regeneration takes place. This means that 47% of the productive protection forests lack the necessary regeneration. In non-productive protection forests only one fourth of the area must be regenerated, but there is no regeneration on 80% thereof. This means that 20% of non-productive protection forests lack the necessary regeneration.

- **Forest Development Plan:** On 30.7% of the whole Austrian territory, protective functions were identified as key functions (value 3). On another 640,605 ha, the protective functions were given the value 2 (17% of the total forest area). In the course of the further development of the Forest Development Plan, a digital map with all key functions will be elaborated for the whole federal territory.
- **Provincial protection forest concepts** form the basis for planning regional projects for protection forest improvement. A distinction is made between object-protecting and area-protecting forests and the urgency of measures is assessed. For all Austria, these provincial concepts identify an area of 280,856 hectares (7% of the total forest area) of forests with





protective function and urgent need of improvement. A comparison of the data assessed in individual Federal Provinces has shown that protection forests are partly classified according to diverging priorities and restoration thresholds. The necessary harmonisation has been initiated now at the land-use planning and protection forest section level. In the course of an INTERREG III C network under Austrian direction (Project Network Mountain Forest), Austrian measures are compared with international standards and harmonised if needed.

- The new instrument of **Protection Forest Platforms** has been set up in the Federal Provinces. Their objective is to reach the broadest harmonisation of interests possible at the community, regional and province levels, in order to plan and implement interdisciplinary measures for ensuring the protective functions of the forests. Results from the Federal Provinces are summarised in the Ministry of Life (Forest Department) and serve as a basis for decision-making in forest policy on the federal level.

The Forest Engineering Service in Torrent and Avalanche Control is responsible for establishing hazard zone plans and illustrating the catchment areas of torrents and avalanches.

“Protection against Natural Hazards” is a section under the direction of the Forestry Department in the Federal Ministry of Agriculture and Forestry, Environment and Water Management. In an integrative approach the tasks of planning, direction of measures and strategic development are coordinated across departments. The results obtained from the protection forest platforms are considered regularly in the decision-making processes.

The **protection forest area** with object-protecting functions has **increased** continuously over the past years. The expansion of settlement areas, new construction of roads, and of various facilities of general infrastructure as well as the increased development of tourism are the reasons for this. Note: Forests with site-protecting and object-protecting functions are classified as forests with protective functions in the Forest Development Plan (WEP) according to forest impacts and not related to compartments or special treatment needs.

According to the Forest Development Plan (WEP) not every forest with protective functions is an object-protecting forest as referred to by Forest Act. However,

“object-protecting forests” as defined by the Forest Act are regularly forests with object-protecting effects. The restructured WEP guidelines will contain practical recommendations for an Austrian-wide harmonisation of taxation of forests with object-protecting functions. Forests on areas threatened by erosion or on sites where reforestation is difficult are identified as site-protecting forests. Both types of protection forests (site- and object protecting forests) require special treatment, related in particular to timely and species-rich regeneration.

According to the study on the hemeroby of Austrian forest ecosystems, mountain forest represents the highest **degree of naturalness**. Forest stands where there is no access yet and that do not require management for protecting objects in the sense of protection against natural hazards, shall be further preserved for the purpose of nature conservation and shall receive only basic access facilities if absolutely necessary, with **access** not necessarily meaning the construction of forest roads. *(The WWF would like to delete the second part of the sentence. According to the Forestry Department this is a consensual compromise found in the Module Sessions).*

A minimum of accessibility (forest roads, paths) is generally necessary, if measures for the maintenance and improvement of the protective functions of the forest are to be taken. Access, if needed, must be planned and executed with care and with due respect of the requirements of nature and landscape conservation. Legal provisions in nature conservation must be in harmony with the phytosanitary requirements; the new Forest Act allows certain flexibility here. Access to the forest is considered as a basis for the continuation of activities in mountain forestry and a decisive element for the development of rural areas.

Close-to-nature silviculture which fulfils all forest functions, and appropriate protection forest management require a sufficient number of highly qualified personnel. In the previous years, increasing personnel cost and low returns from forests have resulted in a significant reduction of labour also in the Austrian forest enterprises. However, a balance must be established between the ever more critical economic framework conditions and the requirements of a responsible forest control. Comprehensive special training and the use of synergies at the operational level, co-operation of enterprises, the use of modern technology and the purchase of special services (civil engineers, technical bureaus) may compensate for the reduction of personnel. *There are different opinions about the degree of this compensation.*

In addition to the Forest Act some Federal Provinces have forest ordinances which regulate forest harvest, for example. Forest owners call for an examination of these forest ordinances and their applicability and for their possible adaptation. The main problem in the mountain forest is no longer an over-exploitation as in the past, but rather the partially insufficient use of the increment and the absence of site-specific regeneration due to the excessive impact of game, which result in the over-mature age of the forests. In the course of a stronger regeneration of mountain forests, attention must be paid primarily to the maintenance of society-related functions, protective functions in particular. The OECD Environment Report 2003 also shows that large parts of the protection forest in Austria are of over-mature age and regeneration is not satisfactory. Recent developments of certain land-use types, particularly the increasing settlement pressure, constitute another big challenge for the protection forest strategy. In this regard, INTERREG projects with major Austrian participation have been set up for the coordination and optimisation of land-uses. Based on legal forest provisions, Austria applies an instrument for hazard zone planning which is considered an international model but still does not have the necessary legally binding effect to a large extent.

#### **Support instruments related to protection forests:**

*(for supplementary information see also: [www.walddialog.at](http://www.walddialog.at) – Grundlagen – Förderinstrumente im Schutzwald):*

- EU-co-financed subsidies according to regulation VO 1257/99: Financial volume (2002) EU + Federal funds + Provincial funds 2.7 million Euro
- National subsidies according to Forest Act 1975 in the relevant version: Financial volume (2002) Federal funds + Provincial funds 1.4 million Euro
- National subsidies according to the Subsidies Act for Hydraulic Structures 1947 in the relevant version: Financial volume (2002) Federal funds + Provincial funds + Interested parties 12.5 million Euros.
- **Contractual nature conservation**

An evaluation of the provincial protection forest concepts has shown that a “billion Euro for protection” would be necessary for a period of 10 years for the whole restoration of the protection forest. The present total financial volume from public funds including federal subsidies amounts actually to around 17 million Euro per year; this is approximately 17% of the estimated financial support needed. *It has been mentioned in the Forest Dialogue that protection forest-related financial flows (subsidies) are not*







*yet represented in a sufficiently transparent and efficient form. In the course of the evaluation of the programme on “Development in Rural Areas” a concrete study assessed the efficiency of protection forest restoration measures in the Federal Provinces of the Tyrol and Carinthia according to EU provisions and individually developed evaluation criteria. The results will be introduced in the follow-up of the Forest Dialogue process.*

For an appraisal of the **economic value** of functioning protection forests, the following figures may give some orientation: The cost of a comprehensive protection construction amounts to around 220,000 Euro per ha. This is 10 times the cost of protection forest restoration per ha and 100 times the cost of the current tending of the protection forest. *Participants in the Forest Dialogue have asked for detailed ecological criteria of torrent and avalanche control structures and discussed aspects of land-use planning policy, soil use and the related decrease of retention areas in the framework of flood prevention.*

### 5.1.2 Forest Soil Protection

The long rotation periods of forest vegetation have an impact on soil dynamic and condition, particularly by the creation of a typical stand climate and the effect of the biogeochemical cycle. This close ecosystem integration and the low impact of forest soils compared to agricultural use are confronted with the varied use and management developments of our forests over time, which have led to strong **changes** of the soil. These changes have been intensified by modern-time air pollution and acid depositions mainly in the second half of the past century (see chapter 2.1.9 – Degraded forest soils). The soils thus impaired (acidification, leaching of nutrients, degradation of humus condition) contribute to a **reduced vitality** of forest stands.

Recommendations of the Advisory Board on soil fertility and protection of the Ministry of Life contain guidelines for action with regard to the maintenance and restoration of soil conditions which comply with the respective “potentially natural forest community” (PNFC). In particular, this means a balanced base budget, a functioning nutrient cycle and an adapted humus condition; and includes also a widely closed vegetation cover close to PNFC and multi-storied stand structure in order to reduce erosion and soil impoverishment.

A reduction of pollutants input, a decrease of nutrient losses and of acidification sources, a prevention of soil

compaction and scarification, as well as melioration measures in the framework of an overall silvicultural concept (basification of soils acidified by human intervention [but not of naturally acid soils], humus transformation and creation) can contribute to soil protection and finally to an integrated conservation of forests.

### 5.1.3 Water Protection

Very strict legal provisions compared internationally result in a protection of Austria's water at a very high level. On the one hand, there are general obligations for keeping the water clean and, on the other hand, specially assigned protection and close areas protect the national water reservoirs. The European legislations based on the Water Framework Directive have been integrated into the Water Act and necessary measures are currently being implemented. The preservation and restoration of a good ecological condition in the catchment areas of rivers and river sections may cause limitations also in forest management due to existing legal provisions. The obligation to apply cost-efficient water prices (also considering environmental costs) could mean a break-through of the compensatory principle in future. Accordingly, services of water protection beyond ordinary land and forest soil use, would have to be remunerated in correspondence with transparent evaluation criteria.

Forests have special effects on the water budget. Forests act like an umbrella, a filter and a water reservoir. Forests intercept the rain and evaporate part of it into the air. The part of precipitation retained in the needle and foliar mass and returned directly into the atmosphere through evaporation can amount up to 50% for conifer trees and up to 30% for broad-leaved trees. The effects of the forest on the local micro-climate, humidity and temperature, but also on filtering of pollutants are of essential importance.

The forest itself is one of the vegetation types with high and even highest water consumption through transpiration. On warm summer days an average tree stand evaporates 20,000 to 60,000 litres of water per ha. In this way the forest has a harmonising effect on the micro-climate. Although forests are no “rain makers”, they keep the land fresh and humid. Water that is not evaporated by the forest drops slowly to the ground. Forest soils absorb the water like a sponge. Unlike in open spaces such as pastures, ski tracks etc., the high water storage capacity of forests (up to 6 times higher than in open areas) produces practically no or low run-off of surface water during

precipitation events. Rain and melted water are retained and released only little by little. Furthermore, in the forest snow melts comparatively slowly. Neither heavy rain nor snow melting produces such erosions as are observed in areas with no forest cover. However, catastrophic precipitation events with high quantities of rain falling in a short time exceed the retention capacities of forest soils. Consequently, precipitation water flows also on the forest surface and can cause erosion problems (landslides, mud flows). In such events, consequential damage is generally less severe than observed in areas with no forest cover or non- functioning forests.

Water contributes to regular spring intensity and a balanced run-off into rivers. In addition, the water run-off from forests is of highest quality. Thus, the forest supplies pure drinking water on a sustainable basis even in dry periods.

Forests along streams and rivers, the so called flood-plain forests, are also closely related with water. Especially in lowlands the forests, which are marked by a change of flood and dry periods, constitute an important habitat community of rare animal and plants species. As natural flood and retention areas, flood-plain forests have an important function in protecting against floods, and serve as retention zones to cut flood peaks. In flood events they additionally serve to clean the water from organic and mineral substances. Infiltration of flood water in the large layers of flood-plain grounds refills the groundwater reserves.

#### 5.1.4 Air Protection

Apart from its function as a world-wide climate regulator, the forest is also an important regulator of the local micro-climate. Large connected forest areas near settlements have a favourable influence on the climate. Temperature differences between forests and settlements result in a permanent exchange of air. Warm air from the settlements raises and is stored above the forest canopy. In the evening, when the sun radiation ceases, the air cools off and sinks down into the forest. As a result, cool and clean air flows into the lowland (settlement). At the same time, foliar organs filter dust, soot particles and gaseous pollutants from the air. Together with falling tree foliage, but also by direct deposition, pollutants can reach the forest soil. Therefore, forest ecosystems can be affected by a higher pollutant input than other ecosystems. Furthermore, the forest can protect neighbouring areas against harmful wind and frost impacts.



## 5.2 Principles and Goals

### Principles

- (P15)** Increasing the functionality of object-protection forests as an efficient and cheap protection against natural hazards in the long run, in particular for the protection of settlement areas and infrastructure facilities
- (P16)** Necessary stabilisation and timely regeneration of protection forests and removal of elements that impede regeneration, especially in forests of high protective capacity, as an essential basis for sustainable hazard prevention
- (P17)** Conservation and rehabilitation of soil functions in order to ensure the protective function
- (P18)** Sustainable use and maintenance of drinking-water resources
- (P19)** Ensuring and increasing the filtering effects of the forest
- (P20)** Taking advantage of potential synergies in all areas when it comes to develop financing strategies

### Goals

- (Z28)** Increased impartial assessment of the protective effects, the causes of impairment and the need of restoration and action, with regard to risk situations, the actual forest condition and protection objects (categories of protection objects), by means of a universal and comprehensible catalogue of criteria; optimisation of the distribution of resources
- (Z29)** Raising of problem awareness, particularly at local and regional levels, and in close cooperation with the people concerned and the decision-makers (protection forest platforms; learning by operating models)
- (Z30)** Offering targeted education and vocational training to all participants in forest protection strategies and the interested public
- (Z31)** Remuneration for special measures of preserving and improving protection forests that go beyond the general legal framework based on the real costs accrued and the performed activities
- (Z32)** Developing integrative concepts for the management of protection forests paying special attention to the minimum requirements for fulfilling protective functions in the best way considering the different natural hazard processes
- (Z33)** Better adaptation of hoofed game management to ecological and silvicultural requirements, in particular, in order to maintain all forest functions, particularly the protective function
- (Z34)** Applying forest land-use planning and area-related planning across sectors, especially in problem areas
- (Z35)** Rehabilitation of degraded forest soils in order to preserve the protective effects of forests
- (Z36)** Adaptive management of forests in water protection and other protection areas, while maintaining the principle of equal balance of interests
- (Z37)** Reduction of protection forest areas in need of restoration, and improvement of the potential capacity of fulfilling protective functions



## 5.3 Fields and Sets of Measures

### Thematic Area 5

#### Protective functions of Austrian forests

#### Field of Measures

##### 5.1 Protection forest management

#### Set of Measures

- 5.1.1 Emphasis on partnership protection forest platforms at all levels integrating interested owners, beneficiaries, local authorities, and hunting, nature conservation and alpine associations
- 5.1.2 Development of recognised criteria and indicators for the protective function of forest stands, and prompt identification of object-protection forests in the framework of forest development planning
- 5.1.3 Securing the necessary funds from the beneficiaries in priority or by public subsidies in order to maintain the object-protection function given the public interest in the protection against natural hazards
- 5.1.4 Region-based development plans providing concepts for forest use (quantitative minimum criteria, ecological, economic and aesthetic assessment) as a basis for decisions on funding
- 5.1.5 Region-based development plans for stabilising existing protection forest stands including all parties concerned or their representatives

## Field of Measures

### 5.2 Forest-wildlife

## Set of Measures

- 5.2.1 Raising of awareness across sectors with persons authorised for hunting, forest managers and other forest users (e.g. forest-game training site, other projects)
- 5.2.2 Implementation and evaluation of the commonly agreed game impact monitoring
- 5.2.3 Detailed ecological and economic evaluations of impact from wildlife
- 5.2.4 Forest-related evaluation of hunting laws and their execution, development of resulting proposals for improvement
- 5.2.5 Strengthening of adaptive wildlife ecology and land-use planning across disciplines, especially in problem areas, and implementation by applying the proposed control and management instruments

## Field of Measures

### 5.3 Forest-pasture

## Set of Measures

- 5.3.1 Pasture management planning in the context of forest and cultivated landscape development with a view to assess the impact of pastures on forests, separation of forest land from pastures

## Field of Measures

### 5.4 Forest-water

## Set of Measures

- 5.4.1 Evaluation of forest-water interactions, and development of appropriate strategies taking into account the existing Water Directive framework conditions







## Thematic Area 6

# SOCIAL AND NATIONAL ECONOMY ASPECTS OF AUSTRIAN FORESTS



**6.1 CURRENT STATE: Forests and their managers provide society with raw materials and a range of different services. The related social and economic aspects, in particular with regard to rural areas, recreation, tourism and culture, have stood in the centre of discussion of the Forest Dialogue. Moreover, the education and research areas were discussed in the context of forests and their sustainable use.**

In the light of the overall national figures, forestry is only of marginal – and gradually sinking – significance. Taking into account the work of forest plant producers and forest service providers, this sector of the economy generally does not exceed one-third to one-half percent of Austria's **gross domestic product**. Forestry accounts for about 15 to 20% of value of the initial production in the field of agriculture and forestry. Domestic wood production is, however, an important location factor for the highly productive and export-oriented wood processing industry. Overall, the forestry and wood sector's contribution to the gross domestic product was 2.1% in 2003. The total value of

wood exports totalled 2.4 billion Euros in 2004. Taking into account the export value of all forestry and wood products, including paper and cardboard (2004: 7.7 billion), the forest and wood-based sector, with an export surplus of approximately 3.3 billion Euro, is the second largest source of foreign currency after the tourism sector (Statistics Austria, Foreign Trade chapter 2004). Moreover, it should be noted that the conventional economic calculation method systematically puts forestry at a disadvantage compared with other industry sectors as the positive social gains from forestry such as the use of forests as recreation areas are not taken into account, as

**Number of Employees in Forest and Timber Industry**  
Year 2000 (Tab. 8)

Industry	Number of Employees
Forestry	8,000
Sawmill industry	10,000
Furniture industry	10,500
Board industry	3,000
Construction elements industry and others	9,800
Paper and pulp industry	9,600
Paper and cardboard processing industry	9,000
Finish carpentry	42,000
Rough carpentry	9,100

Source: Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW), Hauptverband der Österreichischen Sozialversicherungsträger (Association of Austrian Social Insurance Agencies – employees), Fachverband der Holzindustrie Österreichs (Association of Austrian Wood Industries), Austropapier (Austropaper), Statistics Austria 2005

are the social costs caused by other economy sectors that are created, in particular, due to adverse effects on the environment.

In terms of **economic welfare** the importance of forests and forestry for society is to be assessed higher than expressed in terms of the share of the gross domestic product.

