FUTURE FOREST POLICIES IN EUROPE – BALANCING ECONOMIC AND ECOLOGICAL DEMANDS

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Edited by Ilpo Tikkanen and Brita Pajari

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FOREWORD

Forests, their vital significance and contribution to human welfare have become a priority on various international policy and political agendas since the Strasbourg and Rio Conferences. Policy researchers and policy-makers are facing three major emerging and most likely strengthening trends related to policy formulation processes.

- Firstly, global, regional and national policy processes are increasingly inter-linked, which reflects in new procedures, such as Intergovernmental Forum on Forests, and in discussions on policy aims and means.

- Secondly, as an outcome of these processes and especially international collaboration, the broadened concept and perceptions of sustainable management, conservation and development of forests with underlying economic, social and ecological dimensions have been evolving and gaining in more specific form, e.g. in terms of criteria and indicators.

- Thirdly, the policy developments towards the implementation of sustainable forest management have revealed the increased complexity of forest policy issues, and, thus, the need for cross-sectoral policy coordination, too.

As a logical consequence of all these interrelated trends as well as parallel to policy development needs, socio-economic and policy research seem to experience a variety of demands. To respond to these demands EFI organised an international conference on 15-18 June 1997 with the theme 'Future forest Policies in Europe – Balancing Economic and Ecological Demands'. The conference was a visible outcome of the activities of Forest Policy Research Forum of EFI as well as the collaboration with IUFRO.

It is my personal pleasure, on behalf of EFI and my colleagues in the Organising Committee, Professors *Peter Glück* and *Birger Solberg*, to express our sincere thanks to the Keynote speakers, Mr. *Manuel Paveri-Anziani*, FAO, Italy, Mr. *Jan Heino*, Ministry of Agriculture and Forestry, Finland, Mr. *Ola Ullsten*, WCFSD, USA, Mr. *Pekka Patosaari*, Embassy of Finland, Great Britain, Mr. *Jeremy Wall*, European Commission, DGIII, Belgium, and Dr. *Paul Weissenberg*, European Commission, DGIII, Cabinet of Commissioner Bangeman, Belgium. Their contributions were invaluable for the success of the conference. Likewise, I like to thank all the speakers and it is a pleasure, indeed to recommend to utilise their papers, published now in these proceedings.

I also like to thank warmly my IUFRO colleagues, Professor Peter Glück, Professor *Hans Essmann* and Professor Birger Solberg, for moderating the sessions. Dr. *Pentti*

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Hyttinen skilfully organised the conference excursion. I am especially grateful to Mr. *Tim Peck* whose support and contribution as Conference Chairman was decisive in many respects.

In the heart of the organising team during the whole process of the conference preparations and editing these proceedings was Ms. *Brita Pajari* to whom I would like to express my warm and admiring thanks, not to forget the contribution of all the EFI personnel working for the success of the Conference. I would also like to thank Mr. *Cecil Konijnendijk* and Ms. *Minna Korhonen* for their assistance in compiling these proceedings.

February 1998, Joensuu

Ilpo Tikkanen
Chairman of the Organising Committee

CHAIRMAN'S OPENING REMARKS

On behalf of the European Forest Institute, I wish you all a most warm welcome to this Research Forum on Future Forest Policies in Europe – Balancing Economic and Ecological Demands.

The importance of the topic and the interest it generates at this time is clearly demonstrated by the large attendance at the Forum and by the list of well-known speakers that the organisers have been able to assemble.

It is important to underline from the start that the Forum is being sponsored by two international research organisations – the International Union of Forestry Research Organisations (IUFRO) and the European Forest Institute (EFI) – and that in consequence the emphasis is on the research aspects relating to the policy formulation in the forest and forest industries sector. Under no circumstances should the Forum be used for or be seen as indulging in policy making or even as advocating a particular direction for policy. On the other hand, it can be considered to comply with the widely accepted principle of public participation in the policy debate.

What we hope to do, as I see it, is to make this an occasion for researchers and those directly involved in policy making to come together and discuss ideas and opinions, and to identify the main challenges facing policy makers in European countries today, the options that are open to them and the tools for analysing those options and finding equitable solutions. The demands on the forest have been diversifying rapidly in recent decades and so has the number of stakeholders (to use a term which I dislike), to the extent that policy formulation, including the means of implementing policies, has found it virtually impossible to keep pace. This has been partly because in many cases we have found that we do not know enough about the various policy options and do not yet have the tools for assessing them effectively. This is where more research may be called for.

It is not foreseen that the Forum will come out with a set of conclusions and recommendations. Rather, it is hoped that each participant will pick up ideas and information that he and she will be able to take home and apply in his or her field of activity, whether as a policy maker, adviser, researcher, practitioner or whatever. I wish you all a most pleasant time in Joensuu and a productive and stimulating participation in this Forum.

Tim Peck
European Forest Institute

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SESSION I

WHAT ARE THE MOST CRUCIAL SOCIO-ECONOMIC AND ECOLOGICAL TRENDS FACING THE FOREST AND FOREST INDUSTRY SECTOR IN EUROPE?

Moderator: Mr. Ilpo Tikkanen

REGIONAL MECHANISMS FOR PROMOTING JOINT POLICIES AND STRATEGIES FOR FORESTRY DEVELOPMENT

Manuel Paveri-Anziani

UN-FAO
Italy

In the context of this Forest Policy Research Forum, I think it is important to present information regarding the significance that the Forest Policy plays in diverse regions in the world and its relation with the European countries. This could also favour a broader perspective in the Forum discussion.

The last decade has witnessed a growing need to look for cooperation and integration among countries, irrespective of past political and socio-economic differences, in order to confront the new economic challenges of development together.

The changes caused by the globalization of the economy with its consequences at national and international levels have contributed to this desire for cooperation.

1. EARLY INITIATIVES IN COOPERATION

The need to work together in order to promote the needed internal socio-economic development to be able to participate and compete for a better place in this new world scenario have stimulated the collaboration and political association of countries.

It is evident that this trend or process is not being pursued only by the poor developing countries but was initially pursued by the developed ones. The European countries were indeed the first to recognise the need to join forces to achieve a better world position and development individually and as a group, when in 1957 they established the base (Treaty of Rome) of their current integration process. Forty years later many other countries are trying to create/establish the basic agreements which will probably be achieved some time in the future, agreements of the type that the European countries are already implementing.

Surely these economic and political trends of the last decade are also at the base of the world preoccupation about natural resources and the consequences of the increasing socio-economic development in our planet. This is so at least in the developed countries, where the basic needs are satisfied, and people start to concern themselves with secondary needs.

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2. UNCED AND ITS ORIGINS

After the United Nations Conference on the Human Environment (Stockholm in 1972) and mainly as a result of the Brundtland report (1987) countries started to pay greater attention to the balance between socio-economic development and environmental security. This concern received the greatest attention at the meeting of the G7 industrialised nations in the 1990 Houston Economic Declaration. One of the merits of this meeting has been to bring the environmental problem and particularly the forestry question as the main topic of the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro (1992), with all the consequences that we know very well today.

The environment is a concept which includes all the natural components that contribute to form it, man included. As such, the territory cannot be considered in separate areas, since its impact transcends territorial or national frontiers. This perception calls for more attention to the ways in which the environment components, especially the forests, are utilised, in spite of the recognition of the national sovereignty over these resources claimed by many countries. We can say that today an implicit agreement exists on the need to define a set of policy principles and objectives to achieve a proper utilisation and management of the main environment components, water, air, forests, lands. With regard to the forest resources these principles and objectives were clearly stated by UNCED, mainly (but not exclusively) in chapter 11 "Combating deforestation" of Agenda 21 and in its Forest Principles, the "Non legally binding authoritative statement of forest principles for a global consensus on the management, conservation and sustainable development of all types of forests". These principles are being considered today the basis of further negotiations towards a possible legally-binding agreement on forests, should countries agree to have one. Many of you will remember how difficult it was to achieve a general agreement on these still very general principles in the so-called "Prepcom" meetings and later in Rio. All the North-South economic conflicts and debates were always present during the discussions, many of them not understood at all by the private citizens of the developing as well as developed countries.

In any case, these "Agreements" have fixed a mill stone in the world development process. Today no country would develop a strategic development process without looking for adequate balance among all the development factors (political, economic, social, environmental, institutional, etc.).

The various economic and political regional groups, established during the last decades as consequence of the above-mentioned world economic strategy changes, have also adopted this attitude. They too wish to adopt and implement appropriate measures for the sustainable management of forest resources.

2.1 Latin America

Within these groups the Central American countries, (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Panama, Nicaragua), under a process of socio-economic integration, established in 1990 the **Central American Commission on Environment**

and Development (CCAD) as the highest regional political entity in the matter of environment and development. It is currently the only regional group that has signed the UNCED conventions and has begun a process of implementation through the relevant forest/environmental departments/units in each country. This Commission was created through a legally binding charter that establishes conditions for coordination and implementation of its resolutions. It is composed of the heads of each member's Ministries of Natural Resources and Environment, and has been active in promoting sustainable development within its region and internationally. The Commission was instrumental in creating the Central American Alliance for Sustainable Development, Natural Resources, Biological Diversity and Environmental Legislation, a regional and national strategy containing the principles and commitments of action on environmental matters. It is promoting the extension and sharing of the Alliance principles and establishing collaborative agreements (Alliances) with other countries (Canada, the European Union, Mexico, and USA).

The Commission policies and strategies related to the sustainable use of forest resources and the conservation of biological diversity are under the implementing responsibility of the Central American Council of Forests and Protected Areas, CCAB-AP which is composed of the heads of the national forest services and national parks departments, and the coordinators of the national forest action plans. Some of its main activities are analysis and assessment of national and regional forestry policies, regional forest fire control, establishment and supervision of a regional biological corridor, study of impacts on the agriculture frontier, promoting participation in forestry of indigenous groups, rural communities and the private sector, attracting national and international investment in forestry, listing plants and animals in danger of extinction and the modernisation of the national forestry sectors. The CCAB-AP has recently defined a set of Criteria and Indicators for the subregional sustainable management of their forests (Lepaterique's process).

The efforts being made and the results being achieved by this Commission are drawing the attention of other developing countries not only in the Latin American Region but also in Africa, where this case was presented as an example to be followed at a recent Expert Consultation on Forestry Policies organised by FAO.

With regard to the Latin America region, another interesting case of subregional country association is the **Amazon Cooperation Treaty (TCA).** This Treaty signed in 1978 (involving 8 countries: Bolivia, Brazil, Columbia, Ecuador, Guyana, Peru, Surinam and Venezuela) fosters collaboration among its member countries on policies and activities related to the environment, science and technology, transportation, education, health and others within the Amazon watershed, in an effort to achieve sustainable development.

The importance of the TCA for forestry is due to the fact that the Amazon Basin contains nearly half of the earth's tropical forests, mainly dominated by Brazil. Nearly all of TCA's areas of concern involve forests. In spite of its nearly 20 years of time, the mechanisms established by the Treaty have started to be more operative only during the last 10 years, as the consequence of an international technical and financial support provided through international cooperating agencies (FAO, European Union) to some of its specialised Commissions and to government counterpart agencies in each member country.