#### Forestry as employer

In Austria only 0.25% of all employees work in the forestry sector. For structural development in rural areas, the employment of family members can, however, be of importance. Translated into full time employees the number of these workers corresponds to approximately 12,000 employees. The actual number of family members working in the forestry sector that can generate earned income is by far larger. Especially in mountain farming regions the industry branch “forestry” has shown to be a major component of the farmers’ income and is hence an important factor for the development of rural areas. The forest income per family per working day is approximately twice as high as the earned income in agriculture.

The Austrian forestry, i.e. private enterprises, the Austrian Federal Forests, and the public sector, employed on average approximately 4,800 employees in 2003. The number of employees and civil servants with educational background in forestry employed in the forestry sector totalled 3,200 persons in the year 2003. The number of civil servants and employees in enterprises decreased by more than

25% in the last fifteen years. Table 8 shows the number of employees directly employed in forestry and gives an overview of the number of employees working in the various areas of wood-working and wood-processing. The ongoing structural shift from direct provision of services to third party service providers was continued in the year 2000 and translates into significantly higher costs of external services (forest management planning, wood harvest, forest tending). These costs of external services currently account for 40% of overall costs.

#### 6.1.1. Contribution of Forestry to the Rural Development

Rural areas face a wide variety of challenges. Forests, as a major regrowable resource in Austria, are playing an important role in this context. A major characteristic of the “modern” economy is the pressure toward concentration on cities and large industrial facilities. This pressure arises due to the fact that society’s “idle services” were not incorporated in economic and hardly incorporated in socioeconomic models and are, thus, hardly ever taken into account in decision making. A **potential for productivity improvement** lies in the amount of time commuters spend for their daily way to work. The centralisation of work additionally leads to secondary effects (such as adverse ecological effects, thinning of social networks by removing the actively working regional population, economic starving of regions due to reduction of purchasing power, and a decline of available jobs due to the drainage of money from the region).

Secondly, there is potential for productivity improvement by using raw material flows and employing knowledge and skills to improve value creation. In addition to the direct influences on the value creation chain, regions are becoming partners of further users down the added value chain. Especially in cases where scattered and small-scale properties hinder the utilisation of regrowable raw materials (e.g. in the farm forest), the regional organisation of several enterprises can guarantee a better (and qualitatively higher and more sustainable) form of management.

An important motor for **regional economic development** were and are regional raw materials. However, support for the regional economy does not mean that all those raw materials have to be processed in the region. Rather, it means to wisely sell portions already generating high added value and to increase the value of other portions in order to be able to sell them with a higher added value than the initial one. Particularly in the field of forestry there is leeway for such actions. During the harvesting process many other materials apart from round timber are procured but not exploited. Small-dimension wood, branches, leaves, bark, as well as tree organisms such as lichen are harvested but only marginally used to increase the added value. Nevertheless, those materials offer interesting components that could be the basis of decentralised high-technology branches such as chemical and biochemical processing technology. A recently conducted survey on those forest by-products found astonishing potential both in the field of material production (e.g. bioplastic and adhesives) and high- and medium-priced chemicals. The results of the survey show that the raw material is currently not used in accordance with its varied scope of uses.

Given the fact that the long-distance transport of these **forest by-products** does not pay off, the creation of regional means of utilisation of these by-products is advantageous. Besides, regional utilisation enables to manage these material flows on a small scale: the withdrawal of more raw materials also means that more nutrients are extracted. This suggests that all residual material (such as wood ash) that accumulates from the utilisation processes of these forest by-products should be re-introduced into the forest. Such a sustainable management of material flows can, however, only be realised on a small scale, which is a further argument for regional utilisation.

**Large-diameter timber** constitutes a further possibility of regional use. On the world market very narrow quality

criteria apply particularly for round wood, especially in terms of stem diameter. The demand for large-diameter timber has been decreasing due to the fact that progress in the processing technology has mainly concentrated one-sidedly on the processing of small-diameter wood. On the other hand many carpenters specialising in the production of high-quality furniture would still be interested in working with broader planks that are getting increasingly rare. Also here it is crucial not to give away the raw material (subject to reductions and hence cheap) to the world market but to develop an intelligent processing system that makes it possible to sell the product with highest possible added value and share of know-how and skills e.g. in the form of finished, high-quality furniture that can be sold under a regional trademark. To do so, special sawmills are necessary; in this field interregional cooperation could be useful.

The starting point for regional economy development is always the analysis of resources. Forests constitute a major natural resource in several Austrian regions. And also the diverse knowledge in the field of forests and timber production and the skills of the people are important human resources in many regions.

Timber itself is more and more becoming a centrally processed mass raw material that is counterproductive for reasonable regional development. The forest can, however, become a significant motor for regional development if it is possible to (re)discover it as a multifunctional source of raw materials. Forests are generally regional resources. Thus, the introduction of forests into regional economic cycles is hence, for reasons including economic efficiency, the order of the day. This is the only way to create regional responsibility for forests and to make forestry a regional concern. The forest is a major sustainable resource that will substantially gain importance over the next centuries as far as the material and energy use of forest resources is concerned. Herein lies great potential for optimisation.

Rural area development is a prerequisite for preventing migration from structurally deprived areas and for solving the commuting problem. Successful regional development is characterised on the one hand by a linkage of sectors (e.g. agriculture, food, tourism) and a **linkage** along production chains. Most regional development concepts in Austria are currently concentrating on agriculture. Within regional development policy forestry is only of minor significance compared with the dominant



agricultural policy and regional planning policy (with its low level of implementation). The option of supplementing agricultural policy with forestry is currently only inadequately recognised.

### 6.1.2. Recreation, Tourism and Sport

Leisure time, recreation and vacation are linked to a dynamic social process and relate closely to economic development. In the last decades - with a constant decrease in working hours and simultaneous increase in leisure time - the sector "tourism and leisure industry" has become one of the most important industries in the Alpine region. The tourism and leisure industry is an important employer and foreign exchange earner, especially in rural areas, and slows the migration from structurally deprived regions.

Forests offer all the factors that make a landscape attractive for recreation and tourism: diversity, peace and quiet, no excess of technology, natural and semi-natural landscapes. Visitors perceive "forest" as a natural part of the landscape. It is associated with "free nature", and it also has a high emotional value in the population.

According to representative opinion polls that illustrate the interrelation between Austria's forests and their visitors based on transparent data, some 70% of the people interviewed prefer to spend their leisure time in the forest, and 1 in 10 do this (almost) daily, about 60% at least more than once a week. 92% of forest visitors go to the forest for personal reasons.

An intact landscape is one of the most important pillars of the tourism and leisure industry. About 80% of tourism, and in particular the recreational tourism sector is highly landscape-oriented. Here, the forest (in addition to grassland and lakes) has an important role as an element that characterises landscapes. A balanced ratio between forest areas and open areas must be aimed for both ecologically and in terms of landscape aesthetics.

The Austrian Forest Act also regulates the utilisation of forests for recreational purposes. Since 1975, anyone is allowed to enter the forests for recreational purposes, and restrictions apply only under certain conditions. The Forest Act also stipulates that when off the public roads and paths every individual must personally look out for threatening hazards, especially hazards resulting from forest management measures. On forest roads or other (marked) paths in the forest, the legal situation is different. Here,

the liability provisions set out in the Austrian Civil Code apply. As a result of this legal framework, there is an increasing number of court actions due to the increasing number of visitors and sportsmen in the forests, as well as existing hazard potentials. The Austrian *Alpenverein* (Alpine Association) does not regard this situation as problematic and notes that liability and legal defence insurance were taken out for all forest managers managing land over which paths of the *Alpenverein* lead, to cover any claims arising out of forest-edge liability. Besides, some forest enterprises (e.g. Austrian Federal Forests and landowner representatives, together with representatives from the tourism industry and the authorities, initiated the identification of public cycle paths and reached mutual agreements on solutions to the liability issue under insurance law.

#### **Generally, the following trends can be identified:**

- The "adventure society" is carrying out more and more activities in the forests, and the associated conflict potential is growing. The net average income available to large sections of the population allows them to utilise the range of tourism products in many different ways, and at the same time travel is becoming cheaper. Both the degree of mobility and the time available to the population and visitors to our country are high and on the increase. There is a clear trend towards short breaks and increasing day-trippers, the lion's share of which is naturally found in forest areas close to towns and cities on the one hand and the ecologically sensitive mountain regions on the other hand. The WKO (Austrian Federal Economic Chamber) notes that forest areas close to cities are increasingly sought after as recreation areas by the local population; this is not connected with value creation due to tourism. Increasing stress at work and increased population in cities and their surroundings result in an increase in trips to cultural landscapes with a high forest share. Not only the "urban" forests but also "rural" forests are experiencing increasing utilisation pressure which varies from region to region, but can have a negative impact on ecosystem interrelations, especially in overexposed regions.
- The resolution of ambivalent utilisation conflicts both related to tourism (search for "pure nature" and "action life") and unrelated (e.g. forest-game conflict in high zones) is becoming increasingly important for the people responsible for forests. There is increasing pressure to establish infrastructure for tourism in and close to forest areas, and the related demands on forest experts are increasing and becoming more complex.

- In some forest areas the potential value added by tourism exceeds that of conventional timber utilisation, making other objectives and planning standards necessary. *The WKO identifies here significant growth potential.*

***The need for resolution includes the following:***

- A consensual assessment of the cost-benefit ratios does not appear possible at present due to a lack of linking statistical evaluations. Moreover, the partly lacking valuation methods for the wide range of services provided by forest management and from which society and individuals benefit cause certain problems.
- Representatives of tourism speak of the significant contribution to regional value added. They also point out that other sectors of the economy benefit from the positive effects of forest management as well.
- Forest managers emphasise their significant contributions towards safeguarding and increasing the value of the cultural landscape, which are often not reflected in the profit margins of the forest management enterprises, or only to a very limited degree.
- *The Arbeiterkammer (Austrian Chamber of Labour) notes that it is necessary to consider public services in forestry in economic evaluations.*

### 6.1.3 Forest Culture

To understand the term “forest culture” and the role of cultural and social aspects in the context of other bases of sustainable forest management, a review of the **results of the 4th Ministerial Conference on the Protection of Forests in Europe** is recommended. Under the heading “European Forests - Common Benefits, Shared Responsibilities”, the benefits of forests and their importance for rural livelihood and for urban society, as well as partnerships between the forest sector and other sectors were discussed extensively at the 4th Ministerial Conference on the Protection of Forests in Europe (Vienna, 28–30 April 2003). The Ministers in charge of forests from 40 European states and the European Commission acknowledge their commitment to various aspects of sustainable forest management and defined concrete implementation options in 5 resolutions.

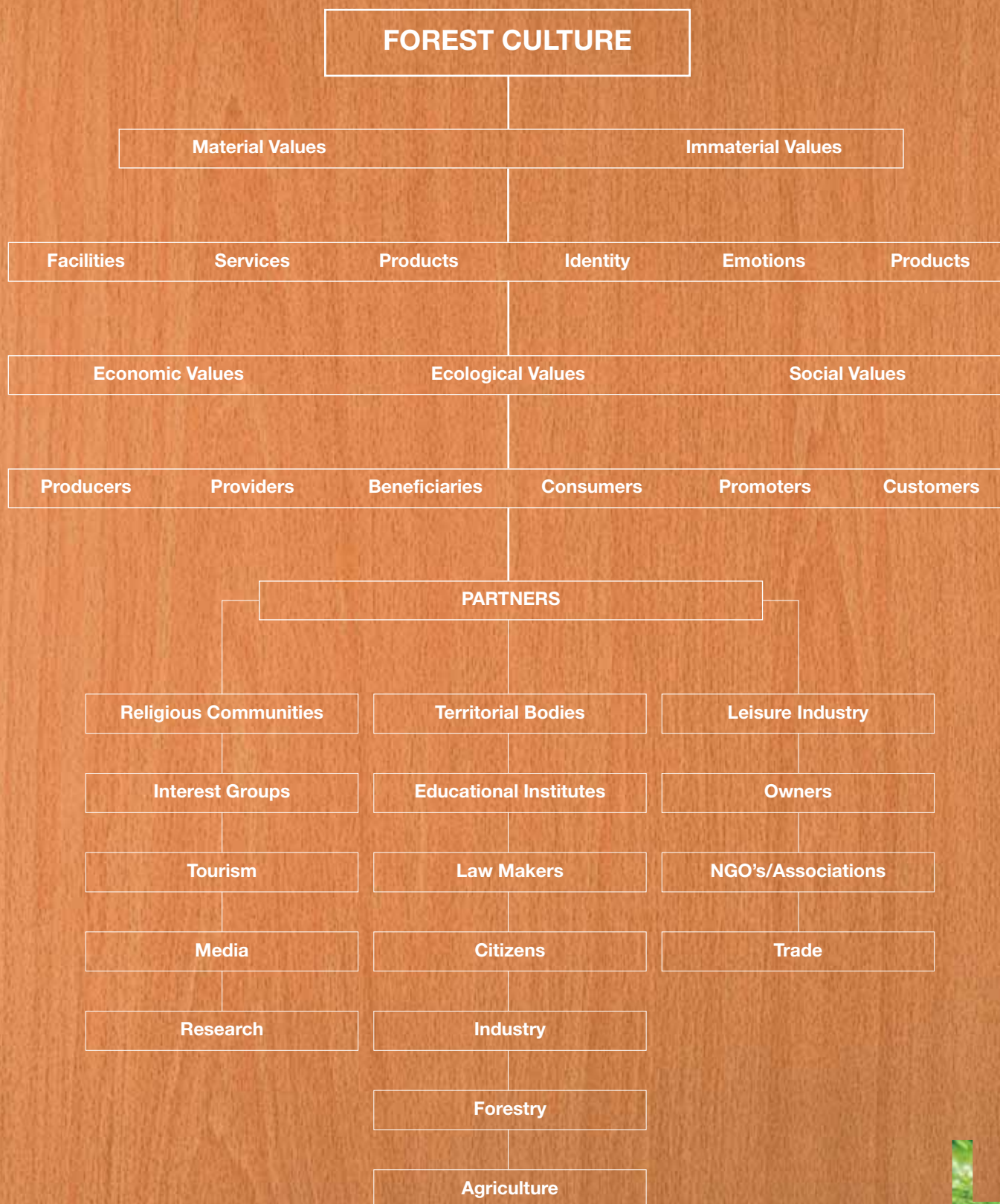
**Vienna Resolution 3 for the first time** deals specifically with the preservation and enhancement of the social and cultural dimensions of sustainable forest management (in addition to economic and ecological dimensions). It includes addressing social and cultural dimensions of





## Actors, Partners, and Conceptual Values of Forest Culture in Austria

(Fig. 15)





sustainable forest management in national forest programmes; the identification, expression and communication of the social and cultural dimensions of sustainable forest management; the maintenance and further development of both the material (e.g. wood in architecture, medicinal plants) and the non-material (e.g. recreation, well-being, health) social and cultural aspects and benefits of sustainable forest management; maintenance and increase of the attractiveness of the landscape by, *inter alia*, enhancing and preserving traditional elements of the cultural landscape; raising awareness of the contribution of traditional knowledge and practices in sustainable forest management for the protection of landscapes, the conservation of biological diversity as well as for protection against natural hazards; identifying, assessing and encouraging the conservation and management of significant historical and cultural objects and sites in forests.

In Austria, forest management has played an important role in rural development for centuries. Forest stands, historical buildings and landscapes are a reflection of society and its changes. The diversity typical for Austria is not limited to forest stands that are important in terms of forest history; it is also shown particularly by the strong regional differentiation of forest culture stands, and the integration of the enterprises that manage the forest areas sustainably in the history and culture of the individual region. Many cultural monuments in Austria, such as monasteries, abbeys and castles, are financed to a large part by the revenues of the forest management enterprises that they own. Figure 15 illustrates the actors and partners, conceptual values, and material and immaterial elements of forest culture in Austria.

There is a strong focus on the cultural aspects of sustainable forest management both at the national level and in international forest policy. In a country with an extremely long-standing tradition of forest history and culture, innovations within the scope of modern forest management and the imparting of forest traditions must be viewed as complementary elements of political strategies. The forest expertise of older generations is an important basis for the further development of sustainable forest management and protection of habitats, in particular the forest ecosystems.

The Austrian initiatives in the area of forest culture are all based on the principle of **voluntary participation**. They are characterised by a high level of commitment, **motivation and successful networking** of the actors.

***The current situation and trends with regard to forest culture in Austria can be outlined as follows:***

- Austria has some 500 historical forest and culture sites of pan-European importance with high potential for development. Added to these, there are collections, museums and numerous individual initiatives of relevance to forests, although there is usually no “strategic” link between them and only a low degree of quality assurance. Some of the holdings are very little researched, and they are often not integrated adequately in tourism and pedagogical utilisation concepts.
- There are certain points of contact with existing networks and support strategies to revitalise rural areas at the local, regional and national level (e.g. LEADER+, provincial exhibitions), as well as potential partners; a big response is to be expected also from the part of areas close to cities or similar to cities.
- Numerous forest management enterprises are searching for markets for non-wood products and forestry services.
- The intensity of utilisation of forest areas and attractive landscapes by tourism, as well as the demand for high-quality culture tourism is increasing. At the same time, issues of identity of the rural area in connection with the preservation and “gentle” utilisation of landscapes are gaining importance both at the national level (e.g. within the scope of the Austrian Forest Dialogue) and at the international level (e.g. Ministerial Conference on the Protection of Forests in Europe).

The Austrian Forest Association and the Forest Department of the Ministry of Life have initiated the working group “Forest Culture in Austria”.

***Its primary objectives are:***

- to strengthen and further develop existing forest culture institutions in Austria
- to define working priorities – quality assurance
- to point out the thematic range and present examples of successful implementation
- to create links between forestry and tourism development approaches, as well as the rural development activities
- to survey and interview the relevant institutions in Austria
- to initiate and publish pilot projects
- to develop proposals for user-oriented research
- to provide stronger links between business and official activities
- to integrate the Austrian approaches in international



strategies (MCPFE, Alpine Convention, etc.)

- to explain the historical and present concept of sustainability.

In recent years, pilot projects have been initiated for the specific development of cultural aspects in Austrian forest enterprises. The specific contents of these projects were presented, inter alia, in “Forest Plans” and prepared for systematic implementation. The successful projects were presented at a conference in 2004.