One product of this effort is the recently Treaty statement of purpose (the so-called Declaration of Lima, 1996) that renewed its commitment to sustainable forestry as outlined at UNCED and the definition of the Tarapoto Proposal of Criteria and Indicators of Sustainability of Amazon Forest. For the TCA (as for the EU), the competence in forestry matters and responsibility for the implementation of forestry development, policy and strategy remains in each member country. The Treaty is only a political forum where it is possible (not always easily and with all member countries) to coordinate or harmonise specific activities or works.

2.2 Africa

In Africa we can find four institutional groups of countries which, within their strategic actions, deal with forestry: the **Permanent Interstate Committee for Drought Control in the Sahel (CILSS),** the **Inter-Governmental Authority on Drought and Development (IGADD),** the **Southern African Development Community (SADC),** and the **African Timber Organization (ATO).**

The CILSS (Burkina Faso, Cape Vert, Chad, Gambia, Guinea-Bissau, Mali, Mauritania, Niger, Senegal) was created in 1973 and is supported by the "Club du Sahel", a sub group of OECD countries; CILSS attempts to combat desertification and the causes of food insecurity. With reference to forestry, its activities focus on how economies and policies influence the demand and supply of forest products, specially fuelwood. It encourages sound land management, sponsors regional activities and coordinates a reforestation and forest management programme.

The IGADD (Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan, Uganda) created in 1986, is also oriented to combating the effects of drought and desertification. It is being supported strongly by some Nordic countries (Norway, Sweden). Its primary forestry activities are addressed to re-establishing a productive and sustainable ecological balance in the region, assisting communities in emergency issues and providing short-term assistance to member countries.

The Southern African Development Community (SADC) created in 1980 (Angola, Botswana, Lesotho, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe) encompasses a large and diverse temperate and tropical forest cover (22.1% forest land) and develops and implements specific projects in forestry through a Forestry Sector Technical Coordination Unit based in Malawi.

A Forestry Programme Action approved by SADC has been developed and includes a portfolio of projects on: i) forestry training and education; ii) knowledge of the forest resource base; iii) research; iv) forest resource management; v) forest products utilization and marketing; and vi) integration of environmental protection with forestry development. They have received funds for US$ 117 million to secure some (16) of these projects (1% of the total SADC budget in '94). The EU is in the process of assisting SADC and its member countries to develop an overall sector strategy.

The African Timber Organization, ATO, (Angola, Cameroon, Central African Republic, Congo, Côte d´Ivoire, Gabon, Ghana, Equatorial Guinea, Liberia, Nigeria,

Sao Tome and Principe, Tanzania, Zaire) created in 1976 is an organisation for cooperation initially focused on forest products industry and trade but increasingly also involved in forestry management. Its goal is to allow member countries to study and coordinate ways and means to ensure an optimum utilisation and conservation of their forest resources. The ATO member countries account for almost 87% of the African closed tropical forests and more than 90% of the standing volume. Some of its main objectives are to promote preparation of forestry national policies, the harmonisation of the member countries commercial policies, to promote cooperation and harmonization of freight rates and shipment procedures, to coordinate industrialisation policies and carrying out technical and industrial researches, to conduct market surveys, and to ensure continuous exchange of information and mutual support concerning forestry management, utilisation and conservation policies, etc. The Organization plays an important role in the coordination at regional level mainly concerning the management of forests, logging and processing of resources, training, research and information in forestry matters.

2.3 Asia

In Asia we find also a tendency and a willingness to confront diverse global challenges through country associations, which have also agreed to define common strategies to deal with the environmental resources and with forestry in particular.

We can mention among the most relevant: The **Association of Southeast Asian Nations (ASEAN)** created in 1967 (Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam) and with its forest land covering near 47% (153 million ha) of the total land area. In 1993, following the UNCED principles, a Ministerial meeting signed the ASEAN Cooperation in Food, Agriculture and Forestry initiative. This addresses themes related to forestry such as: i) promotion of forest products; ii) technology development and transfer, and iii) natural resource management. As important timber producing region (specially for tropical hardwoods) one of its top priorities is promoting an increase in product quality and diversification following the principle of sustainable management of forests. In principle member countries also support certification for all types of timber, not only tropical with a view to promoting sustainable forestry practices.

Another important group is the **South Pacific Forum (SPF)** created in 1972 (but its current name was approved in 1988) (Australia, Cook Islands, Fiji, Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Solomon Islands, Tonga, Tuvalu, Vanuatu, Western Samoa). Some of its main forestry objectives are to reduce the depletion rate and loss of revenue due to illegal logging and the poor control and enforcement of harvesting regulations which foreign companies often ignore. Since 1994 the Forum members have imposed stricter controls on the exploitation of forestry resources and begun negotiations to standardize monitoring of the region's resources and have adopted in 1995 a "Code of Conduct for Logging of Indigenous Forests". An informal working group continues to propose improvements under FAO's Asia-Pacific Regional Forestry Commission.

2.4 Europe

In Europe the most important political aggregation of countries is represented by the **European Union** first established in 1957 as a Treaty. Today 15 countries are members (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and the United Kingdom). The EU is a dominant producer and trader in forest products and has almost one-third of its territory covered with different types of forests. As in the other groups mentioned, it is important to know how the Union deals with forestry, although this aspect has been extensively analysed and discussed by many of you, in the International Forest Policy Forum, held in Salsona, Spain last March and most recently in the Club of Brussels.

It is well known that the Treaty of Rome makes no provision for a common forestry policy and until now the EU has not defined a forest policy and strategy for its own forests as such. Forest related activities are referred to under other headings, specially agriculture, environment and rural development. In fact "the (E.U.) initiatives which had the major effect on forest policy (at national level) in the first 20 years of the E.U. activity were those related to the implementation of the Common Agricultural Policy (CAP)" (D. Petenella "EU Forest Policy from a Mediterranean Point of View" 1993). The EU has, however, undertaken in-depth review of and has a policy on tropical forests.

From many papers on the need or not for the E.U. to have a specific policy and strategy for forestry, it appears clear that there is conflict of interests among various member countries on this theme. However, these different views now are likely to be reconciled in the context of a recent Motion for a Resolution (20/11/96) presented by Mr. David Thomas, which "calls on the European Commission to put forward within 2 years of the date of adoption of his report by the European Parliament, a legislative proposal on a European Forestry Strategy".

Recognising the principle of subsidiarity that the main European policies follow, the main principles and objectives of the proposal refer to the importance of the European forestry resources as source of employment and wealth and to the respect of the resolution approved by the E.U. and its member states under the Rio Declaration and the Helsinki resolutions, taking into account the fact that most of the European forests belong to millions of forest owners who have to ensure a multi-purpose management of forests guaranteeing its sustainability.

The motion calls upon the Commission to establish adequate mechanisms and financial resources for a coherent and complementary implementation at Community, State and regional level of developing actions dealing with the Protection, Utilization/ Development and Extension of the European forestry resources.

Considering the future enlargement of the E.U., the Motion points out that the principles and objectives of the European Forestry Strategy should be a reference point for future member countries.

To favour the implementation of this strategy it is proposed to strengthen the institutional set up of the Commission by proposing the expansion of the Standing Forestry Committee as a lead mechanism in the coordination of forestry matters, the establishment of an Advisory Committee on Forests and of a "coherent administration

framework within the Commission Services". Apart from these more internal strategy mechanisms the Motion requests the E.U. to play an active role in trade negotiations related to forestry problems; to submit an action plan to combat ecological and social dumping in relation to imports of timber into the E.U.; to continue to work towards an international convention on the protection and sustainable management of forests; to consider the establishment of a recognised international certification system for the sustainable management of forests (transparent, voluntary, non-discriminatory, and considering the specific ecological, biological and socio-economic characteristics of each country) and to submit proposals for an integrated international strategy which ensures the qualitative and quantitative conservation and sustainable management of forests, accompanied by the necessary financial aid and technical assistance to support the efforts of the countries concerned.

Finally, in the context of this Region we must mention the joint political efforts being carried out by the European countries through periodic Regional Conferences to built up a **Pan-European Process for the Protection of Forests** to give appropriate follow up to the Helsinki resolutions on sustainable forest management. This effort, which also includes a commitment to provide special assistance to countries in transition of Central and Eastern Europe to joint this process, is being technically supported by the UN/ECE, FAO, ILO and other international organisations.

3. WHICH WAY AHEAD FOR REGIONAL COOPERATION?

We have seen how all these regional political groups and each of its member countries have been strongly influenced by the environmental concern raised at world level from the preparation process to UNCED and by its later developments, especially the discussions under the United Nations Commission on Sustainable Development and specifically the activities/meetings of the Intergovernmental Panel on Forests (IPF).

The conclusions reached by the last IPF meeting in February 1997 and by the Fifth Session of the UNCSD held in April should be analysed and discussed by the Special Session of the U.N General Assembly. Whatever will be the resolutions of this Assembly concerning the follow up to the CSD and IPF work, a new stimulus will most likely affect the entire world forestry sector. It will shed new light on existing issues but pose new challenges for national, regional and global forestry policies, strategies and programmes, as well as those of the international organisations dealing with forestry, like the European Forest Institute, FAO and others.

The global policy and strategy guidelines or parameters mentioned earlier have respected or agreed on the subsidiarity principle of action, leaving full responsibility to each country to exercise its independence or sovereignty on the acceptance and implementation of these global guidelines.

We need to see if in the future the countries will agree that decided global policy and strategy principles and objectives conform a general framework to which the national and regional policies should refer in managing and conserving the remaining forests sacrificing some of their sovereignty to share responsibility over their forest resources.

We need to use the valuable opportunity created around forestry in the last years by increasing public awareness on forestry to highlight its importance both in the national political agenda and in those of the regional and world-wide organisations.

This should contribute to develop appropriate strategies and mechanisms to take in due consideration the influences of external policies in forest development to allow the internalisation of their impacts on forestry as well as the externalisation of benefits provided by forestry to those sectors.

However, this represents a challenge for our national and international institutions responsible for the management of the forest resources. Their current rigidity and resistance to change and adaptation to the new sectoral demands have been an important constraint for developing a more flexible and outward looking forestry policies. Isolation of public forestry institutions and of their staff from national policy makers and other different private and NGO stakeholders is also a matter of concern, leading to the low priority for the forestry sector in national and international plans and financial allocations. Difficulties that often are being compounded by reallocation of responsibilities for forestry among different ministries or institutions which in some countries have led to the disappearance of the forestry institutional specificity and provided good arguments to those who would like still more weak forestry institutions and the specific forestry policies merged into more broad (environmental) policies.

Also the international institutions dealing with forestry should play a more active and catalytic role in this field, promoting/stimulating countries and country associations to provide attention to forestry and to the multifunctional role of forests, if needed stimulating concrete common and harmonic policies and strategies for its utilisation and conservation to get from them its full potentiality to contribute to the national and regional socio-economic development.

Finally, the European Union has an important responsibility to play in the international forestry context. This has been proved during UNCED and its follow up processes. A set of policies and strategies have been defined to deal with tropical forests and resources influencing its technical and cooperating programmes with related tropical countries. It is clear that any decision the Union could take in the future to have or not a common and coordinated forestry policy and strategy will have an impact on the rest of the forestry world. For this reason in adopting these decisions due attention should be given to its internal (to the Union) and external consequences. The same could be said in relation to the EU institutional structure dealing with forestry, a better coordination and harmonisation of its internal institutional responsibilities will provide a clear message to the world on the need to have effective and strengthened forestry institutions able to deal with this valuable economic sector.