#### 6.1.4 Education

##### **Education and Training of Forest Managers**

The education of forest managers is of crucial importance for the management and the condition of the forest. As the various ways to use forests and the multifunctionality of forests are on the rise, the demands in terms of forest management are constantly increasing. Hence, given the increased interest of the public in forests, foresters with a broad knowledge base are increasingly in demand. Furthermore, an appropriate distribution of trained forest managers is also desirable.

The level of education of forest managers rises steadily with the size of the area to be managed. In case of forest areas between 100 and 1,000 hectares in size, for example, there is a predominant share of secondary graduates with a forestry-related or general *Matura* (graduation examination). While in forest areas larger than 1,000 hectares, there is a predominant share of forest managers with post-secondary education due in part to the statutory duty to appoint certified professionals. Figure 16 shows the prevailing education levels for the different sizes of forest areas to be managed.

The job market in the forestry sector is subject to constant changes. The internationalisation in the field of education and training also affects the forestry sector and paves the way for the creation of new job descriptions. This is last but not least a reason why new ground in education, such as the bachelor and master studies at the University for Agriculture and Forestry, is broken. Education and vocational training in the field of forestry must hence be continuously adapted more than ever to the new challenges in this field of work.

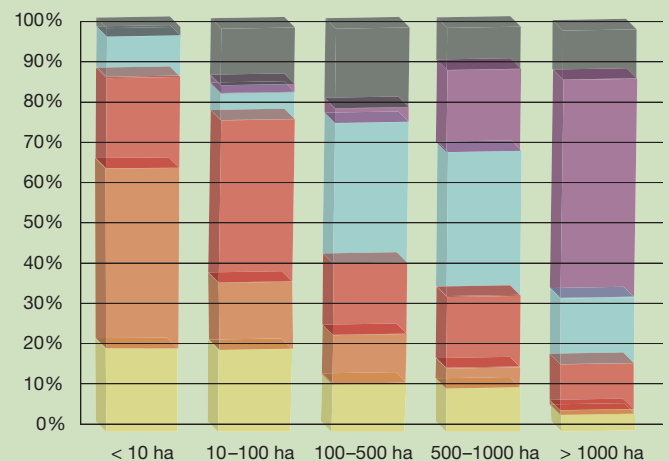
Nowadays, there is no longer a generally applicable list of job requirements for graduates of forestry-related schools. Depending on the area of work the requirements and focal points are utterly different – even in traditional forestry. Besides, the field of activity of foresters and forest academics has shifted as there are also employers outside traditional forestry.

The results of the education survey initiated by the Austrian Forest Association (*Forstverein*) show that the current forestry education is generally evaluated as “good” across all areas of work. There is, however, some potential for improved knowledge in the fields of law, computers and economics. The survey also identified a general need for improvement in the fields of entrepreneurial thinking and actionproject management, management, personnel management and in the field of “soft skills” such as communication, teamwork, social competence and emotional intelligence. These potentials for improvement show that the job profile has undergone a significant change in recent years, as the focus has shifted from a predominantly professional background to the far reaching tasks of “a manager of rural areas” with a significantly broader set of requirements and demands. It looks as if this change of requirements has not been reflected sufficiently in education and further training. It is, however, interesting to mention in this context that there already exists a course followed by the degree “**Manager of Rural Areas**” at the *Fachhochschule (FH) Wieselburg* (University of Applied Sciences Wieselburg).

The comprehensive basic education is ensured by the *Försterschule* (Technical Forestry Highschool) and the *BOKU* (University of Natural Resources and Applied Life Sciences). The further education necessary for the state exam is the responsibility of the employer (authorities or forest enterprises) and the individual interested in the exam. The fact that numerous exam candidates have no practical experience, while, at the same time, the number of available internships has decreased steadily over the recent years, constitutes a major problem.

In order to improve access, the creation of a 3-year special course followed by a “green” *Matura* at the *Höhere Bundeslehranstalt für Forstwirtschaft Bruck/Mur* (Technical Forestry Highschool in *Bruck/Mur*) for lateral entrants from agricultural and forestry-related technical schools (*Fachschulen*) is being discussed. The responsibility for this form of education would rest with the Federal

**Education of Forest Managers**  
in Percent (Figure 16)



	3	7	3	4	10
		1	1	8	43
	14	3	6	14	13
	32	20	3	7	9
	62	7	2	2	1
	29	11	2	4	3

■ Required schooling 
 ■ Apprenticeship 
 ■ Fachschule (technical school) 
 ■ Matura (secondary graduation examination) 
 ■ Forestry-related study 
 ■ Other academic training

Source: Rametsteiner & Kubeckzo 2003

lebensministerium.at



Government. Currently surveys are being conducted to find out the number of potentially interested groups. A survey examining the level of acceptance came to the result that there is no need for such a school on the part of forestry enterprises.

### ***The situation and problems of the individual***

#### ***professions within forestry can be outlined as follows:***

- **Skilled forest workers and forest officers:** Based on the figures collected for the Austrian Forest Report in the year 2003 a total of 4,770 employees (i.e. skilled forest workers, forest officers, cultural workers) were actively employed in the forestry sector, whereas the employment tendency is declining significantly. The education falls within the responsibility of the Federal Government. Pursuant to statutory provisions, working with chainsaws is only allowed for persons aged 16 and up. Thus, many trainees are pushed into the field of unskilled labour. Because of this, many forest officers had to take a different course via second-chance education. Becoming a forest officer by means of an apprenticeship is hence the exception.
- **Professional hunters:** The 500 professional hunters are only a small and further declining group within the forestry profession. The education falls within the responsibility of the Federal Government. In the light of a holistic approach to management it would be desirable to combine this education with a forestry education (e.g. forest officer, forest guard). Currently there are very different standards of qualifications to be found in the individual Federal Provinces. Given the damage caused by game it is necessary to adapt the education in order to ensure a stronger sensibilisation of professional hunters for damage caused by game and to develop and implement more efficient hunting strategies for hoofed game.
- **Forest guard:** Based on the figures collected for the Austrian Forest Report, in the year 2003 a total of 673 forest guards were actively employed in the forestry sector and the number of employees in this field is declining. The education and training lies within the competence of the Federal Government. Due to changes regarding the mandatory appointment of certified professional forest officers by the owners of forests larger than 1,000 hectares laid down in the Amendments of the Federal Forest Act adopted in 2002 the demands in terms of quality in the field of professional, economic and social competence have been rising significantly. It is therefore discussed to

extend the one-year education to a two- or three-year education.

- **Technical forest schools (Fachschulen):** Education and vocational training lies within the competence of the Federal Provinces. Given that the income generated from forests by mixed agricultural and forestry enterprises is rising, a strengthening of forestry education is desired. It is, however, necessary to create minimum standards for forest education as the quality of education differs tremendously from province to province.
- **Foresters:** Based on the figures collected for the Austrian Forest Report, in 2003 a total of 1,293 foresters were actively employed in the forest sector. Before the latest amendment of the mandatory appointment of certified professionals in 2002 the forecast amount of foresters needed was 30 to 35. The need for foresters cannot be prognosticated since the amendments to the appointment requirements. The tendency is falling. Education and training lies within the competence of the Federal Government. The new curriculum taking into account the changes due to the amendment of the Federal Forest Act entered into force in the school year 2004/05.
- **Forest professionals with post-secondary training:** Based on the figures collected for the Austrian Forest Report, in 2003 a total of 774 forest professionals with post-secondary training were actively employed in the forestry sector. Before the latest amendment of the appointment requirements for certified professionals in 2002, the predicted number of forest professionals with post-secondary training required was 15 to 20/year. The number of forest professionals with post-secondary training needed after the amendment can not be predicted. The tendency is falling. Education and training lie within the jurisdiction of the Federal Government. The BOKU (University of Natural Resources and Applied Life Sciences) in Vienna offers modular university education for foresters at the bachelor's and master's level starting 2003/32004. The bachelor course will take 3 years, the master's level training following this education will take 2 more years. Whether the graduates of those courses will be accepted by forest enterprises remains to be seen.
- **Higher-level forest service professionals (foresters and forest managers)**  
In the last 5 years on average 45 foresters and 25 forest professionals with post-secondary training took the state exam for higher-level forest service. Education







and training lie within the jurisdiction of the Federal Government. The 2002 amendment to the Forest Act reduced the number of cases of mandatory appointment of certified professional forest officers for larger forests due to increased use of modern technologies (such as computers, IT systems, GIS etc.), increased mobility, and a larger range of forest services offered across individual enterprises, as well as a changing business environment. The legislature adhered, however, to the principle of 'mandatory appointment,' which can be interpreted as a means of increasing the personal responsibility of forest owners. Small-scale forest owners who are not subject to mandatory appointment receive assistance and consultation services from forest authorities and chambers. Hence, the majority of Austrian forests is subject, at least indirectly, to professional care and support. Actually, however, only part of the forest area is cared for directly by higher-level forest service professionals (see Figure 16). Forest owners stress in this context that mandatory appointment should be in line with the financial possibilities resulting from the management of the forest.

Currently a reform of the state exam is being discussed. Generally, the state exam is seen as a chance for professional development. There is, however, a need for change in the field of the continuing education that leads to the state exam and the state exam itself. This need stems on the one hand from the modification of job descriptions resulting from the amendment of the mandatory appointment principle. On the other hand this need for change is due to multilateral international standards. It is planned to change the character of the state exam to include modular courses of continuing education.

*Based on the assessment of the participants in the Forest Dialogue, the quality of education in existing schools and training institutions is increasing. At the same time, however, there is criticism that the demands in terms of quality are reduced in day-to-day practical work. For forest enterprises qualified personnel is both a cost and success factor. Forest owners are increasingly having difficulties in investing in education given that the necessary investment does only pay off in the long run.*

#### **Education and continuing education in the wood-processing industry**

The education and continuing education of employees in **paper mills** and other related industries takes place in the



education centre of the Austrian paper industry, the ABZ in the city of Steyrermuehl. This education centre is actually a private school financed by the paper industry with public status. The range of courses comprises introductory courses for unskilled or new employees without practical experience in the paper industry, an e-learning course (duration 1.5 years) enabling interested persons to become a paper technician (apprenticeship) via second-chance education and a course resulting in a head worker diploma recognised by the Austrian state.

For those entering **the wood industry** job market the *Holztechnikum Kuchl* (Technical College in Kuchl) offers a comprehensive education. Other relevant education centres are the vocational schools of the individual provinces (*Landesberufsschulen*) offering diplomas in carpentry, wood and sawmilling technique; paperhanging, upholstery, and decorating as well as interior design. The fact that wood as raw material, construction and working material is used in constantly changing fields due to further innovations and developments poses a real challenge. At the same time complex tasks in enterprises require integrated thinking regarding technical and economic issues.

The internationalisation of the wood market also makes it necessary to provide graduates with language skills. Therefore, the **Holztechnikum Kuchl** places special emphasis on project-oriented work with a stress on technical and economic aspects, languages and practical work. The technical college complex in Kuchl is made up of a series of institutes such as the Technical School for Timber Industry and Sawmilling Technique, a vocational technical college (*HTL*) focusing on management and timber industry, and 3 universities of applied sciences offering degree programmes in: wood technology and timber industry, design and product management, and construction and design with wood.

***The individual institutes offering courses and programmes are outlined as follows:***

- **Vocational technical college focusing on management and timber industry** (*HTL für Betriebsmanagement/Holzwirtschaft*):

The number of graduates has doubled since the year 2000 (1994: 26; 2002: 61 graduates) and the graduates have found work in all the various sectors of the timber industry. A survey of 6 graduating classes from the years 1990 to 1995 has shown that approximately 80% of graduates entered the timber industry job market. This can be explained by the in-depth

knowledge of graduates in a range of subjects (technology, economics, and foreign languages). The current business situation and the fact that now also graduates of FHs (universities of applied sciences) enter a segment that has so far been dominated by graduates from HTLs show that there is a certain level of saturation; thus, career opportunities are to be judged with care.

- **Technical School for Timber Industry and Sawmilling Technique** (*Fachschule für Holzwirtschaft und Sägetechnik*):

Although a number of enterprises are willing to employ graduates, this technical school is not very popular with either adolescents or parents; therefore this form of education is increasingly coming under pressure nationwide. The same is true for the *Holztechnikum Kuchl* where the number of students has been stagnating and falling for years. What is needed is a better value, e.g. by introducing new degrees and by transferring educational points (there is for example no possibility to become a Meister (master craftsman)). It would also be desirable to enable students to become qualified *Industriemeister* (foremen).

- **FH (University of Applied Sciences) degree programme ‘Wood Technology and Timber Industry’** (*Fachhochschulstudiengang ‘Holztechnik und Holzindustrie’*)

The combination of key areas such as technology and management and the special properties of wood has meant that graduates of this degree programme are industrial engineers with in-depth product competence. Graduates are able to solve complex problems and tasks in the various sectors of the timber industry and related branches. Thanks to the flexible design of the degree programme graduates have excellent career opportunities within and outside of Austria.

- **FH (University of Applied Sciences) degree programme ‘Design and Product Management, Focus: Furniture Design and Wood’** (*Fachhochschulstudiengang ‘Design- und Produktmanagement – Schwerpunkte Möbelbau und Holz’*)

This degree programme closes the gap between marketing and professional design. The number of applicants for this programme has been steadily rising since its creation in 2002. The chances on the job market and the career opportunities of graduates are assessed to be very positive.

- **FH (University of Applied Sciences) degree programme ‘Construction and Design with Wood’**

*(Fachhochschulstudiengang 'Baugestaltung Holz')*

This degree programme is unique in the German-speaking region and links traditional studies of architecture and civil engineering with those in the field of wood technology and the building trade (construction and expansion).

**Education of the public in and about forests**

In Austria there are a variety of educational offerings for the public dealing with the issue of forests or taking place in forests. These programmes are organised by individuals, associations, tourism enterprises, schools, and organisers of extracurricular activities. The offers range from guided tours through forests, educational trails, games for teenagers and projects within the framework of the annual "Week of the Forest" to work in the forest. Forests were and are an important topic in the field of environmental education and education in terms of sustainable development. Hence, the topic 'forest' is included in the curriculum and teaching materials.

**Forest Pedagogy**

Forest pedagogy is a mixture of an actual nature experience, education and public relation work in the field of forestry. Within the last decade there has been both an increase in the supply of forest pedagogy and an increase in demand. To foster the development of forest pedagogy the *Verein der WaldpädagogInnen* (Austrian Association of Forest Educators) was established in 2001. Since the year 2002 forest pedagogy is also laid down in the Austrian Forest Act. Forest educators are trained (and now also certified) by forest training institutes. People not having a forestry-related education can enter the field of forest pedagogy by means of vocational training. The majority of educational offers aim at addressing students aged 8 to 14 years but adolescents, adults and families are also addressed.

**'Forests' in Austrian textbooks**

Instruction in schools is strongly oriented on the content of textbooks. An analysis of the content of major Austrian textbooks used from grade 2 to 8 conducted by Schreibmair (2001) showed that the topics 'forests' and the 'utilisation of forests' partly need to be reviewed. In textbooks 'forests' are mainly represented by a descriptions and pictures of the forest flora. The forest fauna is only given limited attention, with certain exceptions. There is hardly any information given on ownership, timber harvesting, hunting and damage caused by game. Moreover, the term 'sustainability' in the forest context is not explained in

any of the textbooks analysed. If the utilisation of forests is dealt with in those books, the stress lies on timber use, which is described as desirable. At the same time the current Austrian forest management is connected with negative terms and described as ecologically problematic. Alternative ways to use Austrian and global forests are not shown. Generally there is also a lack of information regarding the relevant interest groups, actors and areas of conflict. As far as the global dangers for forests are concerned, air pollutants and the destruction of tropical rain forests are dominating. There are also a number of misleading formulations (such as e.g. timber use is prohibited in protection forests), wrong connections (such as e.g. coniferous forests are used by means of clear-cutting and can hence be called 'managed forest'), and incorrect data (such as e.g. the proportion of natural regeneration in Austrian forests is 10%). *Participants in the Forest Dialogue see a major need for improvement of textbooks particularly in the way the economic importance of the Austrian forestry and timber industry is represented.*

**6.1.5. Research*****Research in the field of forests and their management***

Science and research are of crucial importance for the implementation of forestry measures and practices. Due to its long-term approach and its capacity to recognise problems at an early stage research is an important instrument to solve upcoming problems.

Research and experimentation in the field of forestry is primarily carried out by the **University of Natural Resources and Applied Life Sciences (BOKU)** and the **Federal Research and Training Centre for Forests, Natural Hazards and Landscape (BFW)** that is linked with the Federal Ministry of Agriculture, Forestry, Environment and Water Management. Both institutes carry out fundamental and applied research. Long-term surveys and monitoring programmes require intensive funding and consequent implementation, which is why they are mainly carried out at the Federal Research and Training Centre (BFW). Forest-related research is also done by other universities such as the University of Vienna, where 'forest ecology research' is carried out, or the Wood Research Austria (*Holzforschung Austria, HFA*) where wood-related research is done.

The **Umweltbundesamt (Federal Environment Agency)** also contributes forest-related scientific data by means of applied research projects. Generally, there has also been a strong trend to network with other European research institutions over the last years.

Due to the special characteristics of forest production and the resulting need for long-term commitment in case of most research projects, forest-related research is very expensive. For this reason and due to the strong social ties, and the structure of small-scale properties there are only very few enterprises that are capable of conducting research. Forest-related research is therefore funded almost entirely by the Austrian state. There are only scattered examples of **funding** through private enterprises. Generally many research institutions have suffered from a scarcity of human resources and funding in recent years.

*There is need for discussion in the field of research orientation, particularly in terms of long-term fundamental research; and conveying findings to forest practitioners. Moreover, there is also need for improvement in the coordination of research between the BOKU and the BFW.*

#### **Research in the field of wood and its utilisation**

The number of actors in wood research has increased recently. Yet fundamental research is still mainly carried out by universities.