MAIN SOCIO-ECONOMIC AND ECOLOGICAL FACTORS INFLUENCING THE FOREST SECTOR OF EUROPE AND IMPLICATIONS FOR FOREST POLICIES

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ABSTRACT

This paper aims at, firstly, giving a hypothesis on the main driving factors influencing European forestry; secondly, illustrating this hypothesis with the development in one Nordic country; and finally outlining some implications for the choice of policy instruments. A complex mixture of factors are identified as main driving factors, interacting over time and regions. In particular, biodiversity considerations have brought new challenges to forest policy-making.

1. INTRODUCTION

A meaningful discussion of future forest policy challenges in Europe has to be based, implicitly or explicitly, on some kind of understanding of what the main driving factors influencing forestry and, thus, forest policies are. This paper has three main objectives: first, to introduce a hypothesis on the main socio-economic and ecological factors influencing European forestry; secondly, to illustrate this hypothesis with the development in one of the Nordic countries in the last 50-70 years; and thirdly to outline some implications for the choice of policy instruments. The main focus of the this paper is on the two first-mentioned objectives.

It is always difficult in social sciences to identify main socio-economic drivers of change. Ideally, one should, based on a theory or particular information, set forward hypotheses, and then test these empirically. In practice, for a complex problem like the one addressed here, this is rather difficult, partly because there are several theories to choose among, partly because the interaction of explanatory variables is rather strong both at a given point in time and over time, and partly because there are no precise definitions and empirical data on both the dependent and independent variables involved. In addition, one must consider the costly task of collecting relevant data.

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Regarding the first point – choice of theory – one may argue that in principle there are two extremes to choose from: a materialistic-dialectic view stating, somewhat simplified, that the economic base or organization of the production forces decides the development; or an idealistic point of view emphasizing the influence of man's ideas and will in creating new solutions and development. There are good arguments for both – in this overview paper it is therefore postulated that both these theories are providing valuable factors in explaining driving forces.

2. MAIN FACTORS

Figure 1 shows the factors which are thought to be the main ones. For simplicity, and to follow the title of this paper, let us divide them in ecological and socio-economic factors.

Ecological factors

In my opinion, there are two main ecological factors. The first is the actual forest situation. This situation can be described by a large vector having all variables we would like to include (like area of old growth forest, yield of roundwood, harvesting volume, species of various kind, mosaic patterns, etc.). These variables could be quantitative or qualitative, and their development over time is included. In Fig. 1 this vector is illustrated as box C1. The main point here regarding the topic of the paper is that both the quality and quantity of ecologically important variables have been reduced in many forests and forest landscapes in Europe. This has created a demand for changing an unwanted situation. The pressure for change varies, but in some countries it is high.

The second ecological factor which influences forestry is what I have labelled as general environmental situation (box A3 in Fig. 1). In the media we are daily confronted with such issues, for example, acid rain, air pollution, water pollution, soil degradation, nuclear waste to mention a few. Some of these are connected to forestry, some are not. But they are still a part of a general picture: ecological damage are documented. Severe ecological debates have been started and the public is, rightly, getting more information and getting more conscious about ecological issues in general. In a sustainable global context, ecologically sustainable forestry is seen by more and more people as one necessary component. The fact that for many countries the majority of their threatened species are in forests, enhances the importance for forestry of the general ecological situation.

Socio-economic factors

All other factors than C1 and A3 are in this paper classified as socio-economic factors. In fact, also C1 and A3 could come in this category as it could easily be argued that it is past human influences which directly or indirectly have accumulated into the present ecological situation.

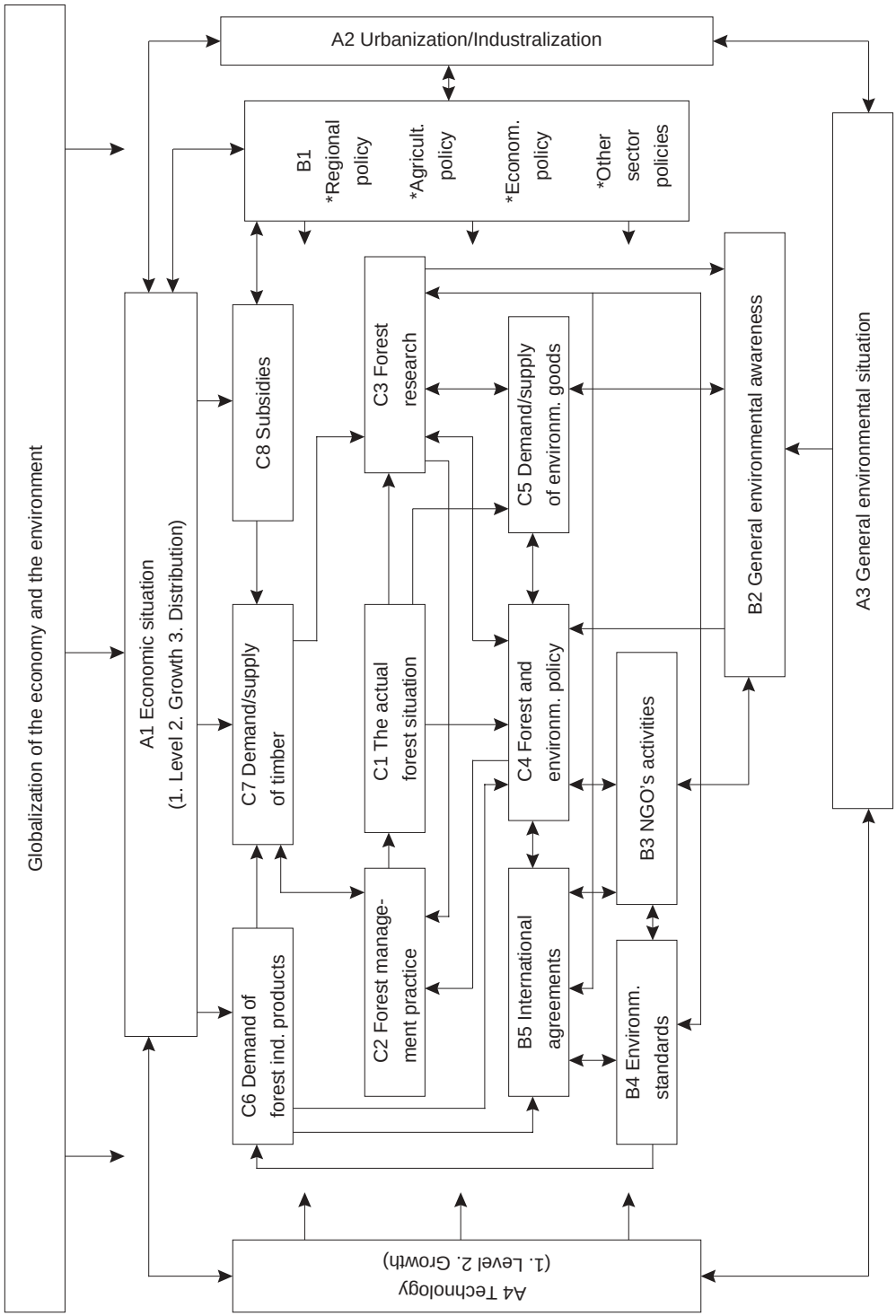

Figure 1. Main ecological and socio-economic driving factors and interactions

The main factor influencing C1 is the forest management practice (C2 which includes also harvesting). C2 is influenced by demand/supply of timber (C7), forest and environmental policy (C4), forest research (C3) and technical development (A4).

Forest research (C3) is influenced by the actual forest situation (C1), demand/supply of timber (C6), demand/supply of environmental goods (C5), forest and environmental policy (C4), the general environmental awareness (B2), and the economic situation (A1) deciding the budget possibilities for research.

Forest and environmental policy (C4) is mainly influenced by the actual forest situation (C1), forest research (C3), demand of forest industry products (C6), demand of environmental goods (C5), policies in other sectors (B1), general environmental awareness (B2), NGO's environmental activities (B4), and international agreements (B5). In this way we can continue with all boxes in Fig. 1. The picture which emerges, can be characterized as:

a) Rather complex with a lot of interdependencies and connections both in a given point in time and over time.

b) A hierarchical structure of factors: first a set of factors (C1-C8) which are rather forest sector specific. Then a set of factors (B1-B4) which are more general sector-specific, the factors A1-A4 which are rather general and influence all sectors of society, and finally the globalization of the economy and the environment which influence all countries.

Risk plays a special role in the driving factors illustrated in Fig. 1. Nearly all of the impact arrows hypothesized in Fig. 1 are characterized by being qualitative – hardly any quantitative study of their relative strength for a specific country or situation exist to my knowledge. Another interesting risk aspect is that the uncertainty regarding the demand and supply of wood for forest industry production, although burdened with considerable uncertainty, is today seen minor to the uncertainty related to the demand/supply of environmental services provided by forests – in particular biodiversity. This inequality related to risk has at least two important implications which are easily observed today. First, it makes harvesting in natural forests rather difficult. Secondly, it rises the demand for increased research related to the impact of forest management alternatives on biodiversity to reduce the risk of making wrong decisions.

3. AN ILLUSTRATION FROM THE NORDIC COUNTRIES

The factors in Fig. 1 are interacting with different intensities over time and over countries/regions in a rather complex pattern. For certain regions, however, one may find a clearer picture over time. This is illustrated by the following example for Norway over the last 75 years (which with some modifications also might be valid for Sweden and Finland in general terms), divided in 4 periods.

The period 1920-1950

Since about 1920 (and some before) the main question was how much of the available timber resources could be cut annually without a decline of sustainable yield. Main driving forces were the profitability of the forest industry with high demand of wood (C6 and C7) and forest research (C3). The national forest inventory institutes in Finland, Sweden and Norway were established around 1920 to investigate this problem, and formed the basis for forest research.

The impact on forest management practices, at least in Norway, was over this period to try to secure high growth by active silviculture. A large debate regarding clearfelling versus selective felling took place, with clearfelling followed by planting as the "winning strategy", mainly because harvesting operations (as well as some silvicultural improvements) could be done with lower costs.

The period 1950-1970

The above described situation was strengthened after the Second World War. In particular in the 1950s the timber prices were very high – the driving forces were the same: high profitability and demand (C6 and C7) and prices of timber, corresponding large harvest, high economic growth (A1) and increased research (C3). The general technological development (A4) was also an important factor. An important aspect was the new harvesting equipment which was introduced, partly as a consequence of research (C3) and high labour costs reflecting the economic growth.

The effects on forest management practice were larger clearfelling areas, less site-specific silviculture treatment and a more mechanized input. Change of species to Norway spruce *(Picea abies)* by planting was supported to increase the production of high quality fiber and sawlogs.

The period 1970-1990

In the 1960s, there was a small, but increasing move from focusing only on timber production. This continued more strongly in the 1970s.