#### **Among the most important and leading institutes are:**

- Institute for Wood Science and Technology (*Institut für Holzforschung*) of the BOKU Vienna
- Institute of Structural Design and Timber Construction (*Institut für Tragwerkslehre und Ingenieurholzbau*) of the Vienna University of Technology
- Institute for Steel Structures and Shell Structures (*Institut für Stahlbau, Holzbau und Flächentragwerke*) of the Graz University of Technology
- Endowed Chair for Wood Construction, Timber and Concrete Composite Structures, and Wood Composites (*Stiftungslehrstuhl für Holzbau, Holzmischbau und Holzverbundwerkstoffe*)

Due to their new financial autonomy universities need more money from third parties and to start being active in the field of applied research. In this context **Holz-forschung Austria (Wood Research Austria)** plays a major role in applied research. In addition to the universities, competence centres, applied science universities (*FHs*) and wood clusters have become new actors in research linked to economic interests. In light of the value creation chain the ‘knowledge chain’ connecting forest and wood-based industry and other related branches is becoming increasingly important. This means that all branches should be involved in issues that concern the overall value creation chain. From the point of view of timber re-

search the area of product research is of tremendous importance. New products are equal to a higher added value for the industry and the national economy. Especially in the light of the eastward enlargement of the EU it is important for the timber industry to invest in innovative products in order to stay competitive. Future research focus could be placed on: new fields of application for wood, the creation of different fields of application for different types of wood particularly in civil engineering, and new solid wood products and ways of finishing (e.g. surface treatments).

Research in the area of the energetic use of wood is successfully conducted by a number of Austrian institutes such as the Austrian Energy Agency (*Energieagentur*), the Federal Institute for Agricultural Engineering Wieselburg (*Bundesanstalt für Landtechnik Wieselburg*), Johanneum Research Graz, Austrian Research Seibersdorf, University of Natural Resources and Applied Life Sciences Vienna (*BOKU*), and the Graz University of Technology. These institutes act also successfully as partners in international research networks.





## 6.2 Principles and Goals

### Principles

- (P21)** Securing the forest and wood industries in Austria and their contribution to Austria's economic balance, and strengthening the importance of the forest sector and its share in the total assets for the national economy, considering also natural resources.
- (P22)** Optimisation of sustainable forest management and of wood processing and manufacturing as important elements of economic and employment policies in rural areas: securing job potentials and quality of working conditions.
- (P23)** Increased creation of value and productivity through partnership cooperation between the forest sector and the tourist and leisure industries, preserving the principle of an open forest and secured ownership.
- (P24)** Exploiting all relevant knowledge sources including experience in forest history as an essential part of innovations in forest-related policy domains.
- (P25)** Illustrating the historical and present concepts of sustainability, in particular with regard to forest education and public relations.

### Goals

- (Z38)** Optimisation of forest use and forest cover taking into account economic, ecological and social framework conditions (integrative planning).
- (Z39)** Improved framework conditions for innovative forest and wood-based industries
- (Z40)** Strengthening of incentive and voluntary approaches (benchmarking, compensation and promotion, public relations, communication, counselling, etc.) and sound integration into an efficient regulatory framework
- (Z41)** Guarantee of a fair balance of interests with regard to all forest functions, harmonisation of public and private interests, socially compatible coordination of the statutory principle of global ownership protection with public interests and preservation of existing legal claims
- (Z42)** Promoting participatory approaches (exchange of information, strategy development etc.) for the sake of a balance of interests
- (Z43)** Strengthening modern knowledge management (monitoring, data management, research, education and vocational training, public relations etc.)
- (Z44)** Increasing employment in rural areas in forestry and wood-based industries in the best possible way
- (Z45)** Forest culture: innovative management of traditional and historical knowledge in forestry including also social and cultural aspects of sustainable forest management; conservation of important objects and equipment of forest culture
- (Z46)** Improved forest-related education programmes for the general public which take place in the forest, in particular programmes of forest education illustrating practical approaches to sustainable development

## 6.3 Fields and Sets of Measures

### Thematic Area 6

#### Social and National Aspects of Austrian Forests

##### Field of Measures

##### 6.1 Services of forest management

##### Set of Measures

- 6.1.1 Evaluation, balancing of interests and partnership solutions for the remuneration of services that go beyond the fulfilment of statutory provisions

##### Field of Measures

##### 6.2 Tourism and use for recreation

##### Set of Measures

- 6.2.1 Establishment and promotion of cooperations with partners and contractual agreements
- 6.2.2 Development of partnerships, and implementation of conflict settlement mechanisms, e.g. visitors flow management, where necessary
- 6.2.3 Evaluation and potential amendments of liability provisions

##### Field of Measures

##### 6.3 Forest culture

##### Set of Measures

- 6.3.1 Establishment and strengthening of cultural services and potentials in Austrian forestry, especially by further developing the Austrian forest culture network

##### Field of Measures

##### 6.4 Awareness creation

##### Set of Measures

- 6.4.1 Reinforcing recognised quality-assured forest education initiatives and strengthening forest public relations work, in nurseries and schools in particular





## Thematic Area 7

# AUSTRIA'S INTERNATIONAL RESPONSIBILITY FOR SUSTAINABLE FOREST MANAGEMENT



**7.1 CURRENT STATE:** In many regions of the world forest destruction and forest devastation are still increasing alarmingly. The globalisation of timber markets and the internationalisation of the environmental and economic policy, the trade in illegally logged timber, the fight against poverty and hunger, and the striving for an effective protection of the climate as well as the natural resources are only some aspects that make clear why the preservation of the forest and forest management have developed from a matter of local concern to a challenge for the whole world.

A number of international agreements formulate very concrete expectations of what the countries should do to ensure the protection and sustainability of the forests in all countries and regions of the world. For a country like Austria, that is by international standards rich in forests, with traditional forestry, an export-oriented wood economy and high environmental standards, an international commitment to the subject “forest” is a matter of course.

Within the framework of different regional and global agreements relevant for forestry Austria has committed itself to taking responsibility for the global sustainable forest management. The recommendations for action of the interstate forest fora (IPF/IFF) and the Working Programme of the Convention on Biological Diversity (CBD) e.g. call upon the countries to take concrete measures for

a sustainable management of forests within the framework of their international cooperation. In this connection different areas are referred to, like for instance the development cooperation, science, but also the economy. Especially in the centre of hot debates are currently illegal timber utilisation and the trade with illegally logged wood.

According to scientific investigations (Pölzl 2002 and 2003) Austria has already implemented a number of Proposals for Action and programme elements as set out by the international forest and environmental fora. In spite of all this Austria is still further called for to set initiatives for a worldwide ecological, economic and socially sustainable forestry. The WWF stresses in this regard that Austria bears a special responsibility for an effective global protection of the forest (e.g. also foreign national parks) with-

in the framework of the development of cooperation and trade regulations relevant hereto.

### **Enforce High Standards for Forestry Worldwide**

Austrian enterprises and institutions increasingly initiate activities that relate to forests and their management in other countries. The Austrian Federal Forests (ÖBf), for instance, offers counselling and also manages forests in Eastern European and Asian countries. Also some private forest owners are active in terms of forest management, for example those, who were given back forests in the former Eastern Bloc. For the Austrian wood economy the East constitutes an important source of raw materials and is increasingly also a location for their processing. This engagement is useful and necessary, if Austria's forestry and timber industry want to remain competitive on the international markets.

*It is recognised that forest and timber management in Austria are technically implemented according to the state of the art and are subject to by international standards very high environmental and social standards. There is unanimity that the very high environmental and social standards in force in Austria shall be granted to the highest possible extent, in order to be a pioneer and set an example. The Austrian foreign policy is called upon to help to achieve the breakthrough of this kind of standards.*

#### **7.1.1 Development Cooperation**

The emphasis of the Austrian Development and East Cooperation lies on the combat of poverty, the prevention of conflicts and the securing of peace as well as the preservation and sustainable utilisation of the natural resources. The sustainable forest management attributed special priority within the framework of the Development Cooperation. In 1993 the national initiative "Rainforest – Third World" was tackled by the Austrian Development Cooperation. It was the objective of the initiative subsequent to the United Nations Conference on Environment and Development in Rio in 1992 to make a clear statement for the preservation of the tropical rainforest. The initiative ended in 1997 and was a single action so far.

The engagement for the preservation of the tropical rainforest is, however, continued with few, successful projects focussed on Northwest of Amazonian in terms of geography and contents. Furthermore, the Austrian Development Cooperation is dedicated to on the one hand poor and other hand ecologically sensitive or endangered regions. Among these are often densely wooded regions or re-

gions that although they have only low forest resources, are of ecologically special importance and are subject to an enormous utilisation pressure. In those cases measures for promoting a sustainable forest management, like e.g. the strengthening of local utilisation rights, poverty-oriented activities for the consolidation of settlement borders, the promotion of a sustainable wood harvest and the utilisation of non-wood forest products represent the central instruments for the project cooperation.

Environmental protection and forestry issues in the Austrian Development Cooperation are primarily sector tasks. Negative effects of investments on the environment are avoided through appropriate evaluation. In the policy and programme development synergistic areas and measures are underlined, that contribute to the improvement of economic and social conditions of life in the partner countries and at the same time to the promotion of sustainable utilisation of natural resources. In total about 30% of the projects are targeted towards the achievement of environmental objectives at least in an integrated form.

As far as science, education and training as well as practical experience are concerned the Austrian forest and wood sector has a large amount of know-how to offer. Research is active in many international projects and networks. The Austrian Development Cooperation can use this potential only if the value for higher ranking development objectives, particularly poverty alleviation, is adequately elaborated and made visible.

#### **7.1.2 Illegal Logging in Other Countries**

A special focal point in connection with the international responsibility of Austria constitutes the fight against illegal forest harvest and the related timber trade, especially in Eastern Europe and Russia. Illegal wood harvest and trade comprises the harvest, transport, buying and selling of wood, if national laws are violated in the course. The harvest procedure itself can be illegal, if utilisation rights are obtained by corrupt actions, if the forest harvest takes place without a permit or in protective areas, if protected tree species are felled or if more wood is harvested than allowed. Illegal incidents can also occur during the processing and the transport, like e.g. wood processing in disregard of laws, and illegal export of wood, falsifying of customs documents as well as the embezzlement of taxes or other duties.

*There is unanimity that there should be no place for illegality in forest and timber management. Too big is the*



*economic, ecological and social damage that arises from it, and it would also be too insecure for the sustainably-oriented sectors of the economy. Additionally, image problems for the wood-importing enterprises within Austria could be the consequence. Wood from illegal sources is to the disadvantage of forestry in Austria insofar, as the price competition with illegally produced wood is not fair.*

The worldwide forest trade amounts to an annual volume of 150 billion Euros according to estimations of the OECD, with a raw material value of approximately 12 billion from illegal sources. The illegal extraction of wood is to blame for the evasion of licence fees and taxes, massive violations of human rights and repressions against the local population as well as the destruction of areas with virgin wilderness. It is estimated that wood producing countries worldwide lose an annual income of from 10 to 15 billion through illegal logging, an income that could be spent for a sustainable management, a better health care, education and other public services.

To Austria only small amounts are imported from regions where illegal logging and corruption are wide-spread (e.g. Indonesia, Cameroon, Malaysia, and Brazil). However, the WWF concludes from the foreign trade data of 2003 of Eurostat that 10% to 15% of all goods made from wood that are imported into Austria, have their origin in countries, where illegal logging and corruption are wide-spread. High import values of timber come from Eastern European

*countries. The WWF points to the fact that in 2003 the value of all products on the basis of wood amounted to 1.42 billion. In some countries illegal logging constitutes a problem. The illegal timber industry does not only concern imports but also Austrian enterprises operating in Eastern European countries, especially wood processing enterprises.*

In case of timber imports from Russia Austria has almost no influence onto management standards in Russia due to the small import volumes. In this connection it has, however, to be borne in mind that imports from Eastern Europe and Russia often take place via transit countries, what makes the traceability more difficult.

A single-handed effort on the part of Austria in the issue of illegal logging would have little effect. Instead, Austria has to be active in the European context and support the FLEGT Action Plan of the EU. *In view of the measures to be taken in the individual cases with respect to illegal wood utilisation and the trade in illegally logged wood there are diverging opinions. A special point of conflict is the issue whether the public procurement should explicitly exclude illegally produced timber. Especially Environmental NGOs claim that public institutions should act in an exemplary manner in this regard. Just as diverging are currently still the estimations if agreements concluded on a voluntary basis or legal bans are more effective in withdrawing timber coming illegally onto the market from circulation.*



### Proportion of Natural Forest Areas Undisturbed by Humans

in Prozent (Tab. 9)

Country	Proportion in Relation to the Total Forest Area	Area of the Natural Forests
Russia	32%	260,769,000 ha
Georgia	18%	550,000 ha
Sweden	17%	4,531,000 ha
Albania	8%	85,000 ha
Bulgaria	7%	257,000 ha
Finland	5%	1,202,000 ha
Romania	4%	233,000 ha
Austria	1%	34,000 ha

Quelle: MCPFE 2003 | State of Europe's Forests 2003

*Currently there are no sufficient instruments that prove the illegality of production of the raw material wood in other countries for the Austrian wood processing industry.*

In order to create sufficiently appropriate instruments for the prevention of illegal logging the European Commission has submitted the **FLEGT Action Plan** in May 2003. FLEGT is an acronym for Forest Law Enforcement, Governance and Trade. This defines that set of measures that is aiming at restricting illegal logging and wood trading. The FLEGT Action Plan tackles the demand as well as the supply side. The first set of approaches of the Plan aims at supporting the timber producing countries in strengthening their forest policy, especially by setting priorities in the Development Cooperation. The second set of approaches consists of a licence system that is to safeguard that only legally produced timber can be imported into the area of the EU (see Chapter 1).

In **Central and Eastern Europe** (CCE countries) up to today extended areas of virgin forests and close-to-nature could continue to exist (see Table 9). Environmental NGOs point out that these forests, that have survived decades of communist planning economy are now exposed to new dangers, like international groups of companies, among them also several Austrian enterprises, that open branches in Central and Eastern Europe. The Economic Chambers of Austria, however, point to the fact that the investments of Austrian entrepreneurs do safeguard that the respective national standards are complied with, the protection of close-to-nature forests is ensured and a responsible way of dealing with resources is exem-

plified. For the future and the preservation of these unique forests not only the respective programmes and measures of the individual countries are of great significance, but also an ecologically, economically and socially responsible procedure of all enterprises operating there are decisive.

#### 7.1.3 Austria's Endeavours in International Processes

For Austria a functioning worldwide forest regime is of great relevance for environmental and economic policy reasons. A consistent forest and environmental policy requires also international commitment for the protection of forests. Experience so far has shown that Austria can successfully assert itself on the international level and consistently pursues its aims in all areas in a persistent way.

Apart from the United Nations Forum on Forests (UNFF), especially the United Nations Convention on Biodiversity (UNCBD), the United Nations Convention to Combat Desertification (UNCCD), as well as the United Nations Framework Convention on Climate Change (UNFCCC) deal with aspects of the forest and its management in a concrete way.

The International Arrangement on Forests (IAF), consisting of the United Nations Forum on Forests (UNFF) and the Collaborative Partnership on Forests (CPF), which was established for dealing with forest issues on a global level, was newly negotiated within the framework of the 5th and the 6th Session of the Forum on Forests. The new agreement on the International Arrangement on Forests defines four **global objectives for the forests** and

commits the community of states to achieving concrete advances in the attainment of these objectives by 2015:

1. Reverse the loss and degradation of forest cover worldwide by means of sustainable forest management
2. Improve of the ecological, social and economic benefits of forests
3. Increase the area of protected forests
4. Increase expenditures for the Development Cooperation in the area of forests

The states commit themselves to undertaking all efforts to achieve these objectives by means of national policies and measures as well as specific national objectives. Additionally, enhanced implementation measures were passed. Apart from these it was agreed that in the year 2007 a voluntary **political instrument** for the forests was to be negotiated, in order to lend additional weight to the global forest objectives and implementation measures. The advances in the attainment of these four objectives will be subject to a comprehensive review. In the course of this review also the usefulness of the creation of a legally binding instrument (Convention) has to be re-examined.

*Many Austrian experts are in favour of at any rate lending more weight to the issues Forest and Forest Management within the Food and Agriculture Organisation of the UN (FAO). There are highly diverging opinions in Austria with respect to the possibility of creating a Protocol of its own for forests within the Convention for Biological Diversity. There is the concern to lose the independence on and holistic approach to forest matters due to an orientation towards the biological diversity as opposed to the advantages of the legally binding status on the basis of the existing structure.*

Austria's attitude in international negotiations with relevance to forests is as a rule brought about on the basis of intrastate coordination. The consultation with stakeholders within the framework of the Austrian Forest Dialogue as well as within the Contact Group "International Forest Policy" safeguards a broadly harmonised forming of opinion. *Critical participants in the Forest Dialogue, however, regard these processes, without having final results in hand, as still having to be put to the test.*



## 7.2 Principles and Goals

### Principles

---

- (P26) Aiming at a globally effective protection of forests, sustainable forest management and at fair competitive conditions.
- (P27) Promoting international networking, partnerships, cooperation and responsible economic activities of private and state institutions.
- (P28) Further development and appropriate implementation of the concept of ecosystem-based management approaches in compliance with existing international models and with due regard to the on-going international harmonisation with the principles of sustainable forest management.