Because of urbanization (A2) and the high economic growth (A1) and corresponding higher welfare partly caused by technological improvements (A4), the demand of forestry environmental goods (C5) were increasing, in particular for recreation and wildlife. Also, general environmental problems (A3) made people more aware of the environmental issues (B2). In addition, urbanization/industrialization (A2) had worsened the environmental situation (i.e. decreased the supply of environmental benefits). Research, particularly the possible influences of acid rain on forestry and ecosystems, also played an important role. A new Forest Act was adopted in 1967, and was revised in 1976.

All this changed the forest management practise (C2) towards an increasing emphasis on smaller clearfelling areas, more national regeneration was possible, less

monocultures and more multi-species stands. Also, there was more emphasis on shaping the forest roads as well as the felling areas according to the landscape.

From 1990 -

One environmental factor came increasingly strong on the agenda in the 1980s: *Biodiversity*. Whereas the other environmental benefits from forestry like recreation, wildlife, cultural heritage, etc. were met and dealt with by forestry management in the Nordic countries (to a more or less satisfactory degree, admittedly), forest biodiversity is much more complex and difficult to handle for several reasons. First, it is hard to define what is meant by sustainable biodiversity/ecosystem (not all organisms are known, the habitat demand of several of the existing organisms in forestry are not known, the size of the area which should be sustainable is unclear, etc.). Secondly, the connections between forest management and biodiversity are nearly unknown – in particular the development over time. It is quite clear that in such situations where both the objectives of a system and the relationships are unclear (or biotopes unknown), conflicts will arise.

The main socio-economic drivers have been the environmental movement – both the international and the national ones (i.e. B3 and B5) – and research (C3). The research has laid the premises to a large degree: pointed at the danger for severe irreversible changes and lack of knowledge at the same time.

The forest industry and timber producers were initially reluctant or in strong opposition to admit that sustainable forest ecosystem management was something more than sustainable yield of timber. In the recent years, however, one may have observed a great change at least in parts of the forest industry, which see that a demand for sustainable forest ecosystem management will be a necessity to keep their markets/ customers. A significant change of socio-economic drivers in the last years has therefore been the demand of NGO's and International Organizations (B3-B5) for eco-labelling and certification of the forest management of the area from where the timber input is coming, as well as the corresponding demand from forest industry on forestry and forest research for fulfilling this certification. The impact on public land management can already be seen in Norway, e.g.:

- More natural regeneration, less planting
- More multi-species and multi-layers stand management
- Demand for "new" planning where the spatial dimension as well as the dynamic dimension are important
- More selection felling is demanded (and introduced also to some places)
- More use of non-permanent roads (winter roads)
- After cutting, small trees as well as old (rotten) trees are left standing, etc.
- Protection of important biotopes near waterstreams, etc.

Another factor, which yet is not so strong but which may get stronger in the future, is the issue of carbon sequestration in forestry. Increased storage of carbon in forestry biomass or forest industry products may prove to be a very cheap "insurance" for

decreasing the concentration of the greenhouse gas CO_2 in the atmosphere (Solberg 1997). Also here, research (C3) and technology (A4) are playing important roles, together with NGO's (B3) and environmental awareness (B4).

4. SOME IMPLICATIONS ON FOREST POLICY ANALYSIS

Biodiversity considerations bring new challenges to forest policies. I will here mention three aspects: uncertainty increases, the importance of conflict and distributional elements increases, and complexity increases, relative to a situation where biodiversity is not a goal:

1. Uncertainty (or risk) is a main challenge, as discussed above. In addition, there is the uncertainty caused by the fact that the various stakeholders do not know for sure what the others will do – the game theory aspect.

   In addition to these uncertainty factors, the uncertainty aspects become more important because biodiversity protection brings automatically in the question of possible irreversible outputs. The risk of irreversibility implies a special value on avoiding such output – an option value – which in many circumstances might be high. As outlines by e.g. Zinkhan (1995) forest managers have considerable options over time to abandon, delay, expand, or contract certain practices in response to changing operating, market and political situations.

2. The conflict and distributional importance increases, just as a consequence of the fact that the number of goal elements increase when including biodiversity production in the welfare function. An additional reason is that, as stated above, this new goal element is burdened with more uncertainty than most of the other goal elements – this in itself gives higher chances of different opinions and larger differences in the preferences.

   The distributional aspects are closely linked to conflicts – conflicts arise because at least some stakeholders feel that they have to bear too much of the costs or are getting too little of the benefits over time – i.e. because the perceived distributional impacts are not perceived as acceptable.

   A particular type of distributional problem here is the question of how much consideration should be given to the future generations, and for biodiversity question this is crucial. The next generation is, however, not yet here with their preferences and their consideration has to be included today by the present generation. One of the most difficult aspects will be to handle intragenerational (i.e. within-generational) equity relative to the intergenerational equity aspects. One may say that intergenerational equity, or justice between generations, is the main moral principle behind the notion of sustainability. For the poorest of the present generation, living on absolute existence under very bad ecological conditions it is, however, not easy to understand that resources which could help survival today must be saved for the next generations. There is no clear-cut answer on what is the optimal income distribution (income in a wide sense

including ecological conditions). If we for example follow Rawl's principle of justice (Rawl 1971), it is the welfare of the poorest segments of the population which have to be compared between generations. The uncertainties and conflicts do not decrease by this.

In many cases the risks related to biodiversity differ considerably between stakeholders. As such, risks become an important distributional effect which might be of high relevance in the policy analysis.

3. The complexity of the forest policy analysis increases as the uncertainty and the conflict issues become more important. It is very important to take the time dimension into account in all stages. Theories of dynamic analysis and behaviour under uncertainty and conflicts will get increased importance. The possibilities for policy analysis to arrive at "absolute" and "sure" results will be reduced (if they ever have even existed) – more modesty and qualitative statements are likely to be the results of the analysis.

A few main consequences for policy-making including biodiversity protection as a forest policy goal, can be drawn based on the discussion above.

- The uncertainty aspects have to be realized right from the beginning of the policy process. It has to be stated as explicit as possible for the biodiversity issues at stake. For some there may be reasonable documentation of dose/response effects, etc., whereas for others it may be close to zero information – i.e. we have classical uncertainty.
- Likewise, the time dimension should always be considered. The aspect of learning over time is particularly important and corresponding possibilities for monitoring uncertain impacts and adjusting the policy means over time according to new knowledge obtained.
- It may be highly advantageous to use policy means which are flexible and promote keeping options. For example, to protect biodiversity in some circumstances it may be a wise policy to rent forest land for a certain time to prevent a harvest operation which may give high risk for biodiversity loss, and thus buy time for learning from ongoing research (or invest in new research), thus avoiding irreversibility.
- Conflict consideration and distributional effects must be included in most cases. It is important to establish processes/procedures which secure that the main stakeholders' interests are taken appropriate care of, including transparency of the information and data available.
- Finally, as the time and risk dimensions are so important, it may in many situations be a considerable advantage to view and practice policy analysis in a *monitoring* aspect as a tool for adjusting the course over time. As such, the policy analysis will be a policy mean in itself, and thus as mentioned by e.g. Wallace et al. (1995), will itself have to be regularly evaluated.

5. CONCLUDING REMARKS

The forest sector of Europe is influenced by a rather complex set of factors interacting with different strength over time and regions.

The description of main factors has been rather general to highlight the most important driving forces. There are of course many subjective judgements involved. Other persons will most likely have other hypotheses, and only empirical studies can be used to judge what is most relevant.

During the last decade one ecological issue has brought more new challenges to forestry and forest policies than any other: biodiversity protection.

One may ask where we are heading to regarding forest land management in Europe. It is hard to say, but it seems that we are going towards a system where the timber extraction in a forest area will have to be closely connected to the output of the forest environmental goods and services in such a way that a sufficient quantity of the latter benefits are secured. Forest policies will most likely have to face a more complex decision-making of forest management questions, involving more emphasis on conflict resolutions and public participation (cf. Solberg and Miina 1997).

As such we will probably get quite different and more varied types of forest management – from total protection, via selection felling to some clearfelling, less planting and more natural regeneration, and less monoculture and more multi-species stands depending upon how the relative values are of the various goods and services (including timber). In short: a more zonal and sophisticated forestry management will probably evolve compared to what we have today. It will be even more interesting to be a forester (or eco-system manager), and there will be many challenges for research.

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CONFLICTS IN GERMAN FOREST ECONOMY IN TIMES OF CRISIS – AN ANALYSIS OF THE PRESENT DISCUSSION IN FOREST POLITICS

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1. INTRODUCTION

1.1 The topic of the study

The steadily widening gap between high wages in Germany and low world market prices of raw wood, as well as changes in lifestyles and values in the western industrialised societies, which have fuelled the criticism of environmental NGO's on forest management techniques, have contributed to the economic, ecological and social difficulties which German forest-enterprises are faced with. In recent years, there have been many hints in German literature on forest politics and forest economy that German forestry is experiencing a series of far-reaching economic and social changes, which are considered to be both fundamental and lasting. These changes have triggered an intense discussion among German forest politicians which became even more heated when the damage caused by several storms in 1990 put additional strain on German forestry (Volz 1991).

Although forest politicians have repeatedly emphasised the importance of unity between the various special-interest groups (e.g. the forest-owners' association, representatives of the states' forest authorities or the forest-workers' union), many of their statements betray the existence of conflicts within German forestry. This situation cannot be regarded as normal. At the beginning of the 1980s, German forestry was still renowned for its general agreement on basic goals and principles and a long tradition of professional harmony (Glück and Pleschberger 1982; see also Glück 1988 and Essmann 1985).

1.2 The problem

Doctoral work, which is currently conducted at the Institute of Forest Policy at the Albert-Ludwigs-University in Freiburg under the supervision of Prof. Dr. Hans Essmann, examines the present discussion in forest politics of the various economic and

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social problems German forestry has to cope with. These problems have been labelled "the crisis in forestry". The basis of this study is an examination of a set of problem-related articles in German forestry journals and similar publications. The results of this analysis can be summarised as follows:

- The economic and social difficulties are commonly characterised as fundamental in nature, regardless of the size or type of ownership (private or state-owned) of a forest enterprise.
- A wide variety of different terms is used to describe "the crisis in forestry".
- Several of the crisis' vital aspects seem to influence each other.
- So far, the discussion in forest politics seems to have deepened the conflicts between the different special-interest groups in German forestry.

In order to arrive at a better understanding of the problem, all relevant scientific articles published between 1990 and 1994 were selected on the basis of their headlines from seven German forestry periodicals and submitted to content analysis (Atteslander 1995; Früh 1991; Kromrey 1994), which led to the following conclusions:

- As an explanation of the "crisis in forestry", most of the authors suggest "economic difficulties", "conflicts between forestry and environmental conservation" and "far reaching changes of values and lifestyles among western, industrialised civilisations".
- "Economic difficulties" are caused by
  - free provision of the forest as a recreational facility,
  - increasing legal limitations and regulations of forest management techniques and economic decisions,
  - disadvantageous development of labour costs and prices of raw wood,
  - additional expenditures and shortfalls in revenue due to forest damages.
- Changes in values and life-styles are identified with the public criticism of the commercial use of natural resources and of forest management techniques, and with a steadily increasing demand for the recreational use of forested land.
- Matters of dispute between forestry and environmental conservation (Essmann 1989; 1993) are forest management techniques and their impacts on the conservation of species and landscape, the use of power and chemicals in forest management, as well as the meaning of several vague, yet legally relevant terms such as sustainability (see Figure 1).

2. CONFLICT THEORY AS A THEORY OF SOCIAL CHANGE

The specific features of the problem as they have been outlined above clearly point to the theory of social conflicts, the basis of which are the publications of Ralf Dahrendorf on the nature and causes of endogenous social group conflicts (e.g. Dahrendorf 1969 in Zapf 1969; see also Endruweit and Daheim 1993; Niedenzu 1993 in Morel 1993; Reimann 1991; for a definition of social change see Wiswede and Kutsch 1978).

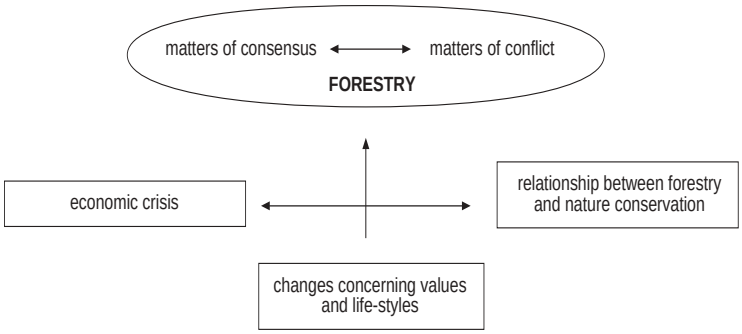

Figure 1. Subject of the examination: forest conflicts in relation to economic, ecological and social difficulties of forestry.

Social conflicts are a common every-day experience. Facing an opponent whose interests differ from one's own, one has to consider several ways of dealing with the adversary in order to get one's own way. These rather complex reflections could best be characterised as *strategic*.

Conflict theory concentrates on endogenous, structural social group conflicts. "Endogenous" means that a conflict arises within a given society and is not – as in the case of war – brought about from the outside. "Structural" means that a conflict does not arise by chance, but due to the allocation of power and wealth within a given society. "Group conflict" means that the validity of conflict theory is limited to conflicts between organised interest-groups and cannot be extended to conflicts between individuals. Conflict theory acknowledges several basic axioms:

- Within any social sphere which is characterised by comparable living conditions of the respective persons we can discern several organised interest groups with competing positions of interest.
- Conflicts as social processes generally presuppose a certain degree of social organisation.
- They presuppose a certain terrain of debatability.
- Social conflicts are a part of the standard condition of society.
- They are the propelling force of social development and historical change.
- Causes of conflicts are of a universal nature because of
  - social inequality,
  - sparseness of resources,
  - differing norms and values.
- Since there is no final solution to these causes, social conflicts cannot be entirely solved, only mitigated.

Conflict theory identifies three main dimensions for the empirical examination of social conflicts: the *actors*, their *positions of interest* and the *measures* they take in order to get through their objectives. Besides the basic axioms, conflict theory entails several

premises that can be empirically tested (Endruweit and Daheim 1993; Niedenzu 1993), e.g. social conflicts are likely to break out if

- several differing ideas about a matter of debate exist,
- the opponents are conscious of their differences,
- the terrain of debatability grows narrow (Glück 1988),
- the opponents consider their power roughly equal.

The basic proposal of the present paper is that the observed conflicts between German forest-political interest groups could be explained as endogenous, structural social group conflicts (due to the unequal allocation of power and resources between these groups) which become manifest due to the "crisis in forestry". If this basic proposal can be verified, conflict theory can be used to gain further insights into the nature of the conflicts and their possible developments.

3. THE APPROACH: A QUESTIONNAIRE

3.1 What is to be asked, who is to be questioned?

While the dimensional analysis prompted certain operationalised questions, the following restrictions had to be observed:

- The addressees of the data collection must be protagonists of practical forest politics.
- Only manifest conflicts are accessible to the research, as conflict theory implies that a) actors do not necessarily recognise latent conflicts of interest, and b) the observation of conflict behaviour is limited to manifest conflicts.

The choice of persons to be questioned was of central importance to the data collection. The assumption of group conflicts within forestry renders as suitable candidates for the poll, members of institutions and organisations who are the prime actors within practical forest politics.

Since conflict theory is exclusively concerned with endogenous conflicts within forestry, a definition of "forestry" is central to the study. The most suitable definition of forestry would be one which includes

- forest enterprises, as they use the forest as a factor in the production mainly of raw wood (according to the definition of Bergen 1991), as well as
- employees, as they are directly (in the production of wood and the respective by-products, and in related services) or indirectly (as members of related institutions and organisations) linked to the operation of the forest enterprises.

This definition is clearly reflected in the structure of the German Forestry Council ("Deutscher Forstwirtschaftsrat" – DFWR).

The results of the content analysis which was conducted at the onset of the present examination led to the conclusion that conflicts are likely to occur between the associations of private and municipal forest owners and the state forest authorities. The professional associations (the forest workers' union IGBAU and the civil servants' association BDF) were considered equally important as they represent labour interests within German forestry. Moreover, the agricultural associations ("Landwirtschaftskammern"), forest-societies ("Forstvereine"), the initiative for ecological forest management ("Arbeitsgemeinschaft Naturgemäße Waldwirtschaft") and the society for forest protection ("Schutzgemeinschaft Deutscher Wald") are considered to be of relevance in the field of forest politics.

Due to theoretical restrictions, assemblies composed of several institutions or persons involved in forest politics (such as the DFWR) or mixed groups, combining representatives of forest politics and of wood-processing enterprises (such as FAF, ARGE Holz etc.) had to be excluded. For the same reason, environmental conservation trusts could not be considered either.

Another important restriction arises from the premise that "organisations" may well have interests and thus may be conflict partners but that observable manifest conflicts are mainly carried out by the representatives of the respective organisations, i.e. the "elite". This narrows the view to the organisations' chairpersons. Thus, one leading person per organisation is to be questioned. Considering their professional qualifications, these chairpersons or their proxies representing the following institutions can be regarded as experts.

- The States' forest authorities (Landesforstverwaltungen – LFV)
- the federal convention of private forest-owners' associations (die Landesverbände der Arbeitsgemeinschaft Deutscher Waldbesitzerverbände – AGDW),
- the federal convention of municipal forest owners (die Landesverbände des Deutschen Städte- und Gemeindebundes),
- the German farmers' association (Landes-/ Regionalverbände des Deutschen Bauernverbandes),
- the association of agricultural services (die Landwirtschaftskammern im Verband der Landwirtschaftskammern),
- forestry civil servants' associations (die Landesverbände des Bundes Deutscher Forstleute – BDF),
- the forest-workers' union (die Landes-/ Regionalverbände der Industriegewerkschaft Bauen, Agrar, Umwelt – IGBAU),
- the initiative for ecological forest management (die Landesverbände der Arbeitsgemeinschaft Naturgemäße Waldwirtschaft – ANW),
- the German forest societies (die Landesverbände des deutschen Forstvereins – DFV) and
- the society for forest-protection (die Landesverbände der Schutzgemeinschaft Deutscher Wald – SDW).

Because of the small number of persons questioned, the survey in written form was designed as a total survey.

In the second stage, a suitable method was to be chosen for the survey from the methodologies of empirical social studies. Due to the large number of relevant details, the planned survey turned out to be rather extensive. Therefore, it was designed to fall into two parts. The first part was a written poll by means of a standardised questionnaire of predominantly closed questions. Answers could also be formulated freely (for the design see Atteslander 1995; Friedrichs 1973; Holm 1975; Karmasin u. Karmasin 1977; Kromrey 1994; Scheuch in König 1973). As a second step a series of focused interviews was planned (see Lamnek 1995; Meuser u. Nagel 1991 in Garz and Kraimer 1991). The interviews gave room for questions about the interviewees' professional experiences and tackled rather complex or else unquantifiable aspects of the issue. Questions concerning nominal data (discrete symptoms) or ordinal data (bigger-smaller relations) were included into the questionnaire. The latter consisted of 23 questions:

a) concerning the protagonists of forest politics:
- Are the protagonists aware of the oppositions of interests? What degree of relevancy do they attribute to these oppositions with regard to practical forest politics?
- Which protagonists participate actively in the conflicts? Which protagonists are direct opponents to each other ?
- Which protagonists are allies in their interests?
- What is the role of certain individuals in the conflicts?

b) concerning the structures of interests:
- Which issues in the current discussion on "the crisis in forestry" are most fraught with conflict?
- Can latent structural differences be observed behind the contested issues?
- Which types of conflict (conflicts related to norms, social ranks, allocation of resources) can be distinguished?

c) concerning the strategies (including aspects of political power):
- How intense is the communication between the protagonists?
- Which measures are actually taken by the protagonists?
- How do they judge these measures – do they consider them appropriate?
- What intensity of conflict is the result?
- How common is strategic thinking among the protagonists?
- How do they judge their potential opponents' power?

d) concerning the protagonists' perception and evaluation of the conflicts:
- Are conflicts within forestry regarded as recent phenomena? Is there a tradition of conflict?
- Are forest conflicts regarded as a chance for development, or are they generally conceived of as negative?
- Which consequences and what kinds of development in the conflicts do the protagonists expect?

These questions reveal the study's explaining and describing character. They emphasise the specific importance of processual elements – i.e. political elements compared to more traditional policy-centred studies.

3.2 Return of questionnaires

The questionnaires (totalling 140) were posted early in September 1996. 93 were returned (66 %). All in all, the return was rather sluggish, after the four-week deadline only about 45 % had been returned. Reminders via telephone eventually prompted the return of the rest of the questionnaires by mid-December.

3.3 First results

Only a limited number of results can be presented here. They pertain to the dimensions dealt with in conflict theory such as the involved parties, the awareness of conflicts, issues in the conflicts, and measures taken in response to conflicts. Naturally, the following results must be interpreted carefully and with reservations – especially since they are cited out of context as examples. The interviews will be conducted only after the evaluation of the questionnaires is completed and therefore cannot be considered at this point.

Topic: The crisis in forestry
At the beginning of the questionnaire all participants were confronted with a list of ten possible causes for “the crisis of forestry”. These causes were presented in the form of short statements extracted from literature. The persons questioned were to chose three of these causes which they considered to be most important. They also had the option to formulate additional causes if they wished to do so. The following are the causes which were cited most frequently:

- Cheap timber imports from overseas or from Eastern European countries: cited 64 times (69 %)
- Development of wages and prices of raw wood in Germany as an industrial nation with high labour costs: cited 59 times (63 %)
- Customer preference for other materials (e.g. steel, light metal, concrete, plastics) over wood: cited 39 times (42 %)
- Forest protection and the free-of-charge recreational function of forests: cited 28 times (30 %)
- The negative side-effects in the production and disposal of products that compete with wood (e.g. synthetic materials) are not reflected in the actual costs of these products: cited 28 times (30 %)
- Fundamental, undirected public criticism of any profit-oriented forestry: cited 17 times (18 %)
- Recent anthropogenic damages of forests: cited 13 times (14 %)
- Environmental protectionists’ claims for more “untouched” forest reserves: cited 10 times (11 %)
- Differing financial possibilities between the different types of forest ownership: cited 8 times (9 %)
- Increasing demands that forest management techniques be compatible with the preservation of biotopes and species: cited 4 times (4 %)

The evaluation of the freely formulated answers has not yet been completed. 43 of the persons questioned (46 %) took advantage of this possibility. It is striking that most of the persons questioned identify two basic economic problems as the main causes of the crisis. These problems affect forestry as a whole and are likely to evade the grasp of practical forest politics. Another prevalent topic is the problem of the use of wood in industry and trade, followed by the free provision of forest infrastructures by forest enterprises. Proposed statements which touch on the relationship between forest economy and ecology and on the issue of forest economy versus public esteem do not seem to be considered prime causes of the crisis. This is also true of the problem of novel forest diseases.