### Goals

---

- (Z47) Further development towards globally comparable standards for sustainable forest management in the framework of regional and global forest-related processes.
- (Z48) Creation of an independent, globally-binding instrument for the protection and maintenance of sustainable forest management (e.g. Global Convention on Forests)
- (Z49) Enhanced integration of sustainable forest management as a contribution to higher-level development objectives (poverty alleviation, rural development) in development cooperation
- (Z50) Expansion and active support of international transfer of knowledge and technology related to sustainable forest management in the fields of administration, research, education and vocational training as well as in the framework of international economic activities
- (Z51) Controlling illegal logging, destruction and degradation of forest ecosystems as well as the associated timber trade in an effective and sustainable manner
- (Z52) Contributing to the further development of criteria and indicators for sustainable forest management at international level and implementation of forest-related international agreements in Austria



## 7.3 Fields and Sets of Measures

### Thematic Area 7

#### Austria's International Responsibility for Sustainable Forest Management

#### Field of Measures

7.1 International legal instrument for sustainable forest management

#### Set of Measures

7.1.1 Strengthening of the Austrian activities with regard to a legally binding international framework for sustainable forest management

#### Field of Measures

7.2 European forest policy

#### Set of Measures

7.2.1 Increased harmonisation of EU policies with forest-related issues and implementation of the European forest strategy (elaboration of a European Forest Action Plan)

#### Field of Measures

7.3 Development cooperation

#### Set of Measures

7.3.1 Strengthening of forest-related projects in the framework of development cooperation, especially by transfer of knowledge and special education offers

**Field of Measures**

7.4 Consulting and forest management abroad

**Set of Measures**

- 7.4.1 Securing the best possible harmonisation with Austrian standards of management, e.g. by voluntary self-commitment
- 7.4.2 Creation of an Austrian alliance platform for strengthening the transfer of forest and wood-based knowledge in optimum cooperation with financing institutions (e.g. World Bank, Austrian Development Agency)

**Field of Measures**

7.5 Illegal logging and related timber trade

**Set of Measures**

- 7.5.1 Prevention of the import of illegally logged wood and strengthening of measures of development policy related to illegal logging

**Field of Measures**

7.6 Public purchase

**Set of Measures**

- 7.6.1 Further development of a draft directive taking into account wood products from sustainable production







### III. Indicators relating to the Goals of the Austrian Forest Programme

No.	Indicators	Goals
1	(MCPFE 1.1) – Forest area: Area and other wooded land, classified by forest type and by availability for wood supply, and share of forest and other wooded land in total land area	(2) Expansion of forest areas in regions with low forest cover, paying attention to ecological, economic and social compatibility and special respect to provisions of forest land-use planning (38) Optimisation of forest use and forest cover taking into account economic, ecological and social framework conditions (integrative planning)
2	(MCPFE 1.2) – Growing stock: Growing stock on forest and other wooded land, classified by forest and by availability for wood supply	(38) Optimisation of forest use and forest cover taking into account economic, ecological and social framework conditions (integrative planning)
3	(MCPFE 1.3) – Age structure and/or diameter distribution: Age structure and/or diameter distribution of forest and other wooded land, classified by forest type and by availability for wood supply	(6) Stabilisation of forest ecosystems in the face of pending climate change by promoting and, where necessary, improving sustainable forest management as well as development and implementation of appropriate adaptation measures (11) Maintaining and improving the resistance of forests against abiotic and biotic risks
4	(MCPFE 1.4) – Carbon stock: Carbon stock of woody biomass and of soils on forest and other wooded land	(4) Enhanced dissemination of information, motivation, and strengthening of measures for active climate protection in all relevant fields in compliance with international agreements binding on Austria
5	(MCPFE 2.1) – Deposition of air pollutants: Deposition of air pollutants on forest and other wooded land, classified by N, S and base cations	(9) Consistent execution of existing laws of relevance to air pollution control and further development of the statutory protective provisions regarding forest-damaging air pollutants based on scientific expert opinions (11) Maintaining and improving the resistance of forests against abiotic and biotic risks
6	(MCPFE 2.2) – Soil condition: Chemical soil properties (pH, CEC, C/N, organic C, base saturation) on forest and other wooded land related to soil acidity and eutrophication, classified by main soil types	(7) Application of ecosystem-oriented (silvicultural) management methods (particularly adapted to specific site and stand conditions) in the framework of sustainable forest management (including appropriate planning and execution) (9) Consistent execution of existing laws of relevance to air pollution control and further development of the statutory protective provisions regarding forest-damaging

No.	Indicators	Goals
		<p>air pollutants based on scientific expert opinions</p> <p>(11) Maintaining and improving the resistance of forests against abiotic and biotic risks</p> <p>(35) Rehabilitation of degraded forest soils in order to preserve the protective effects of forests</p>
7	(MCPFE 2.3) – Defoliation: Defoliation of one or more main tree species on forest and other wooded land in each of the defoliation classes “moderate”, “severe” and “dead”	(11) Maintaining and improving the resistance of forests against abiotic and biotic risks
8	(MCPFE 2.4) – Forest damage: Forest and other wooded land damage, classified by primary damaging agent (abiotic, biotic and human induced) and by forest type	<p>(7) Application of ecosystem-oriented (silvicultural) management methods (particularly adapted to specific site and stand conditions) in the framework of sustainable forest management (including appropriate planning and execution)</p> <p>(8) Sound balance of requirements for forest protection, game stock density, pasture management and of private and public interests in forests, taking into account forest land-use planning</p> <p>(11) Maintaining and improving the resistance of forests against abiotic and biotic risks</p> <p>(33) Better adaptation of game management to ecological, and silvicultural requirements, in particular, in order to maintain all forest functions, particularly the protective function</p>
9	(MCPFE 3.1) – Increment and fellings: Balance between net annual increment and annual fellings of wood on forest available for wood supply	<p>(1) Increased utilisation of wood as a renewable raw material (material and energetic use) – best possible substitution of fossil fuels</p> <p>(14) Maintaining and sustainably improving wood supply while conforming to generally accepted framework conditions</p> <p>(38) Optimisation of forest use and forest cover taking into account economic, ecological and social framework conditions (integrative planning)</p>
10	(MCPFE 3.2) Roundwood: Value and quantity of marketed roundwood	<p>(15) Optimised value chain</p> <p>(17) Improved productivity in sustainable forestry and in wood processing and manufacturing industries through product diversification, new marketing lines and promotion of new income sources</p>

No.	Indicators	Goals
11	(MCPFE 3.3) – Non-wood goods: Value and quantity of marketed non-wood goods from forest and other wooded land	(17) Improved productivity in sustainable forestry and in wood processing and manufacturing industries through product diversification, new marketing lines and promotion of new income sources
12	(MCPFE 3.4) – Services: Value of marketed services on forest and other wooded land	(17) Improved productivity in sustainable forestry and in wood processing and manufacturing industries through product diversification, new marketing lines and promotion of new income sources
13	(MCPFE 3.5) – Forests under management plans: Proportion of forest and other wooded land under a management plan or equivalent	(7) Application of ecosystem-oriented (silvicultural) management methods (particularly adapted to specific site and stand conditions) in the framework of sustainable forest management (including appropriate planning and execution) (38) Optimisation of forest use and forest cover taking into account economic, ecological and social framework conditions (integrative planning)
14	(MCPFE 4.1) – Tree species composition: Area of forest and other wooded land, classified by number of tree species occurring and by forest type	(7) Application of ecosystem-oriented (silvicultural) management methods (particularly adapted to specific site and stand conditions) in the framework of sustainable forest management (including appropriate planning and execution) (13) Strengthening close-to-nature forest management and improving the use of site-conforming technologies of utilisation (22) Orientation of forest management according to the potentially natural forest community while safeguarding the stability of the forest ecosystem concerned
15	(MCPFE 4.2) – Regeneration: Area of regeneration within even-aged stands and uneven-aged stands, classified by regeneration type	(7) Application of ecosystem-oriented (silvicultural) management methods (particularly adapted to specific site and stand conditions) in the framework of sustainable forest management (including appropriate planning and execution) (22) Orientation of forest management according to the potentially natural forest community while safeguarding the stability of the forest ecosystem concerned (33) Better adaptation of game management to ecological, and silvicultural requirements, in particular, in order to maintain all forest functions, particularly the protective function
16	(MCPFE 4.3) – Naturalness: Area of forest and other wooded land, classified by “natural” (“undisturbed by man”), by “semi-natural” or by “plantations”, each by forest type (detailed classification according to the hemeroby study)	(6) Stabilisation of forest ecosystems in the face of pending climate change by promoting and, where necessary, improving sustainable forest management as well as development and implementation of appropriate adaptation measures



No.	Indicators	Goals
		<p>(7) Application of ecosystem-oriented (silvicultural) management methods (particularly adapted to specific site and stand conditions) in the framework of sustainable forest management (including appropriate planning and execution)</p> <p>(13) Strengthening close-to-nature forest management and improving the use of site-conforming technologies of utilisation</p> <p>(22) Orientation of forest management according to the potentially natural forest community while safeguarding the stability of the forest ecosystem concerned</p>
17	(MCPFE 4.4) – Introduced tree species: Area of forest and other wooded land dominated by introduced tree species	<p>(22) Orientation of forest management according to the potentially natural forest community while safeguarding the stability of the forest ecosystem concerned</p> <p>(26) Preserving and enhancing rare and endangered native tree and shrub species and responsible dealing with invasive exotic species in compliance with relevant, agreed strategies</p>
18	(MCPFE 4.5) – Deadwood: Volume of standing deadwood and of lying deadwood on forest and other wooded land classified by forest type	(23) Participatory development of strategies for the protection of forests (in and outside protected areas), including species protection programmes in connection with other relevant national programme developments
19	(MCPFE 4.6) – Genetic resources: Area managed for conservation and utilisation of forest tree genetic resources (in situ and ex situ gene conservation) and area managed for seed production	<p>(23) Participatory development of strategies for the protection of forests (in and outside protected areas), including species protection programmes in connection with other relevant national programme developments</p> <p>(26) Preserving and enhancing rare and endangered native tree and shrub species and responsible dealing with invasive exotic species in compliance with relevant, agreed strategies</p>
20	(MCPFE 4.7) – Landscape pattern: Landscape-level spatial pattern of forest cover	(2) Expansion of forest areas in regions with low forest cover, paying attention to ecological, economic and social compatibility and special respect to provisions of forest land-use planning
21	(MCPFE 4.8) – Threatened forest species: Number of threatened forest species, classified according to IUCN Red List categories in relation to total number of forest species (completed by PEFC list of threatened species and Red Lists of endangered biotope types and species by categories of threat)	<p>(23) Participatory development of strategies for the protection of forests (in and outside protected areas), including species protection programmes in connection with other relevant national programme developments</p> <p>(26) Preserving and enhancing rare and endangered native tree and shrub species and responsible dealing with invasive exotic species in compliance with relevant, agreed strategies</p>

No.	Indicators	Goals
22	(MCPFE 4.9) – Protected forests: Area of forest and other wooded land protected to conserve biodiversity, landscapes and specific natural elements, according to MCPFE Assessment Guidelines	(23) Participatory development of strategies for the protection of forests (in and outside protected areas), including species protection programmes in connection with other relevant national programme developments
23	(MCPFE 5.1) – Protective forests – soil, water and other ecosystem functions: Area of forest and other wooded land designated to prevent soil erosion, to preserve water resources, or to maintain other forest ecosystem functions, part of MCPFE Class “Protective Functions”	(32) Developing integrative concepts for the management of protection forests paying special attention to the minimum requirements for fulfilling protective functions in the best way considering the different natural hazard processes (35) Rehabilitation of degraded forest soils in order to preserve the protective effects of forests
24	(MCPFE 5.2) – Protective forests – infrastructure and managed natural resources: Area of forest and other wooded land designated to protect infrastructure and managed natural resources against natural hazards, part of MCPFE Class “Protective Functions”	(32) Developing integrative concepts for the management of protection forests paying special attention to the minimum requirements for fulfilling protective functions in the best way considering the different natural hazard processes
25	(MCPFE 6.1) – Forest holdings: Number of forest holdings, classified by ownership categories and size classes	(41) Guarantee of a fair balance of interests with regard to all forest functions, harmonisation of public and private interests, socially compatible coordination of the statutory principle of global ownership protection with public interests and preservation of existing legal claims
26	(MCPFE 6.2) – Contribution of forest sector to GDP: Contribution of forestry and manufacturing of wood and paper products to gross domestic product	(17) Improved productivity in sustainable forestry and in wood processing and manufacturing industries through product diversification, new marketing lines and promotion of new income sources
27	(MCPFE 6.3) – Net revenue: Net revenue of forest enterprises	(15) Optimised value chain (17) Improved productivity in sustainable forestry and in wood processing and manufacturing industries through product diversification, new marketing lines and promotion of new income sources
28	(MCPFE 6.4) – Expenditures for services: Total expenditures for long-term sustainable services from forests other wooded land protected to conserve biodiversity, landscapes and specific natural elements, according to MCPFE Assessment Guidelines	(41) Guarantee of a fair balance of interests with regard to all forest functions, harmonisation of public and private interests, socially compatible coordination of the statutory principle of global ownership protection with public interests and preservation of existing legal claims
29	(MCPFE 6.5) – Forest sector workforce: Number of persons employed and labour input in the forest sector, classified by gender and age group, education and job characteristics	(18) Intensification of education and vocational training, research, economic monitoring programmes and further employment of tools of forest and related land-use planning (20) Developing local strategies based on public-private partnerships, with a view to securing employment and innovation

No.	Indicators	Goals
		(44) Increasing employment in rural areas in forestry and wood-based industries in the best possible way
30	(MCPFE 6.6) – Occupational safety and health: Frequency of occupational accidents and occupational diseases in forestry	(44) Increasing employment in rural areas in forestry and wood-based industries in the best possible way
31	(MCPFE 6.7) – Wood consumption: Consumption per head of wood and products derived from wood	(1) Increased utilisation of wood as a renewable raw material (material and energetic use) – best possible substitution of fossil fuels (5) Increased use and enlarged possibilities for the use of wood (long-living wood products), and assessment of possible accountability of carbon stocks in wood products
32	(MCPFE 6.8) – Trade in wood: Imports and exports of wood and products derived from wood	(14) Maintaining and sustainably improving wood supply while conforming to generally accepted framework conditions
33	(MCPFE 6.9) – Energy from wood resources: Share of wood energy in total energy consumption, classified by origin of wood	(1) Increased utilisation of wood as a renewable raw material (material and energetic use) – best possible substitution of fossil fuels
34	(MCPFE 6.10) – Accessibility for recreation: Area of forest and other wooded land where public has a right of access for recreational purposes and indication of intensity of use	(41) Guarantee of a fair balance of interests with regard to all forest functions, harmonisation of public and private interests, socially compatible coordination of the statutory principle of global ownership protection with public interests and preservation of existing legal claims
35	(MCPFE 6.11) – Cultural and spiritual values: Number of sites within forest and other wooded land designated as having cultural or spiritual values	(45) Forest culture: innovative management of traditional and historical knowledge in forestry including also social and cultural aspects of sustainable forest management; conservation of important objects and equipment of forest culture
36	(MCPFE B.10 K6) – Public awareness and participation	(4) Enhanced dissemination of information, motivation, and strengthening of measures for active climate protection in all relevant fields in compliance with international agreements binding on Austria (29) Raising of problem awareness, in particular at local and regional level, and in close cooperation with the people concerned and decision-makers (protection forest platforms; learning by operating models)



No.	Indicators	Goals
37	(MCPFE B.11 K6) – Research, training and education	(3) Improved knowledge in climate impact research, in particular, and further research on possible impacts of global climate change on the Austrian forest, its health and functions (43) Strengthening modern knowledge management (monitoring, data management, research, education and vocational training, public relations etc.)
38	Coverage of the roundwood demand (of the wood processing industry) from Austrian forests in %	(1) Increased utilisation of wood as a renewable raw material (material and energetic use) – best possible substitution of fossil fuels
39	Annual financial volume for climate impact research and related adaptation measures	(3) Improved knowledge in climate impact research, in particular, and further research on possible impacts of global climate change on the Austrian forest, its health and functions
40	Quantity of wood used in construction (building industry)	(5) Increased use and enlarged possibilities for the use of wood (long-living wood products), and assessment of possible accountability of carbon stocks in wood products
41	Existence of wildlife ecology land-use planning harmonised across sectors (% of district area)	(8) Sound balance of requirements for forest protection, game stock density, pasture management and of private and public interests in forests, taking into account forest land-use planning
42	Existence of species of potentially natural vegetation “key for the forest community”: crown cover of key species in % on the regeneration area – indicator on development	(8) Sound balance of requirements for forest protection, game stock density, pasture management and of private and public interests in forests, taking into account forest land-use planning (33) Better adaptation of game management to ecological, and silvicultural requirements, in particular, in order to maintain all forest functions, particularly the protective function
43	Number of peeled stems according to AFI (there of newly peeled ones)	(8) Sound balance of requirements for forest protection, game stock density, pasture management and of private and public interests in forests, taking into account forest land-use planning
44	Results according to game damage monitoring	(8) Sound balance of requirements for forest protection, game stock density, pasture management and of private and public interests in forests, taking into account forest land-use planning

No.	Indicators	Goals
45	Exceedance of legal air pollution thresholds according to the Annual Report of Air-quality Measuring in Austria	(9) Consistent execution of existing laws of relevance to air pollution control and further development of the statutory protective provisions regarding forest-damaging air pollutants based on scientific expert opinions
46	Number of measuring points representative of a comprehensive protection against forest damaging air pollutants	(9) Consistent execution of existing laws of relevance to air pollution control and further development of the statutory protective provisions regarding forest-damaging air pollutants based on scientific expert opinions
47	Number and area of current site mapping projects of recognised organisations	(10) Enforcement of forest site mapping in order to implement the provisions of the Alpine Convention according to existing relevant recommendations, periodic realisation of a forest soils survey and further development towards a monitoring of soils across land-use options
48	NO <sub>x</sub> , NH <sub>3</sub> , VOC, SO <sub>2</sub> - and heavy metal emissions (Austria, Europe)	(12) Best possible reduction of emissions according to the state-of-the-art in the fields of transport, industrial plants and household fuels in Austria and, in particular, in the countries whose air pollutants reach Austria due to long-distance transport
49	Share of wood utilisation and timber logging variants according to the Timber Felling Report	(13) Strengthening close-to-nature forest management and improving the use of site-conforming technologies of utilisation (38) Optimisation of forest use and forest cover taking into account economic, ecological and social framework conditions (integrative planning)
50	Quantity of wood accepted according to ÖNORM L1021	(15) Optimised value chain
51	Number of enterprises using photo-optical measuring systems (electronic protocols) for acceptance of roundwood	(15) Optimised value chain
52	Development of prices for roundwood and sawn timber	(15) Optimised value chain
53	Share of sawn timber in the harvest assortments according to the Timber Felling Report	(15) Optimised value chain