Topic: perception and awareness of conflicts

The first question directly related to conflicts (No 3) confronted the persons questioned with the following statement: "Conflicts within German forestry are at present a central problem in forest politics". The statement was introduced by a short explanation that linked the question to the previously discussed "the crisis in forestry". The persons questioned were asked to express their degree of approval with the aid of a five-step-scale.

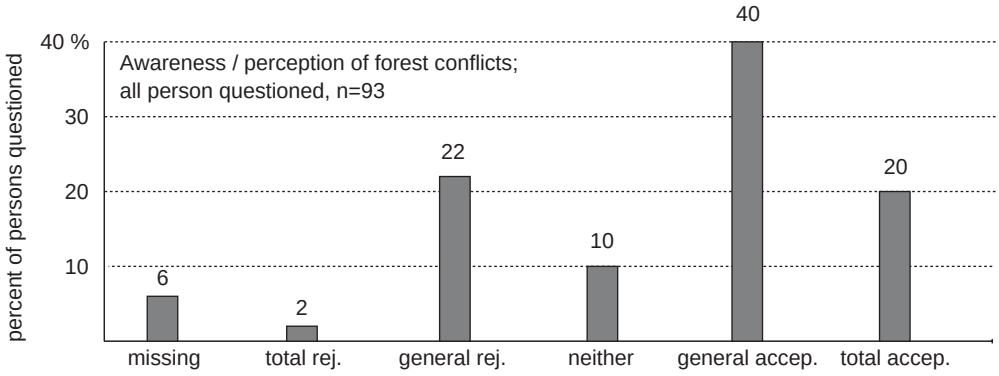

Figure 2. Degree of approval to the statement "Conflicts within German forestry at present are a vital forest-political problem" – from total rejection to total acceptance; results are shown for all groups – n = 93; percentage of people questioned.

Almost one fourth of the persons questioned rejected the statement "Conflicts within German forestry are at present a central problem in forest politics". 10 % of those questioned were undecided and neither rejected nor accepted the statement (answer "neither"). In contrast to these, 60 % of those questioned at least "generally accepted" the statement ("general accepted." plus "total accepted.") As few as 6 % of the persons refused to respond to the question.

The distribution of the answers within the different groups in the survey shows that there are differences between the groups in the perception and evaluation of conflicts within forestry. At the same time it is obvious that even within some of the groups,

answers differ considerably. These differences are the more striking since only very few of those questioned chose the answer “undecided”.

In the fourth question the persons questioned were to state whether in their perception conflicts within forestry are carried out mainly by individuals (e.g. because of personal differences) or if they are carried out by those involved as representatives of an organisation. Obviously, this question could only be answered by those persons who had answered the previous question in the affirmative. This factor was considered in the formulation of the question. For this reason, roughly one third of those questioned chose the option “no response”, which makes up for a relatively large percentage of all answers.

48 of the persons questioned (53%) were of the opinion that the persons involved in conflicts within forestry acted as representatives of an organisation. 8 answered that conflicts within forestry are mainly carried out as struggles between individuals. 6 formulated their own answers under the category “other”. Those answers were essentially combinations of the aforementioned options.

From the point of view of conflict theory, the question needs to be raised which issues are considered by those questioned as being controversial, and in which issues they perceive general consensus. For this purpose, the persons questioned were presented a list of 18 contested issues in forest politics, which had been compiled on the basis of the results of the content analysis of literature on forest politics (question 5). The persons questioned were asked to chose from a scale of five possible answers, ranging from “intense conflict” to “perfect harmony”.

In Figure 3, the results of the evaluation of the answers from all groups are presented in an overview. The blocks marked by letters in alphabetic order represent the median value for each topic. In this scale, 1 stands for “perfect harmony”, 5 for “grave conflicts”. In addition, the percentages of all answers which attribute, respectively, “conflict” or “harmony” to a topic are mentioned.

To start with, the results of the evaluation of all groups allow for the identification of a group of topics which could be labelled **issues of consensus:**

- Cheap imports of wood and wood products from Scandinavia or from the former Eastern bloc (see figure 3, topic “e”); 57 % perfect harmony, 17 % general harmony (total: 74 % – conflict total: 14 %)
- Impediments to the usage of wood due to building regulations and refuse disposal laws (see topic “i”); 41 % perfect harmony, 26 % general harmony (total: 67 % – conflict total: 12 %)
- the failure to charge with appropriate costs such products which are in competition with wood and which are produced under high consumption of energy and raw materials (see topic “l”); 37 % perfect harmony, 30 % general harmony (total: 67 % – conflict total: 14 %)
- novel types of damage to forests and trees which endanger the efficiency of forest enterprises (see topic “d”); 24 % perfect harmony, 36 % general harmony (total: 60 % – conflict total: 22 %)

By the same token, a group of topics can be identified which was judged by the majority of those questioned as **issues of conflict:**

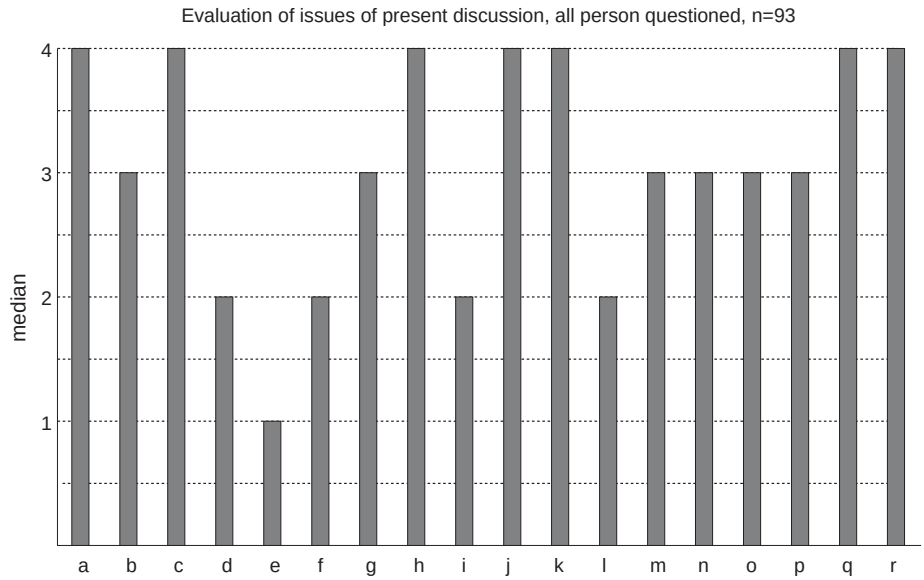

Figure 3. Whether the participants of the poll expect certain issues of forest-political discussion to create general consensus or to trigger conflicts; from 1.0 = perfect harmony to 5.0 = grave conflicts. The letters refer to the topics in the text.

- the reorganisation of the States' forest authorities and its consequences for other types of forest ownership (see topic "q"); 37 % intense conflict, 32 % general conflict (total: 69 % – consensus total: 8 %)
- the demand for more influence of interest groups outside forestry on questions of forest management (see topic "r"); 30 % intense conflict, 31 % general conflict (total: 61 % – consensus total: 22 %)
- differences in the concepts of forest management between the different types of forest ownership due to differing financial capacities (see topic "k"); 26 % intense conflict, 33 % general conflict (total: 59 % – consensus total: 14 %)
- the discussion of demands for an increase in areas which are excluded from forest management (see topic "c"); 32 % intense conflict, 28 % general conflict (total: 60 % – consensus total: 20 %)
- the discussion of terms which have not yet been defined conclusively and which describe forest management with regard to quality – e.g. "orderly" forest management (see topic "a"); 12% intense conflict, 39% general conflict (total: 51 % – consensus total: 30 %)
- public influence on the quality of forest management (see topic "h"); 10 % intense conflict, 41 % general conflict (total: 51 % – consensus total: 21 %).

In the answers with regard to the other issues the difference in number between those opting clearly for conflict or for consensus respectively is less striking. There are two feasible explanations for this:

- with regard to some issues a large number of those questioned opted for the answer “balanced” (i.e. in a discussion in forest politics conflict and consensus balance one another)
- certain issues received comparable numbers of citations for conflict and harmony. In these cases it is to be examined whether differences in the evaluation of an issue occur between the different groups, or whether the results within a given group reflect the overall results.

A discussion of the results from the individual groups in the survey would go beyond the scope of this presentation. In general, however, it seems striking that the number of those who chose the answer “no response” with regard to any one of the eighteen issues listed in the questionnaire is very small. The number of those who opted for this answer fluctuates between three (with regard to the issues “descriptive terms for the quality of forest management”, “novel types of damage to forests” and “protection of species and biotopes”) and ten (with regard to the issue “certification”).

Topic: Opponents in conflicts

In the sixth question, the different groups in forest politics which were chosen for the survey were presented graphically in a circular arrangement. The persons questioned were asked to connect those groups by lines between which they observe conflicts in “central issues in forest politics”. This question was linked with the preceding question on the issues in the discussion in forest politics. Those questioned were asked then to assign to the pairs of conflicting parties the respective contested issues. Thus, the term “central issues in forest politics” has received a certain delimitation.

There are 45 possible connections which can be drawn between the ten groups in the survey. In addition, the persons questioned had the option of adding groups and, if necessary, issues. For the evaluation, three categories of answers were set up: “marked”, “not marked” and “no response”. The category “marked” applies when a person questioned chose to indicate a possible conflict between two groups by connecting those groups with a line. “Not marked” applies when the question as a whole was answered, but a possible constellation was not marked as one of conflict. An answer was categorised as “no response” when the question as a whole remained unanswered. Hence, the percentage of these answers is the same in the evaluation of all the questionnaires – it amounts to 12 of the 93 answers (13%).

The results show that only eleven out of the possible 45 pairs were marked by more than 10% of those questioned as opponents in a conflict. 8 of the possibilities remained completely unmarked. In the following, the four pairs of opponents which were most frequently indicated as such are listed. The issues which were preferably assigned to these pairs of opponents are added to the list:

- **AGDW – LFV** marked 58 times (62 % of those questioned)
  Issues: “re-organisation of the states’ forest authorities and the consequences for other types of forest ownership”; “differences in the concepts of forest management between the different types of forest ownership due to differing financial capacities”; “the discussion of terms which have not been defined conclusively and which describe forest management with regard to quality – e.g.

"orderly" forest management"; "the protection of species and biotopes which demand special consideration in forest management".

- **IGBAU – LFV** marked 35 times (38 % of those questioned)
  Issues: "re-organisation of the states' forest authorities and the consequences for other types of forest ownership"; "public influence on the quality of forest management".
- **BDF – LFV** marked 30 times (32 % of those questioned)
  Issues: "re-organisation of the states' forest authorities and the consequences for other types of forest ownership".
- **AGDW – IGBAU** marked 26 times (28 % of those questioned)
  Issues: "the re-organisation of the states' forest authorities and the consequences for other types of forest ownership"; "the use of energy and machines in forest management and forest development"; "differences in the concepts of forest management between the different types of forest ownership due to differing financial capacities"; "the discussion of terms which have not been defined conclusively and which describe forest management with regard to quality – e.g. "orderly" forest management".

14 out of the 93 persons questioned (15 %) mentioned further conflicts. The evaluation of these data is in progress.

Topic: strategies used in conflicts

Question 9 was designed to investigate into the forms of actions which are being observed by the persons questioned in situations of conflict in German forestry. They were to be marked for frequency of occurrence. There were four degrees of frequency to choose from for each answer.

The persons questioned were presented a list of thirteen forms of strategies which could be used in conflicts. These were taken from the premises of conflict theory. In accordance with the claims of conflict theory, these different strategies can be arranged between two extreme poles – that of "total disintegration – escalation of the conflict" on the one end, and that of "total integration /harmony – rationalisation of the conflict" on the other. Between these poles, the strategies of action are arranged by the degree of "intensity of conflict" with which they are attributed. The selection of strategies takes into account the fact that in conflicts within forestry the scope of possible actions is limited to begin with. Moreover, the persons questioned had the option to add further strategies in their own words.

The following diagram (Figure 4) shows the mean values of all answers which were analysed. The persons questioned were asked to place their answers on a scale between "very rare" (represented by the number 1) and "very frequent" (number 4). Each block in the following diagram represents one strategy. The abbreviations in the diagram are explained in the text below.

The following conclusions can be drawn from the results: In the observations of those questioned, the mobilisation of one's supporters for public rallies ("mobil. supp.") and the placing of advertisements in local and national newspapers ("adverts") do not play a significant role as forms of strategic actions in conflicts within forestry. The same holds true for the possibility of settling a conflict in court ("court"). The severest

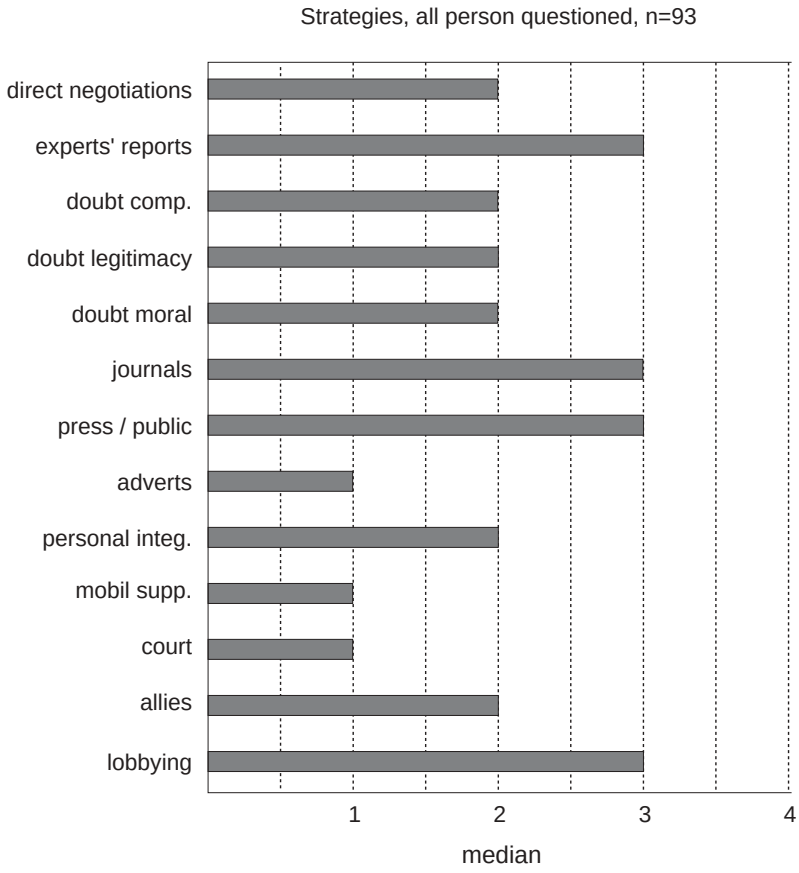

Figure 4. How frequently certain strategies are used by opponents in order to settle their conflicts; from 1.0 = most seldom to 4.0 = most frequently

measures which can be taken in a situation of conflict (severest, because they are no longer aimed at conflict-issues but at individual persons of the opposing group), i.e. questioning the opponent's competence ("doubt. comp.") or doubting the personal integrity of the management of the opposing group ("personal integ.") are observed rarely by the majority of those questioned. An equally rare strategy in the settling of conflicts within forestry seems to be that of questioning legitimacy or moral integrity of the opposing organisation's interests ("doubt / moral").

Disputes which are carried out in specialist journals ("journals") and the attempt to gain influence on political decision-makers ("lobbying") seem to be more common since they are observed by a majority of those questioned. With respect to experts' reports ("experts' reports"), and press conferences and public discussions ("press / public") the mean values suggest that they are equally frequent in the settling of conflicts in forest politics as are the strategies discussed above. However, the number of those answers which state a very frequent or frequent observation of these strategies and those which state a rare or very rare observation of the same strategies are roughly

equal. This could mean that these forms of action are only observed between specific groups.

The mean value for the strategy “direct negotiations” (“direct negotiations”), which was expected to be observed comparatively frequently, is surprisingly low. Here, too, a comparison of the results from the different groups can possibly yield an explanation. However, as with respect to the preceding questions, a detailed analysis of these results cannot be conducted here.

4. CONCLUSIONS

The present contribution attempts to present the goal, the method, the instruments and first results of an analysis of conflicts within German forest economy. For two reasons the presentation of the results had to remain limited and exemplary. Firstly, a more detailed analysis would go beyond the scope of the chosen frame, and secondly, the interpretation of the results has not yet been completed. Hence, the statements presented here have to be regarded as preliminary. With regard to the main dimensions of the study, however, a number of conclusions can already be drawn at this point.

A clear majority of the leading persons of groups and institutions within German forestry, which were questioned for this survey, are aware of the presence of conflicts within forestry *and* consider them significant for practical forest politics. They also state that they perceive these conflicts as controversies between groups with competing interests. This can be regarded as supporting the assumption that there actually exist conflicts within German forestry, which has been voiced repeatedly in the relevant literature. The result also supports the premise of this study that these conflicts are *endogenous group conflicts.*

Of course, one may object by stating that the survey reflects only “perceptions”, “opinions” and “judgements” of those questioned and not the “objective truth” of the issue. The actions which the persons questioned take in the political *process*, however – and this is the main objective of the study – are often influenced not only by the knowledge of facts and political circumstances, or of the “measurable” resources of their potential opponents, but also to a considerable extent by opinions and judgements (see e.g. the results of Volz 1993, for an evaluation of the resources of power and influence of American environmentalist organisations). In the present case, this is true for the widespread awareness of conflicts.

At the beginning of the questionnaire, the persons questioned were presented with a list of possible causes of the crisis in forestry, which had been compiled on the basis of an analysis of recent publications. A clear preference could be discerned for such issues which can be attributed to the thematic field of “crisis in economy”. Those issues where considered significant which have to do with more general economic conditions (economic development, consumer behaviour, energy costs). These, however, are beyond the scope of the political activities of the associations and institutions within forestry and their representatives. At the same time, those “main causes of the crisis in forestry” were evaluated by the persons questioned as “topics of consensus” with regard to conflicts within forestry. Conversely, it is exactly those issues which were judged to

be least responsible for the crisis in forestry which are the most strongly contested within forestry. The reason for this could be the link of those issues with dynamic processes which point to the future (e.g. the development of public demands for the utilisation of forests, the growing public sensitivity to environmental values).

The task of identifying opponents in forest politics also yielded interesting results. Only a small number of the possible pairs of conflicting parties were marked as such with any frequency. The one constellation most frequently mentioned was that of the states' forest authorities and the association of forest owners. This result is supported by the relevant literature and was to be expected on the basis of the assumptions of conflict theory. The main issues in this conflict (the quality of forest management, the protection of species and biotopes, differing concepts of management between the types of forest ownership, the reform of forest structures) suggest that the conflict of interests between these parties is based on questions of decision-making powers with regard to property in forests and its availability. This points to the institutionalised imbalance of power between the state's forest authorities and the private forest owners in questions of forest management.

Those conflicts which were listed in second and third position (between the states' forest authorities and the unions and the BDF respectively) fall into the category of conflicts between employers and employees. A glance at the most contested issues here (the reform of forest structures) supports this assumption. Other than in the conflict between LFV and BDF, the issue of "public influence on forest management" does play an important role in the conflict between LFV and IGBAU. This points to a connection between the "changes in values" in our society, which have been mentioned at the onset of this paper, and the far-reaching growth in public sensitivity to environmental issues. Moreover, it shows that at least one of the organisations in forest politics is concerned with, and articulates, interests which are beyond the narrow scope of forestry.

All in all, these preliminary results seem to support the theoretical assumptions which are the basis of the concept of the study. A more detailed analysis and final evaluation, and the ongoing comparison of the results with the literature, will show whether this first impression will be supported, or whether it will have to be modified. If more support for the applicability of premises from conflict theory to the object of this study is found, the question needs to be raised which further insights can be gained by using this theoretical framework in the analysis of the problem in question.

In the first place, the conclusion can be drawn that concepts of harmony which are particular to forestry, as well as professional regulations of language are in need of critical reflection. According to the claims of conflict theory, conflicts within forestry, in its development towards new guiding principles in forest policy, should not be seen as hindrances but as a necessary process of struggling for a compromise, as something predominantly positive. The long-lasting existence of the different conflicting organisations leads one to suppose that there are differences between employers and employees in forestry, between private forest owners and the state with its duty and authority to enforce public demands, which are not to be resolved.

The results of this study show where specific strategies for the settlement of conflicts are needed. In the case of the conflicting relationship between employers and employees, the problem appears to be by no means particular to the field of forestry. The "economic solution" to the "problem of distribution" seemed reachable at least as long as there was enough to go around.

The result that the "discussion of terms which are not conclusively defined and which describe forest management with regard to quality" and "differences in the concepts of management between the different types of forest ownership" are considered frequent issues in the conflicts within forestry gives us hints as to where to look for the "forum for discussions" (whose rules and norms are open to change and interpretation) without which strategic actions would not be possible. It becomes clear that each attempt to narrow this scope for action, e.g. by a concrete definition of existing terms or by the establishment of new norms, will make conflicts within forestry inevitable. The search for new guiding principles in forestry should therefore not begin primarily within the specific constellations of forestry vs. environmental protection or forestry vs. public, but with a "round table" in forestry.