No.	Indicators	Goals
54	Number of forest management associations and of their members, including the forest area they represent	(16) Improved cooperation between and across sectors (forest – wood – energy – tourism – water – education – research – agriculture – nature conservation – hunting etc.) (17) Improved productivity in sustainable forestry and in wood processing and manufacturing industries through product diversification, new marketing lines and promotion of new income sources
55	Number and area of cross-sector pilot projects	(16) Improved cooperation between and across sectors (forest – wood – energy – tourism – water – education – research – agriculture – nature conservation – hunting etc.)
56	Gross domestic product expenditure for research and development [% of the GDP] EU structural indicator 5	(18) Intensification of education and vocational training, research, economic monitoring programmes and further employment of tools of forest and related land-use planning
57	Education: Number of graduates from BOKU University (forest and wood-based sector), forestry schools, FAST etc.	(18) Intensification of education and vocational training, research, economic monitoring programmes and further employment of tools of forest and related land-use planning
58	Further education: Number of participants in forest facilities (BOKU, forestry school, BFW, LWK, LFI, Pichl, Rotholz)	(18) Intensification of education and vocational training, research, economic monitoring programmes and further employment of tools of forest and related land-use planning
59	Quantity and representative character of networks of reference enterprises (“forest economic monitoring”) in small-scale forest and in enterprises	(18) Intensification of education and vocational training, research, economic monitoring programmes and further employment of tools of forest and related land-use planning
60	Description of strategies and pilot projects with integrative approach for employment and economic improvement (rural development) per Federal Province	(20) Developing local strategies based on public-private partnerships, with a view to securing employment and innovation
61	Number and forest area surveyed in current and well established biodiversity monitoring projects	(21) Development and implementation of a national monitoring programme for biological diversity
62	Share of structured stands (one or two layers, multi-storied) of the forest area by forest type	(22) Orientation of forest management according to the potentially natural forest community while safeguarding the stability of the forest ecosystem concerned
63	Percentage share of old-growth forest stands	(22) Orientation of forest management according to the potentially natural forest community while safeguarding the stability of the forest ecosystem concerned
64	Number and forest area of species conservation projects in execution	(23) Participatory development of strategies for the protection of forests (in and outside protected areas), including species protection programmes in connection with other relevant national programme developments



No.	Indicators	Goals
65	Share of forest area with contractual nature conservation	(23) Participatory development of strategies for the protection of forests (in and outside protected areas), including species protection programmes in connection with other relevant national programme developments
66	Existence of a permanent Forest Forum (yes/no). (Ongoing talks about current issues in forest policy, protection of forests and implementation of the Forest Programme)	(23) Participatory development of strategies for the protection of forests (in and outside protected areas), including species protection programmes in connection with other relevant national programme developments (42) Promoting participatory approaches (exchange of information, strategy development etc.) for the sake of a balance of interests
67	Share of forest types identified in Austria, which are identified in the Natural Forest Reserves Programme of the Federal Government or of the Federal Provinces, as national parks, biosphere parks, Natura 2000 areas and which are taken care of through forest-related management plans or similar programmes.	(24) All types of forests occurring in Austria are to be recorded in a representative system of protected areas and tended in a coordinated manner
68	Area of forests with special forms of traditional management (high forest management, coppice forest management)	(25) Maintenance and promotion of traditional types of forest management and silvicultural systems
69	Area share of shrubs in forest stands	(26) Preserving and enhancing rare and endangered native tree and shrub species and responsible dealing with invasive exotic species in compliance with relevant, agreed strategies
70	Number of forest land-use plans (thereof accepted plans), which relate to rare or specially valuable forest biotopes	(27) Integrating ecologically relevant elements into forest land-use planning and using them as an important basis of forest political decisions or to reach objectives relating to biodiversity
71	Existence of a recognised set of criteria and indicators (C&I-Set) for the protective functions of forests (yes/no), and forest area in ha evaluated according to this C&I set	(28) Increased impartial assessment of the protective effects, causes of impairment and of the need of restoration and action, with regard to risk situations, the present forest condition and protection objects (categories of protection objects), by means of a universal and comprehensible catalogue of criteria; optimisation of resources distribution

No.	Indicators	Goals
72	Number of protection forest platforms (incl. protection forest partner communities) and the number of events organised by them	(29) Raising of problem awareness, in particular at local and regional level, and in close cooperation with the people concerned and decision-makers (protection forest platforms; learning by operating models) (30) Offering targeted education and vocational training to all participants in forest protection strategies and the interested public
73	Support in EURO in the framework of area-wide projects for areas in ha for the period x; subsidies for protection forests within the Directive on Rural Development in EURO for areas in ha for the year xy, payment by beneficiaries	(31) Remuneration for special measures of preserving and improving protection forests that go beyond the general legal framework based on the real costs accrued and the related activities (32) Developing integrative concepts for the management of protection forests paying special attention to the minimum requirements for fulfilling protective functions in the best way considering the different natural hazard processes (35) Rehabilitation of degraded forest soils in order to preserve the protective effects of forests (37) Reduction of protection forest areas in need of restoration, and improvement of the potential capacity of fulfilling protective functions
74	Number of forest plans relating to protection forest (thereof accepted plans)	(34) Applying forest land-use planning and area-related planning across sectors, especially in problem areas
75	Number and extension in ha of forest areas identified in water protection and close areas (according to the Water Act)	(36) Adaptive management of forests in water protection and other protection areas, while maintaining the principle of equal balance of interests
76	Share of forest area identified in federal protection forest concepts with urgent need of restoration [ha]	(37) Reduction of protection forest areas in need of restoration, and improvement of the potential capacity of fulfilling protective functions
77	Subsidies in EURO for public relations work (forestry from the LE Programme)	(40) Strengthening of incentive and voluntary approaches (benchmarking, compensation and promotion, public relations, communication, counselling, etc.) and sound integration into an efficient regulatory framework
78	Satisfaction of employers and employees (enterprises, authorities) with the quality of education (forest worker, forest manager, forest guard, forester, graduated forester) – indicator in development	(43) Strengthening modern knowledge management (monitoring, data management, research, education and vocational training, public relations etc.)
79	Number of forest and other wooded land related activities related to wood and other forest land, which are attributed cultural or spiritual values, supported or executed in Austria	(45) Forest culture: innovative management of traditional and historical knowledge in forestry including also social and cultural aspects of sustainable forest management; conservation of important objects and equipment of forest culture

No.	Indicators	Goals
80	Programme and number of participants of events organised by certified forest educators, per year	(46) Improved forest-related education programmes for the general public which take place in the forest, in particular programmes of forest education illustrating practical approaches to sustainable development
81	Number of certified forest educators in Austria	(46) Improved forest-related education programmes for the general public which take place in the forest, in particular programmes of forest education illustrating practical approaches to sustainable development
82	Number and budget of development cooperation projects relating to “sustainable forest management” (further development of criteria and indicators at international level)	(47) Further development towards globally comparable standards for sustainable forest management in the framework of regional and global forest-related processes (49) Enhanced integration of sustainable forest management as a contribution to higher-level development objectives (poverty alleviation, rural development) in development cooperation (52) Contributing to the further development of criteria and indicators for sustainable forest management at international level and implementation of forest-related international agreements in Austria
83	Austria’s activities relating to the development of standards for a sustainable forest management	(48) Creation of an independent, globally-binding instrument for the protection and maintenance of sustainable forest management (e.g. Global Convention on Forests)
84	Existence of a global legally-binding forest instrument (yes/no)	(48) Creation of an independent, globally-binding instrument for the protection and maintenance of sustainable forest management (e.g. Global Convention on Forests)
85	Number and total project volume (person days) of international forest-related projects with participation of Austrian enterprises and consultants	(50) Expansion and active support of international transfer of knowledge and technology related to sustainable forest management in the fields of administration, research, education and vocational training as well as in the framework of international economic activities
86	Number of Austrian experts incorporated/employed by international forest-related organisations and committees (classified according to the most important and best known organisations and committees such as World Bank, IBRD, EBRD, FAO, UNECED etc.	(50) Expansion and active support of international transfer of knowledge and technology related to sustainable forest management in the fields of administration, research, education and vocational training as well as in the framework of international economic activities



No.	Indicators	Goals
87	Share of wood from illegal logging according to official statistics	(51) Controlling illegal logging, destruction and degradation of forest ecosystems as well as the associated timber trade in an effective and sustainable manner
88	Quantity of certified timber (m <sup>3</sup> ), processed and treated in Austria on the first level (paper, board, sawmill)	(51) Controlling illegal logging, destruction and degradation of forest ecosystems as well as the associated timber trade in an effective and sustainable manner
89	Number of forest products from sustainable production and relevant certificate (e.g. eco-label)	(51) Controlling illegal logging, destruction and degradation of forest ecosystems as well as the associated timber trade in an effective and sustainable manner
90	Number of agreements with relevant partner states concerned in the framework of FLEGT	(51) Controlling illegal logging, destruction and degradation of forest ecosystems as well as the associated timber trade in an effective and sustainable manner
91	Fragmentation of forests by roads and paths [km/km <sup>2</sup> ]	(7) Application of ecosystem-oriented (silvicultural) management methods (particularly adapted to specific site and stand conditions) in the framework of sustainable forest management (including appropriate planning and execution) (13) Strengthening close-to-nature forest management and improving the use of site-conforming technologies of utilisation (22) Orientation of forest management according to the potentially natural forest community while safeguarding the stability of the forest ecosystem concerned (38) Optimisation of forest use and forest cover taking into account economic, ecological and social framework conditions (integrative planning)
92	Edge density of forests by means of roads and paths [km/km <sup>2</sup> ]	(7) Application of ecosystem-oriented (silvicultural) management methods (particularly adapted to specific site and stand conditions) in the framework of sustainable forest management (including appropriate planning and execution) (13) Strengthening close-to-nature forest management and improving the use of site-conforming technologies of utilisation (22) Orientation of forest management according to the potentially natural forest community while safeguarding the stability of the forest ecosystem concerned (38) Optimisation of forest use and forest cover taking into account economic, ecological and social framework conditions (integrative planning)

## IV. The Work Programme of the Austrian Forest Dialogue



**This work programme serves as an instrument for implementation of the Austrian Forest Dialogue as well as the Austrian Forest Programme. The work programme is not static, but it is a “living” document, that is continuously developed further and adapted. It is thus published only in electronic form on the Internet and can be found under [www.walddialogue.at](http://www.walddialogue.at).**

The work programme is subdivided into three sections. The first section contains concrete implementation-oriented individual measures pertaining to the most urgent sets of measures, and providing the question of responsibility, implementation plan, financing as well as the directly necessary implementation steps. In the second section “best practice” measures that were presented and discussed in terms of contents within the framework of the forest dialogue are listed. These are measures supported in partnership with exemplary effect. They concentrate on the overall concept (principles and goals) of the Forest

Dialogue and are supported by at least three organisations participating in the Forest Dialogue. The third section contains the indicators with the respective current and target figures.

The work programme will be implemented in the follow-up process (Forest Forum), continuously developed further and amended with new measures.

# V. The Austrian Forest Dialogue

## A. STRUCTURE AND PROCEDURE

The Austrian Forest Programme has been elaborated according to internationally recognised principles in a structured, participatory and transparent process, the “Austrian Forest Dialogue” (see Figure 17). The Austrian Forest Dialogue has been realised along the following guidelines:

- Active participation of all interested groups
- Openness
- Transparency
- Commitment
- Holistic, inter-sectoral and interdisciplinary approach
- Long-term and iterative process
- Consistency with international agreements and contracts

### 1. PARTICIPANTS

Participation in the Forest Dialogue is open to all groups, institutions and interested parties concerned with the Austrian forests. Around 80 state and private organisations representing the interests of environment and nature protection, sports, forestry and agriculture, wood-based and paper industries, employees and consumer protection, hunting, the church, development cooperation, youth, science, education, energy, Federal Provinces and public administration participated in the elaboration of the present Forest Programme (see section V, Chapter 3).

The general public has been invited to participate in the dialogue process via the Internet platform [www.walddialog.at](http://www.walddialog.at) and by means of written comments and can look up information on the results of the Round Table and Module meetings. The results of the working groups and comments have been collected in the Intranet accessible to

the participants during the elaboration process and, upon approval by the Round Table, have been made available to the general public on the Internet. Furthermore, information has been distributed widely to the public in a Forest Dialogue Newsletter which informs on the state and the results of the Forest Dialogue on a permanent basis.

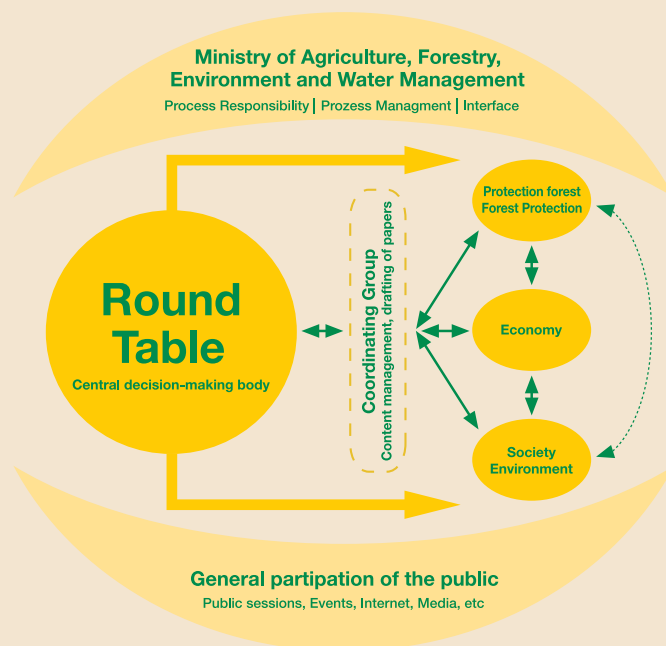


Fig. 17:  
Structure of the Austrian Forest Dialogue, first process phase of 2003–2005

### 2. WORKING GROUPS (MODULES)

The work on the contents of the Austrian Forest Dialogue and the balancing of interests with regard to forest-related issues takes place in the Modules. In order to maintain the dialogue efficient, the themes relevant to forest policy has been subsumed under the following three working groups (the “Modules”):



- **Module 1** “Protection forest – forest protection” chaired by Mr. Fritz Singer, co-chair for the area of “Avalanches, debris flow and flood control”: Mrs. Maria Patek
- **Module 2** “Economy” chaired by Mr. Albert Knieling, co-chair for all areas: Mr. Rudolf Themessl
- **Module 3** “Environment – Society” chaired by Mr. Johannes Schima, co-chair for the area of “Biological diversity”: Mr. Günter Liebel, co-chair for the area “Climate and air pollutants”: Mr. Helmut Hojesky

Ms. Ursula Kopp (Vienna University of Economics and Business Administration, WU) has been in charge of the overall moderation of the modules together with Ms. Susanna Böhm (Federal Ministry of Agriculture, Forestry, Environment and Water Management) until 2004. Discussions that took place in parallel working groups were accompanied by additional moderators.

Five cycles of Module sessions of three days and two of two days respectively took place until the end of 2005. On average, 40 organisations participated per Module session cycle. The first cycle of Module sessions in June 2003 (one-day sessions for each of the three Module working groups) dealt with the analysis of the actual status, trends and formulation of problems. This focus dominated also the second cycle of Module sessions in January and February 2004 and the Workshop on “Austria’s International Responsibility for Sustainable Forest Management” integrated into the Forest Dialogue in June 2004. During the third cycle of Module sessions in November 2004, emphasis was placed on the formulation of goals and their concrete identification by means of a first gathering of indicators and target values. In the fourth cycle of Module sessions in March 2005 the guiding principles (principles and goals) have been adapted slightly for some individual goals. The primary objective of the meeting was the harmonisation of indicators. In the same month, another session dealt with the issue of illegal logging and related timber trade in greater detail. The fifth cycle of Module sessions in May 2005 further refined the indicators and focussed on the discussion of the synthesised proposals of measures (sets of measures). In September 2005 a special Workshop on the issue of rural development “LE 07-14” was organised. Finally, the merged Module sessions cycles of September and October 2005 provided formulations of individual measures for those sets that were considered as most urgent by the participants. Furthermore, a workshop took place in October

2005 related to indicators and target values with the aim to create a consistent and meaningful set of indicators.

### 3. ROUND TABLE

---

The Round Table is the policy decision-making body of the Forest Dialogue. It met four times up to the end of 2005. The Round Table is chaired by the Federal Minister of Agriculture, Forestry, Environment and Water Management. For practical reasons and space limitations, only representatives of organised interest groups of country-wide importance may actively take part in the meetings of the Round Table. A list of the organisations invited to the Round Table figures in Section V, Chapter c. On average, 35 organisations participated in the Round Table sessions.

Up to date, the Round Tables have dealt with deciding on the principles of the Forest Dialogue (see section V, chapter b), periodically determining the further procedure and the content orientation of the Forest Dialogue as well as with adopting the Austrian Forest Programme and recognising the Work Programme. In total, 20 days of Module sessions, 4 Round Tables, and 5 thematic workshops (related to the issues of international responsibility; forest law enforcement, governance and trade (FLEGT); forest promotion programmes for rural development; indicators; forest data) have been organised in addition to the start-up meeting. To this end, a total of 216 hours were spent in meetings.

### 4. COORDINATING GROUP

---

The coordinating group functions as the interface between the Modules and the Round Table. It synthesises and harmonises the results of the individual Modules and presents them to the Round Table. Moreover, the coordinating group integrates the decisions of the Round Table into the final reports. Mr Gerhard Mannsberger, Head of the Forest Department of the Ministry of Life, acts as the chair of the coordinating group. Furthermore, the coordinating group is composed of the persons in charge of the Modules, the chair of the process management group, an external secretary (Mr. Johannes Voitleithner) and a moderator (Mrs. Ursula Kopp). The major part of the coordinating work is done by the secretary of the Forest Dialogue, Mr. Georg Rappold (BMLFUW).

### 5. PROCESS MANAGEMENT GROUP

---

The Process Management Group is responsible for the planning, controlling and coordination of the entire Forest

Dialogue. The process management is taken care of by the Federal Ministry of Agriculture, Forestry, Environment and Water Management and is supported by external scientific consultants. The Process Management Group is chaired by Mr. Ingwald Gschwandtl, head of the forest policy and information division in the Ministry of Life. Furthermore, Mr. Georg Rappold, Mr. Johannes Schima, Mr. Fritz Singer and Mr. Albert Knieling participate on behalf of the BMLFUW. The scientific counselling of the process has been done by Mrs. Ursula Kopp (Vienna University of Economics and Business Administration, WU) and Mr. Johannes Voitleithner (Vienna University of Natural Resources and Applied Life Sciences, BOKU); in the initial phase Mr. Karl Hogl (BOKU) and Mr. André Martinuzzi (WU) contributed as well.

Due to personnel overlapping and for the sake of greater efficiency, the meetings of the Coordinating Group and the Process Management Group have been held jointly since 2004. The public relations work for the Forest Dialogue has been done by the BMLFUW with the assistance of the Martschin & Partner.

## 6. PHASES OF THE FOREST DIALOGUE

The Forest Dialogue has been designed as a long-term and continuous process. The Forest Programme adopted at the end of 2005 constitutes an important result of the Forest Dialogue. Furthermore, the Work Programme was acknowledged at the end of 2005 as a living document for implementation. Ideally, the Forest Dialogue and the related results go through different phases.

The Forest Dialogue started in April 2003 with a description of the actual situation, trends and formulation of problems. Here, a broad survey of data formed the basis for a common evaluation of existing problems in the

forest sector. Subsequently, concrete and common goals and indicators were formulated, as far as possible, paying attention to the manifold interests. By the end of 2005, the Work Programme finally adopted measures to reach the goals set in the agreed timeframe.

The implementation of the Forest Programme and the Work Programme started at the beginning of 2006. To this end, all institutions which have acknowledged the Forest Dialogue and the related results shall be responsible for translating the measures into their own areas of activity. At a suitable time the success of the measures shall be evaluated. To this purpose, the actual state of the forest will again be assessed and another round of the Forest Dialogue will begin (see Figure 18).

## 7. FOLLOW-UP OF THE FOREST DIALOGUE

From 2006 onwards, the modular structure will be transformed into a permanent Forest Forum which will meet once or twice a year. The task of the Forest Forum is the further harmonisation of interests in forest-related contents in agreement with the conditions set by the Round Table. This comprises, among other things, the further development of the Work Programme of the Austrian Forest Dialogue, the evaluation of the legal measures and the identification of new issues of importance. A part from the Forest Forum, thematic workshops will be held in order to carry out the Forest Programme (see Figure 19).

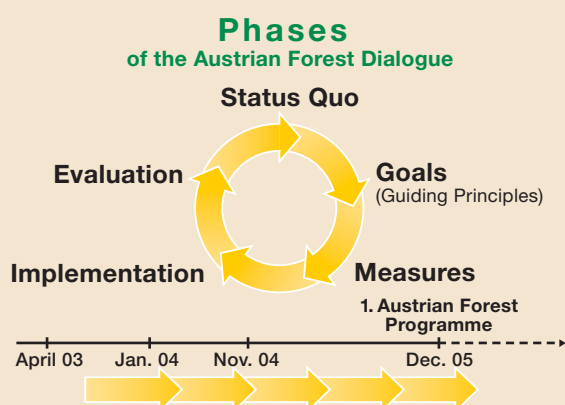


Fig. 18: Phases of the Austrian Forest Dialogue

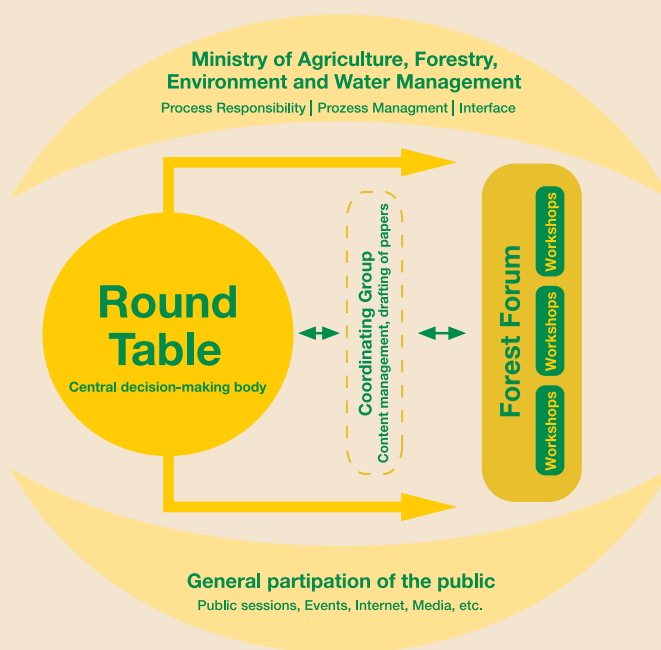


Fig. 19: Structure of the Austrian Forest Dialogue since 2006

## B. RULES AND PRINCIPLES

**At the beginning of the Forest Dialogue, all Forest Dialogue participants jointly elaborated the rules of cooperation and the principles of process structure and procedure and adopted them by consensus. These rules and principles form an important basis for the success of the process and the result-oriented work in the Forest Dialogue. The relevant agreements are described below.**

### 1. INTRODUCTION

---

With the purpose of ensuring the economic, ecological and social services of Austrian forests under changing framework conditions in the long run, the Austrian Federal Ministry for Agriculture, Forestry, Environment and Water Management (BMLFUW) has initiated a broad process of social dialogue aimed at the elaboration of an Austrian Forest Programme. The Forest Dialogue shall not deliver a first-and-final document as a result but rather offer a continuous and open process of dialogue between all groups interested in forest-related issues.

The Austrian Forest Dialogue is based on the elements and principles defined by the Intergovernmental Panel on Forests (IPF) of the United Nations and the pan-European Ministerial Conference for the Protection of Forests in Europe. The present guideline document outlines the structure of the Forest Dialogue and describes the interaction between the participants. It is a “living document” that can be modified, complemented and put into more concrete terms by the participants by consensus whenever needed.

### 2. OBJECTIVES OF THE AUSTRIAN FOREST DIALOGUE

---

The Forest Dialogue serves the purpose of strengthening sustainable management, tending and protection of Austrian forests as per Section 1 of the 2002 Forest Act Amendment and Resolution H1 (General Guidelines for the Sustainable Management of Forests in Europe) of the Ministerial Conference for the Protection of Forests in Europe. The Austrian Forest Dialogue thus addresses the

economic, ecological and social aspects of forests as three equal pillars of sustainable forest management.

*In addition, the Forest Dialogue as a tool for a holistic policy approach according to the EU Council Regulation on support for rural development (EC/1257/1999 of 17 May 1999, Article 29/4), the EU Forest Strategy of 1998, and the agreements of the Ministerial Conference for the Protection of Forests in Europe, serves as a basis for the forest-related development and the implementation of international obligations in forest affairs (e.g. CBD, UNFF).<sup>1</sup>*

The Forest Dialogue strives at concrete targets that are ideally defined in an operational way. The results serve all political decision-makers and areas addressed in the proposals as guidelines for orientation.

The results that are found by consensus also represent the basis for a sectoral or forest-related contribution to the Austrian Strategy for Sustainable Development. In this context, the Forest Dialogue shall lead to the formulation of concrete Austrian goals of sustainability (indicators and criteria) as well as corresponding measures.

### 3. PROCEDURE

---

The Austrian Forest Dialogue shall build on a climate of trust among partners and promote and strengthen such a climate. The present guideline document is based on consensus and currently represents the underlying procedure for the Austrian Forest Dialogue.

In the process of the Forest Dialogue, the participants work together in a regular, open and just manner. At the beginning of the Dialogue the result is open. The participants accept and respect the positions and interests of their respective dialogue partners. They pledge to contribute constructively in the spirit of the aforementioned goals.

### 4. CROSS-SECTORAL APPROACH

---

The Forest Dialogue aims at a most comprehensive coordination of forest-relevant policy fields. Consequently, the

<sup>1</sup> Convention on Biological Diversity, CBD  
United Nation Forum on Forests, UNFF



Austrian Forest Dialogue includes all sectors and organisations of relevance and is open for all interested social groups and citizens. The Forest Dialogue is an important component for new forms of cooperation that interconnect ecological, economic and social issues and thus enriches the existing pool of mechanisms for the harmonisation of interests in Austria.

## 5. PARTICIPATION AND OPENNESS

### 5.1 Participants

For organisational reasons, participation in Round Table and Module meetings is restricted to representatives of organised stakeholder groups. If necessary, the group of participants in the Modules can be expanded upon invitation.

The “general public” has the chance to participate in the Dialogue via an Internet platform or by written statements. In addition, there are public Forest Dialogue fora that are open to all interested persons and offer them an opportunity to express their suggestions, wishes and viewpoints. The public is regularly kept informed about the results of the Forest Dialogue by means of different media and the Internet. All Dialogue participants must be provided with a mandate of negotiation by their respective organisation. The status of observer is an exception.

All organisations that take part in the Forest Dialogue are listed as participants in respective documents. The BML-FUW plays two independent roles within the process of the Forest Dialogue. On the one hand, it is responsible for the process support and process coordination and has to take care that the Forest Dialogue follows internationally accepted process criteria and principles. On the other hand, the BMLFUW takes part in the process of the Dialogue as the representative of public interests in forests.

#### 5.1.1 Round Table (RT)

**Chair:** Federal Minister for Agriculture and Forestry, Environment and Water Management

**Tasks:** The Round Table is the platform for the harmonisation of political and thematic interests. The Round Table is the central decision-making body with regard to the contents elaborated in the process of the Forest Dialogue. The RT suggests the relevant topics to be dealt with by the Modules.

**Participants:** All governmental and non-governmental organisations of national relevance that have an interest in forest-related themes are free to participate in the

Round Table meetings of the Forest Dialogue. The Federal Minister for Agriculture, Forestry, Environment and Water Management extends personal invitations to all stakeholders whose commitment in forest politics is known. For practical reasons and for the sake of a balanced representation, only one representative (substitute) per organisation may take part in Round Table meetings. The participating organisations make sure that they are also adequately represented in the Modules. They take care that they are always represented by the same persons in the Round Table and corresponding Module meetings, if possible (continuity of persons).

#### 5.1.2 Coordinating Group

**Chair:** Head of the Forest Division of the Federal Ministry for Agriculture, Forestry, Environment and Water Management

**Tasks:** The Coordinating Group must synthesise and harmonise the results of the individual Modules and bring them before the Round Table where they are discussed and integrated with the existing RT results. Moreover, the Coordinating Group summarises all RT decisions in final reports according to a structure to be determined by the Round Table.

**Participants:** The Coordinating Group is composed of the persons in charge of the Modules, the chair of the process management group, an external secretary (maybe one of the rapporteurs of the Modules or their working groups) and a moderator.

#### 5.1.3. Modules

**Tasks:** The Modules must find concrete definitions for the topics suggested by the RT, analyse them, propose suitable measures and present these measures to the Coordinating Group. The individual steps of analysis with regard to dealing with a particular problem are as follows:

1. Definition of the scope of the problem
2. Formulation of the desired state (target formulation)
3. Survey of the actual state
4. Survey of the existing political instruments for dealing with the problem
5. Difference between the actual state and the target state (gap analysis)
6. Recommendation of suitable measures/ solutions for settling the problem (necessary partners and agreements, necessary political instruments, demand of resources and research)
7. Fixing of a timeframe for implementation and defining responsibilities

**Persons in charge of Modules:** The persons in charge of the Modules are proposed by the Minister and confirmed by the Round Table. They must prepare the Module meetings and ensure also that minutes of each meeting are taken.

**Participants:** Participation in the Module meetings is principally open to all representatives nominated by the member organisations of the RT. The person in charge of the Module is responsible for extending the invitations to the individual Module meetings. Upon request, the person in charge of the Module may invite other stakeholders to the Module meetings at any time.

**Rapporteur/Secretary:** The tasks of summarising the individual position papers and preparing the Module reports for presentation to the Coordinating Group are taken care of by an external secretary.

**Moderation:** Within the available budget frame and upon consultation with the process management group, each Module has the possibility to hire an external moderator for conducting the individual working sessions. The moderator will coordinate the dates for the working group in agreement with the person in charge of the Module and ensures that the discussion process follows the set timetable. If no external moderator is hired, the person in charge of the Module or any other member of the Module can take over the moderation task.

### 5.2 Moderation, Minutes

Round Tables have external moderators. Upon request and depending on the financial possibilities, Module meetings can also have external moderators. These moderators need both professional skills and technical competence. Minutes shall be taken by a person to be determined at the beginning of a Round Table or Module meeting and delivered promptly.

### 5.3 Use of Discussion Papers

All participants may use discussion papers as a basis for the discussions in the Round Table and Module meetings. Upon request, editorial groups may be entrusted with the preparation of discussion papers. For this task they may seek external expert opinions within the budget frame.

### 5.4 Financial Aspects

The BMFLUW, according to the financial possibilities, pays the costs of the external moderators for the Round Table meetings and the plenary sessions of the Modules, the provision of the necessary infrastructure and any necessary expert opinions or papers. For the

sake of economising and saving of resources, the use of existing resources and scientific background information shall be given priority. Financing the implementation of the suggested actions is to be taken care of by the individual participants within the range of their possibilities. Principally, the BMFLUW does not provide for financing the participation of stakeholders in the Forest Dialogue.

## 6. PRINCIPLE OF CONSENSUS AND DEALING WITH DIVERGING OPINIONS

---

The highest degree of consensus is sought. Diverging opinions may be documented in the final reports of the Forest Dialogue upon request. Principally, no formal voting is provided for.

## 7. TRANSPARENCY

---

The Austrian Forest Dialogue requires the highest possible degree of transparency. This implies in detail:

1. Discussion papers, keynote speeches etc. as well as results from the Round Table and Module meetings are made publicly available by the BMLFUW in an adequate form and can be accessed via Internet.
2. Position papers and written statements are submitted to the BMLFUW (person in charge of the respective Module) in due time before the corresponding meeting. The papers must show the name of the responsible stakeholder and will be presented in the respective meeting (Module).
3. The position papers and written statements delivered to the BMLFUW will be placed at the disposal of all participants in the Forest Dialogue in time. The BMLFUW (person in charge of the respective Module) is in charge of distributing these papers and statements by Intranet and Internet. Working papers will be distributed via Intranet.

## 8. CONTINUOUS PROCESS

---

The Forest Dialogue is a continuous and receptive process, which implies that changes of framework conditions and interests of stakeholders can be taken into account.

## 9. IMPLEMENTATION

---

The organisations represented at the Round Table acknowledge the results of the Forest Dialogue process. Within the bounds of their possibilities, they implement the results that have come about by consensus using the instruments at their disposal.

### 9.1 Binding Character of Results

The highest possible degree of commitment is aimed at for all relevant decision-makers and stakeholders. This requires:

- a) A broad consensus
- b) Objectives, measures, addresses, timeframes and resource demand must be as concrete as possible

The Forest Programme as a result of the Forest Dialogue does not compete with existing instruments of forest policy such as the Forest Act or support programmes, but is rather complementary to them.

### 9.2 Monitoring and Control of Success

**Monitoring:** The BMFLUW provides for interim evaluations of the procedural aspects of the Forest Dialogue.

**Reporting:** A summary report on the state of the Forest Dialogue process and its results (Austrian Forest Programme) is prepared at regular intervals (approx. every other year).

**Control of Success:** In addition, the implementation of results at the contents level shall be evaluated at regular intervals. The information gained from this evaluation shall be the subject of the further Forest Dialogue process.



## C. PARTICIPATING ORGANISATIONS

(dated February 2006)

	Organisation	Address	Telephone	Email / Contact
1	AgrarMarktAustria (AMA)	Dresdnerstraße 70 1200 Wien	01/33 151 - 0	office@ama.gv.at hermine.wittmann@ama.gv.at www.ama.at
2	Arbeiterkammer (AK) - Bundeskammer für Arbeiter und Angestellte*	Prinz Eugen Straße 20-22 1040 Wien	01/501 65-0	maria.burgstaller@akwien.at www.arbeiterkammer.at
3	Arbeiterkammer Salzburg	Markus-Sittikus-Straße 10 5020 Salzburg	0662/ 86 87-0	edgar.atzmanstorfer@ak-salzburg.at www.ak-salzburg.at
4	Austropapier - Vereinigung der Österreichischen Papierindustrie	Gumpendorfer Straße 6 1061 Wien	01/588 86	dworak@austropapier.at austropapier@austropapier.at www.austropapier.at
5	Biosphäre Austria (BIOSA) - Verein für dynamischen Naturschutz	Schauflergasse 6/V 1010 Wien	01/533 02 27	biosa@landforstbetriebe.at www.biosa.at
6	BM für Wirtschaft und Arbeit*	Stubenring 1 1010 Wien	01/711 00-0	franz-josef.baer@bmwa.gv.at service@bmwa.gv.at www.bmwa.gv.at
7	BM für auswärtige Angelegenheiten*	Minoritenplatz 8 1014 Wien	0501 150-0	post@bmaa.gv.at christian.krepela@bmaa.gv.at www.bmaa.gv.at
8	BM für Bildung, Wissenschaft und Kultur*	Minoritenplatz 5 1014 Wien	01/531 20-0	ministerium@bmbwk.gv.at manfred.wirtitsch@bmbwk.gv.at www.bmbwk.gv.at
9	BM für Finanzen*	Himmelfortgasse 4-8 1010 Wien	01/514 33-0	herbert.kasser@bmf.gv.at www.bmf.gv.at
10	BM für Gesundheit und Frauen*	Radetzkystraße 2 1030 Wien	01/711 00-0	christoph.hoerhan@bmfg.gv.at www.bmfg.gv.at
11	BM für Inneres*	Herrengasse 7 1014 Wien	01/531 26-3100	infomaster@bmi.gv.at gerhard.sulz@bmi.gv.at www.bmi.gv.at
12	BM für Landesverteidigung*	Rossauer Lände 1 1090 Wien	01/5200	f.butter@hbv.gv.at www.bmlv.gv.at
13	BM für Land- und Forstwirtschaft, Umwelt- und Wasserwirtschaft*	Marxergasse 2 1030 Wien	01/711 00-7314	walddialog@lebensministerium.at www.lebensministerium.at www.walddialog.at
14	BM für Verkehr, Innovation und Technologie*	Radetzkystraße 2 Postfach 3000 1030 Wien	01/711 62-0	info@bmvit.gv.at brigitte.weiss@bmvit.gv.at www.bmvit.gv.at
15	Bundes Jugendvertretung*	Praterstraße 70/13 1020 Wien	01/214 44 99	office@jugendvertretung.at ute.jungwirth@gmx.at www.jugendvertretung.at
16	Bundesamt und Forschungszentrum für Wald (BFW)	Seckendorff-Gudent-Weg 8 1131 Wien	01/878 38	harald.mausser@bfw.gv.at www.bfw.ac.at
17	Bundeskammer der Architekten und Ingenieurkonsulenten*	Karlsgasse 9/2 1040 Wien	01/505 58 07	susanne.jenner@arching.at www.arching.at
18	Bundesländervertreter Naturschutz	Friedensstraße 11 5020 Salzburg	0662/8042-5523	hermann.hinterstoisser@salzburg.gv.at www.salzburg.gv.at
19	BZÖ - Bündnis Zukunft Österreich*	Kärntner Ring 11 - 13/7/4 1010 Wien	01/512 04 04	office@bzoe.at uscheuch@aon.at www.bzoe.at
20	Die Grünen*	Lindengasse 40 1071 Wien	01/52 125-0	bundesbuero@gruene.at wolfgang.pirkhuber@gruene.at www.gruene.at
21	Einforstungsverband	Linzer Straße 42 4810 Gmunden	07612/740 80	h.deimling@aon.at

	Organisation	Address	Telephone	Email / Contact
22	Fachverband der Holzindustrie Österreichs*	Schwarzenbergplatz 4 1037 Wien	01/712 26 01	office@holzindustrie.at www.holzindustrie.at
23	Fachverband der Seilbahnen Österreichs	Wiedner Hauptstraße 63 Postfach 172 1045 Wien	01/503 78 02	marketingforum@seilbahnen.at www.seilbahnen.at
24	Forschungsinstitut für Wildtierkunde und Ökologie	Savoyenstraße 1 1160 Wien	01/408 909 15-0	fiwi@vu-wien.ac.at friedrich.reimoser@vu-wien.ac.at www.vu-wien.ac.at
25	Forstverwaltung Grafenegg	Grafenegg 10 3485 Haitzendorf	02735/22 05-33	forst@grafenegg.com www.grafenegg.com
26	FPÖ - Freiheitliche Partei Österreich*	Theobaldgasse 16 1060 Wien	01/512 35 35-0	bgst@fpoe.at herbert.kickl@fpoe.at www.fpoe.at
27	Global 2000*	Flurschützstraße 13 1120 Wien	01/812 57 30-0	office@global2000.at andreas.baur@global2000.at www.global2000.at
28	Greenpeace Österreich**	Siebenbrunnengasse 44 1050 Wien	01/545 45 80	service@greenpeace.at nina.thuellen@greenpeace.at www.greenpeace.at
29	H. R. Fürst Starhemberg'sche Familienstiftung Vaduz	Altenberger Straße 81 4040 Linz	0732/245 609-0	star.direktion@aon.at
30	Höhere Bundeslehranstalt für Forstwirtschaft Bruck/Mur	Dr. Th. Körnerstraße 44 8600 Bruck a. d. Mur	03862/51770	willkommen@forstschule.at dir.aldrin@hblabru.bmlfuw.gv.at www.forstschule.at
31	Holzcluster Steiermark GmbH	Forstweg 8740 Zeltweg	03577/222 25	office@holzcluster-steiermark.at www.holzcluster-steiermark.at
32	Industriellenvereinigung (IV)*	Schwarzenbergplatz 4 1031 Wien	01/711 35-0	iv.office@iv-net.at m.beyrer@iv-net.at www.industriellenvereinigung.at
33	Kuratorium Wald*	Alser Straße 37/16 1080 Wien	01/406 59 38	himmel@himmel.at gerhard@himmel.at www.himmel.at
34	Land & Forst Betriebe Österreich*	Schauflergasse 6 1010 Wien	01/533 02 27	office@landforstbetriebe.at www.landforstbetriebe.at
35	Landesforstdirektion Burgenland	Europaplatz 1 7000 Eisenstadt	02682/6000-25 59	hubert.iby@bgld.gv.at www.burgenland.at
36	Landesforstdirektion Kärnten	Bahnhofplatz 5 9021 Klagenfurt	050536/310-31	post.abt10f@ktn.gv.at www.ktn.gv.at
37	Landesforstdirektion Niederösterreich	Landhausplatz 1 Haus 12 3109 St. Pölten	02742/90 05-13392	post.lf4@noel.gv.at www.noel.gv.at
38	Landesforstdirektion Oberösterreich	Bahnhofplatz 1 4021 Linz a. d. Donau	0732/77 20-146 61	forst@post.gv.at walter.wolf@ooe.gv.at www.land-oberoesterreich.gv.at
39	Landesforstdirektion Salzburg	Fanny von Lehnertstraße 1 5020 Salzburg	0662/80 42-36 78	forstdirektion@salzburg.gv.at franz.zaunbauer@salzburg.gv.at www.salzburg.gv.at
40	Landesforstdirektion Steiermark	Brückenkopfgasse 6 8020 Graz	0316/877-0	fa10c@stmk.gv.at josef.kalhs@stmk.gv.at www.steiermark.at
41	Landesforstdirektion Tirol	Bürgerstraße 36 6020 Innsbruck	0512/508/4500	forstorganisation@tirol.gv.at h.kammerlander@tirol.gv.at www.tirol.gv.at/wald
42	Landesforstdirektion Vorarlberg	Landhaus 6901 Bregenz	05574/511-253 05	forstwesen@vorarlberg.at andreas.zambanini@vorarlberg.at www.vorarlberg.at
43	Landesforstdirektion Wien (MD - Stadtbaudirektion)	Ebendorferstraße 1 1082 Wien	01/40 00-826 51	fi@mbd.magwien.gv.at www.wien.at
44	Landeshauptleutekonferenz (Bundesländervertreter)*	Brückenkopfgasse 6 8020 Graz	0316/877-4527	josef.kalhs@stmk.gv.at www.steiermark.at

	Organisation	Address	Telephone	Email / Contact
45	Landwirtschaftskammer Tirol	Brixner Straße 1 6020 Innsbruck	05/92 92-0	office@lk-tirol.at www.lk-tirol.info
46	Landwirtschaftskammer Österreich*	Schauflergasse 6 1014 Wien	01/534 41-85 90	office@lk-oe.at t.stemberger@lk-oe.at www.lk-wien.at
47	Landwirtschaftskammer Wien	Gumpendorfer Straße 15 1060 Wien	01/587 95 28	rudolf.assfall@lk-wien.at www.lk-wien.at
48	MA 49 - Forstamt und Landwirtschaftsbetrieb, Magistratsabteilung der Stadt Wien	Volksgartenstraße 3 1082 Wien	01/40 00-979 11	post@m49.magwien.gv.at fdj@m49.magwien.gv.at www.wien.gv.at/wald
49	Naturfreunde Österreich	Viktoriagasse 6 1150 Wien	01/892 35 34-0	info@naturfreunde.at www.naturfreunde.at
50	Naturschutzbund Österreich*	Museumsplatz 2 5020 Salzburg	0662/64 29 09	bundesverband@naturschutzbund.at birgit.mair-markart@naturschutzbund.at www.naturschutzbund.at
51	Ökobüro - Koordinationsstelle österr. Umweltorganisationen*	Voksgartenstraße 1 A 1010 Wien	01/524 93 77	office@oekobuero.at stefan.moidl@aon.at www.oekobuero.at
52	Ökosoziales Forum*	Franz Josefs-Kai 13 1010 Wien	01/533 07 97-0	info@oesfo.at glatz@oesfo.at www.oesfo.at
53	Österreichische Akademie der Wissenschaften (ÖAW)*	Dr. Ignaz Seipel-Platz 2 1010 Wien	01/515 81-0	webmaster@oeaw.ac.at gerhard.glatzel@boku.ac.at www.oeaw.ac.at
54	Österreichische Arbeitsgemeinschaft für Alm und Weide (ÖAGAW)	Gilmstrasse 2/Stöcklgebäude 6020 Innsbruck	0512/508-3908	j.jenewein@tirol.gv.at www.almwirtschaft.com
55	Österreichische Bischofskonferenz*	Wollzeile 2 1010 Wien	01/513 48 31	verwaltung@ebwien.at forst@hietel.at www.bischofskonferenz.at
56	Österreichische Bundesforste AG (ÖBf AG)*	Pummergasse 10 - 12 3002 Purkersdorf	02231/600	bundesforste@bundesforste.at georg.erlacher@bundesforste.at www.bundesforste.at
57	Österreichische Energieagentur	Schmalzhofgasse 6 1060 Wien	01/586 15 24-0	office@energyagency.at nemestothy@eva.ac.at www.eva.ac.at
58	Österreichische Vereinigung für Agrar-, Lebens- und Umweltwissenschaftliche Forschung	Muthgasse 107 1190 Wien	01/214 59 03 185	oevaf-office@oevaf.at krachler@oevaf.at www.oevaf.at
59	Österreichischer Alpenverein (ÖAV)*	Wilhelm-Greil-Straße 15 6010 Innsbruck	0512/59 547	office@alpenverein.at peter.hasslacher@alpenverein.at www.alpenverein.at
60	Österreichischer Bauernbund	Brucknerstraße 6/3 1040 Wien	01/505 81 73-0	bauernbund@bauernbund.at f.grillitsch@bauernbund.at www.bauernbund.at
61	Österreichischer Forstverein*	Schauflergasse 6 1014 Wien	01/534 41-8590	forst@lk-oe.at b.blin@aon.at www.forstverein.at
62	Österreichischer Gemeindebund*	Löwelstraße 6 1010 Wien	01/512 14 80	oesterreichischer@gemeindebund.gv.at www.gemeindebund.at
63	Österreichischer Gewerkschaftsbund (ÖGB)*	Hohenstaufengasse 10-12 1010 Wien	01/534 44-0	oegb@oegb.at heinz.fluch@ang.at www.oegb.at
64	Österreichischer Landarbeiterkammertag*	Marco d'Avianogasse 1/1 1015 Wien	01/512 23 31	oelakt@landarbeiterkammer.at winkler-josef@aon.at www.landarbeiterkammer.at
65	ÖVP - Österreichische Volkspartei*	Lichtenfelsgasse 7 1010 Wien	01/401 26-0	email@oevp.at fritz.grillitsch@oevp.at www.oevp.at
66	Papierholz Austria GmbH	Frantschach 39 9413 St. Gertraud	04352/20 50-236	b.gutsche@papierholz-austria.at www.papierholz-austria.at
67	SPÖ - Sozialdemokratische Partei Österreichs	Löwelstraße 18 1014 Wien	01/534 27	direkt@spoe.at rainer.wimmer@salinen.com www.spoe.at



	Organisation	Address	Telephone	Email / Contact
68	Städtebund*	Rathaus 1082 Wien	01/4000-89980	post@staedtebund.gv.at ulli.sima@ggu.magwien.gv.at www.staedtebund.at
69	Stiftung Fürst Lichtenstein	Kalwang Nr. 31 8775 Kalwang	03846/8262-14	ramskogler@sfl.at www.sfl.at
70	Technische Universität Graz - Institut für Ressourcenschonende und Nachhaltige Systeme	Rechbauerstraße 12 8010 Graz	0316/873-0	info@tugraz.at www.tugraz.at
71	Umweltbundesamt (UBA)	Spittelauer Lände 5 1090 Wien	01/313 04	office@umweltbundesamt.at josef.hackl@umweltbundesamt.at www.umweltbundesamt.at
72	Umweltdachverband*	Alser Straße 21 1080 Wien	01/401 13	office@umweltdachverband.at franz.maier@umweltdachverband.at www.umweltdachverband.at
73	Universität für Bodenkultur (BOKU)*	Gregor Mendel Straße 33 1180 Wien	01/47654-0	hubert.duerrstein@boku.ac.at www.boku.ac.at
74	Verband Österreichischer Förster (VÖF)	Igelschwang 70 3313 Wallsee-Sindelburg	07472/90 25-216 15	f.ganster@direkt.at www.der-foerster.at
75	Verein zur Erhaltung und Verbesserung des Schutzwaldes	Marxergasse 2 1030 Wien	01/711 00-7317	christoph.majer@lebensministerium.at www.lebensministerium.at
76	Waldverband Österreich*	Schauflergasse 6 1014 Wien	01/534 41-8590	forst@lk-oe.at forst.schrenk@aon.at www.waldverband.at
77	WIFO-Österreichisches Institut für Wirtschaftsforschung*	Arsenal, Objekt 120 Postfach 91 1103 Wien	01/798 26 01-0	office@wifo.ac.at angela.koepl@wifo.ac.at www.wifo.ac.at
78	Wildbach- und Lawinenverbauung Salzburg (WLV)	Bergheimerstraße 57 5021 Salzburg	0662/878 153-00	sektion.salzburg@die-wildbach.at www.die-wildbach.at
79	Wirtschaftskammer Österreich (WKÖ)*	Wiedner Hauptstraße 63 1045 Wien	(0) 590 900	callcenter@wko.at daniela.andratsch@wko.at www.wko.at
80	WWF Österreich (World Wide Fund for Nature)*	Ottakringer Straße 114-116 1160 Wien	01/488 17-0	wwf@wwf.at gerald.steindlegger@wwf.at www.wwf.at
81	Zentralstelle Österreichischer Landesjagdverbände	Wickenburggasse 3/13 1080 Wien	01/405 16-36	jagd@ljv.at gorton-holz@aon.at www.ljv.at

\* Organisations with an asterisk are represented at the Round Table.

\*\* After an active participation in the beginning, Greenpeace has officially retired from the Forest Dialogue in the course of the process.

# VI. Annexes

## A. REFERENCES

- BMLFUW 2005a:** *Nachhaltige Waldwirtschaft in Österreich – Österreichischer Waldbericht 2004 – Datensammlung.* Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft. Wien.
- BMLFUW 2005b:** *Holzeinschlag 2004.* Holzeinschlagsmeldung über das Kalenderjahr 2004. Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft. Wien.
- BFW 2004:** *Österreichische Waldinventur 2000/02 – Hauptergebnisse.* Bundesamt und Forschungszentrum für Wald. Praxis Information Nr. 3. Wien.
- Lexer, Manfred J.; Hönninger, K.; Scheifinger, H.; Matulla, Ch.; Groll, N.; Kromp-Kolb, H.; Schadauer, K.; Starlinger, F.; Englisch, M. 2001:** *The Sensitivity of the Austrian forests to Scenarios of Climatic Change. A Large-scale Risk Assessment* (Sensitivität des österreichischen Waldes unter Klimaänderungsszenarien – Deutsche Zusammenfassung). Umweltbundesamt Monographien, Band 132. Umweltbundesamt GmbH. Wien.
- Hogl, Karl; Pregernig, Michael; Weiss, Gerhard 2003:** *Wer sind Österreichs WaldeigentümerInnen? Einstellungen und Verhalten traditioneller und „neuer“ Waldeigentümergruppen im Vergleich.* Diskussionspapier des Instituts für Sozioökonomik der Forst- und Holzwirtschaft. Nr. P/2003-1. Universität für Bodenkultur. Wien.
- MCPFE 2003:** *State of Europe's Forests 2003. The MCPFE Report on Sustainable Forest Management in Europe.* Jointly prepared by the MCPFE Liaison Unit Vienna and UNECE/FAO. Wien.
- OECD 2003:** *OECD Environmental Performance Reviews: Austria.* Organisation for Economic Cooperation and Development. Paris.
- Pülzl, Helga 2002:** *Evaluierung der Umsetzung der IPF- und IFF- Aktionsvorschläge in Österreich.* Schriftenreihe des Instituts für Sozioökonomik der Forst- und Holzwirtschaft. Band 45. Universität für Bodenkultur. Wien.
- Pülzl, Helga 2003:** *Evaluierung der Umsetzung des erweiterten CBD-Arbeitsprogramms für biologische Vielfalt der Wälder und der IPF- und IFF- Aktionsvorschläge in Österreich.* Schriftenreihe des Instituts für Sozioökonomik der Forst- und Holzwirtschaft. Band 50. Universität für Bodenkultur. Wien.
- Rametsteiner, Ewald 2000:** *Die Österreicher und ihr Wald. Das Bild der Österreicher von Wald, nachhaltiger Waldbewirtschaftung und Zertifizierung im internationalen Vergleich.* Schriftenreihe des Instituts für Sozioökonomik der Forst- und Holzwirtschaft. Band 34. Universität für Bodenkultur. Wien.
- Rametsteiner, Ewald; Kubeczko, Klaus 2003:** *Innovation und Unternehmertum in der österreichischen Forstwirtschaft.* Schriftenreihe des Instituts für Sozioökonomik der Forst- und Holzwirtschaft. Band 49. Universität für Bodenkultur. Wien.
- Scheibmeir, Martin 2001:** *Der Wald und seine Nutzung in österreichischen Schulbüchern.* Zwischen ökonomischem Zwang und ökologischer Verantwortung. Diplomarbeit an der Universität für Bodenkultur. Wien.

## B. LIST OF ACRONYMS

<b>BFW</b>	Federal Research and Training Centre for Forests, Natural Hazards and Landscape
<b>BMLFUW</b>	Federal Ministry of Agriculture, Forestry, Environment and Water Management
<b>CEE</b>	Central and Eastern Europe
<b>EfE</b>	Environment for Europe
<b>FAO</b>	Food and Agricultural Organisation of the United Nations
<b>FLEGT</b>	Forest Law Enforcement, Governance and Trade
<b>FOWL</b>	Forest and other wooded land
<b>FPP</b>	Cooperation Agreement Forest-Board-Paper
<b>GMO</b>	Genetically Modified Organismus
<b>IFF</b>	Intergovernmental Forum on Forests
<b>IPF</b>	Intergovernmental Panel on Forests
<b>m<sup>3</sup>.o.b.</b>	Cubic meter over bark; cubic meter standing (m <sup>3</sup> standing)
<b>m<sup>3</sup>.u.b.</b>	Cubic meter under bark
<b>MCPFE</b>	Ministerial Conference on the Protection of Forests in Europe
<b>NGOs</b>	Non-Governmental Organizations
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>PEBLDS</b>	Pan-European Biological and Landscape Diversity Strategy
<b>PJ</b>	Peta Joule
<b>UNCBD</b>	United Nations Convention on Biological Diversity
<b>UNCCD</b>	United Nations Convention to Combat Desertification
<b>UNCED</b>	United Nations Conference on Environment and Development
<b>UNECE</b>	United Nations Economic Commission for Europe
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>UNFF</b>	United Nations Forum on Forests
<b>WKÖ</b>	Austrian Federal Economic Chamber
<b>WWF</b>	World Wide Fund for Nature





lebensministerium.at