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SUSTAINABLE FOREST MANAGEMENT IN RUSSIA AND THE EUROPEAN MARKET OF FOREST PRODUCTS

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INTRODUCTION

In Russia, sustainable forest management (SFM) is implemented through a combination of a national forest management system, which has been evolving in the course of the past 200 years, and a land use management system. This is to ensure the balanced use and reproduction of forest resources and to meet the current and future needs for forest functions and values without the destruction or degradation of forest ecosystems. In this context, SFM embraces the interests of various groups private citizens, industries, forestry authorities and local self-governing bodies.

Biodiversity conservation is one of the main goals of SFM. It implies maintaining a publicly acceptable level of historically evolved landscapes, habitats and ecological niches, together defining the organisation of all living organisms on the individual, species and ecosystem levels. But biodiversity conservation *per se* makes no sense from the point of view of the sustainable development of the humankind. Biodiversity conservation should be attained without losses in forest profitability. Hence, forest management decision-making should utilise a variety of means and methods. Forest management and forest use planning should be regarded in the framework of land use strategies both for a given territory and the country as a whole (VNITslesresurs 1996).

New means and methods for decision-making should develop land use strategies as well as a structure of land tenure patterns and rights of the communities with due regard to the traditional ties of indigenous and local people with their forests. This requires also informing the policy-makers, and decision-makers, who are responsible for forest and land management, and for the local people and society in general. It is vital to make people aware of the fact that forests should be managed both to obtain profits and to conserve the biodiversity of forest ecosystems, and that they are a source of most diverse products, some of which are yet unknown to us, but possibly utilised by future generations. Such a perception of the forest will require a realistic evaluation of the contribution made by each sector and each group of society for sustainable forest management on the local and national levels. It also means that this problem extends beyond the scope of the forest management authorities only.

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Nevertheless, it is expected that the use of timber forest products will be prevailing in Russia. In Russia, the SFM framework commitments are associated with securing both forest resource use and conservation on a given territory without any detriment to its forest ecosystems. In this context, the development of appropriate markets of forest products acquires significant, and, in some cases, even dominating, implications.

The European market has been traditionally used by Russian forest traders. Significant changes have occurred in the timber export structure, which was developed during the former Soviet Union era. These changes result not only from the price dynamics and general growth of production costs in Russia but also from the changes in the European market itself.

The total timber imports of all the European countries account for 27% of interregional trade (ECE/FAO 1996b). Until recently, the European Union countries have been net-importers of all forest products, except for paper and cardboard. When Sweden, Finland and Austria joined the EU, its forest area doubled. It is currently able to satisfy 75% and 95% of its demand for timber products, and for paper and cardboard, respectively. Thus, its annual pulp output has risen from 9 to 29 mill. tons (Forest products annual…1996)

The European roundwood trade balance is liable to essential cyclic fluctuations. When the demand for timber products is high, the European net imports of roundwood (logs and pulpwood) drastically increase because other countries supply additional volumes, which are not required in "ordinary" periods of time. In the meanwhile, foreign estimates (ECE/FAO 1996b) show that there is a definite "structural level" of the European net imports, approximating 15 mill. m^3. This volume includes significant amounts of Russian pulpwood and tropical logs.

In the 1960s and 1970s, the European net imports of sawn wood remained on a relatively steady level. However, in the period between 1979 and 1984, it decreased by almost 50 %, probably due the weakness of the sawn wood market. But the years between 1984 and 1990 saw a high demand for sawntimber and the penetration of timber suppliers from Canada and South-Eastern Asia, resulting in a considerable increase in imports. In 1990-1993, the European net imports of sawntimber returned to its lowest level due to its extremely low consumption and curtailed imports from Canada and Russia.

From the early 1960s till 1989, the net imports of wood-based panels (veneer, plywood, particleboard and fibreboard) were steadily growing in spite of market fluctuations of nearly 5 mill. m^3. To a great extent, this resulted from the penetration of Indonesian and Canadian plywood into the European market. However, during the following 5 years, the net imports of veneer, plywood, particleboard and fibreboard dwindled by half due to the concentration of Indonesian and Canadian exports in other markets (Japan and the USA), as well as to European exports of medium-density fibreboard (MDF) and particleboard to other regions and the weak European demand for these timber products.

The net imports of wood pulp are steadily growing. The current net imports account for about 15% of the wood pulp consumption, while the corresponding figure in 1965 was 3%. Despite the stagnation in the pulp wood consumption, occurring in Europe since 1990, this tendency is likely to remain unchanged owing to the high competitiveness of major pulp capacities outside Europe, in particular, in North and South America.

The only forest industry where Europe demonstrates a positive trade balance, is paper and cardboard production. From quite insignificant volumes of the mid-1970s, the European exports reached over 5 mill. m.t. in 1994. This may be accounted for by the success of a number of new companies and the development of speciality markets for expensive paper products where high skills and good marketing can overweigh such European disadvantages as relatively high costs of both timber and labour.

1. THE STATE OF THE ART IN THE RUSSIAN FOREST SECTOR AND IN THE EUROPEAN MARKET OF TIMBER PRODUCTS

1.1 The Forest Sector of Russia

Strictly speaking, neither the former USSR nor the Russia of today has a similar forest sector as other countries. The Soviet period generated the term "the complex of timber industries", denoting administrative (through the All-Union ministry) integration of forest logging, pulp and paper, and wood-working industries. Forestry was regarded, in general, as a wood supply attachment to the timber industries. Forestry and timber industry were developed and, most importantly, funded independently from each other. The only intersection between them was the wood supply areas, allocated to forest loggers by the forestry bodies, and the co-ordination of aggregated parameters by five-year period and by region. The 75 years of the Soviet period witnessed about 30 restructuring changes, mainly in the upper level of the forest sector administration and management. The present day has brought along new terms. E.g., the term "nature resource block of the Russian economy" integrates the "forest sector" with other nature resource sectors (water resources, mineral resources, oil and gas resources, etc.).

1.1.1. Forest Management

In the Russian Federation, forest use, reproduction and protection are regulated by the President of the Russian Federation, by the Government of the Russian Federation, by the executive authorities of the constituent parts of the Federation and, most importantly, by the specially authorised governmental agency of forest management, i.e. the Federal Forest Service of Russia (Forest code of … 1997).

Forest management is traditionally based on the territorial and sectoral principle, involving a three-level system of management. This system has deep historical roots, and, in general, it is stringently fitted to the historically evolved Russian hierarchic system of governmental control. On the lowest level of "the management pyramid" are *leskhozes* (i.e. local units of forest management and administration). There are currently about 2000 leskhozes. On the regional level there are 89 territorial forest management bodies. At the top of this pyramid is the central office, i.e. the Federal Forest Service. It relies on 13 forest management planning and inventory enterprises and a network consisting of 9 research institutions, 1 leading and several affiliated forest designing organisations, and various operational services – the Aerial Forest Fire Protection Association being one of the most important ones. The central office of the Federal

Forest Service (*Rosleskhoz*) is located in Moscow. The territorial forest management bodies of the Federal Forest Service system work in the constituent parts of the Russian Federation (i.e. republics, territories, regions, autonomous regions and districts). Their offices are located in the capitals of the regions and may be called regional departments, committees or ministries. The offices of *leskhozes* are situated, as a rule, in the administrative centres of the districts of the regions, and the borders of *leskhozes* usually coincide with those of the administrative districts.

The Federal Forest Service and its territorial bodies work in co-operation with other federal agencies (executive authorities), regional administrations, law-enforcing bodies, local administrations, enterprises, public organisations, and private citizens.

1.1.2. Management of forest logging and wood processing

In the 1930s-1960s, the Russian timber industry was among the most important industries of the former Soviet Union because it had made substantial contributions to the national fund of foreign exchange in the form of its export earnings. The development of the gas and oil industries in the former USSR increased their share in the national foreign exchange fund, and the timber industry found itself on the fourth place in terms of its export earnings.

By the end of the 1980s, the major forest loggers (i.e. the USSR Ministry of Forest Industries, the State Committee for Forests and the Ministry of Internal Affairs) accounted for 293.8 mill. m³ (81.6%) of annual harvests. The so-called independent loggers harvested about 66.2 mill. m³. Annual harvests per an enterprise averaged 332 000 m³ in the system of the Ministry of Forest Industries, 32 000 m³ in that of the State Committee for Forests, and 11 000 m³ in other ministries and agencies. As of 1993, the total timber removal was equal to 174.0 mill. m³, shared among the State Holding Company "Roslesprom" (102 mill. m³), the Joint-Stock Company "Russian Forest" (15.4 mill. m³), the Ministry of Agriculture (17.2 mill. m³), the Ministry of Internal Affairs (10.2 mill. m³), the Rostoprom (Fuel Industry) (6.5 mill. m³), and the Ministry of Defence (2.3 mill. m³). The Roslesprom Company produces the bulk of industrial timber, wood-based panels and pulp and paper products (VNITsLesresurs 1995).

Historically, over 2/3 of the merchantable timber producers are located in the European part of Russia (EUPR), and the remainder in Siberia and the Far East. The disproportional location of the forest industries (both forest logging and wood-processing capacities) were "successfully" aggravated in the post-war period. At the same time, the most abundant and cheap fuel and energy resources are in Asian Russia. In the EUPR, the most significant wood-working capacities are concentrated in the Northern and Central regions. The sawmilling is developed in Russia, mainly, in the forest logging regions (the Northern, Ural, Eastern-Siberian, Western-Siberian, and Far-East regions) as well as in their adjacent regions, e.g., in the Central and Volga-Vyatka economic regions). A substantial part of roundwood is transported to other areas to be processed. Plywood production is well-developed in the Ural, Eastern Siberia and northern EUPR. Wood-based panels are produced in the areas of concentrated logging and sawmilling, as well as in the Central region and in the Northern Caucasus where furniture manufacturing is well-developed. Pulp and paper enterprises are concentrated

in the northern areas of EUPR, in Eastern Siberia and the Ural. The northern areas of EUPR are potential for a further development of pulp and paper industries based on low-value wood and residues (VNIITsLesresurs 1995).

In the 1970s and 1980s, there was a tendency towards a decline in the role of the timber industry in the existing economic system. This resulted in the reduction of a) its share in the gross public product and in the gross industrial output; b) the value of the main industrial and productive assets and investments, and c) the number of its employees. During this period, the growth rates of the main industries essentially surpassed those of the forest logging, pulp and paper and wood-processing industries. But the crisis of the timber industry started as early as in the mid-1960s.

1.1.3. Analysis of the reasons for the crisis in the timber industry

Among the causes of the current prolonged crisis of the timber industry, a special role was played by the efforts made by the Russian Government in the 1950s and 1960s to strike a balance in the development of the former USSR territories within the artificial conditions of the planned economy. In 1957, an attempt was made to reform the planned economy of the former Soviet Union through decentralising the management of industrial enterprises by means of the so-called "*sovnarkhozes*". The soviets of the national economy (*sovnrakhozes)* were set up as bodies of local self-governing in the regions, and received some functions of the abolished ministries. These bodies aggravated the problems of economic development under the centralised planning. This attempt did not succeed in any sector, including the timber industry, because it tried to reform only the upper levels of management and administration rather than the economic system.

In 1965, the *sovnarkhozes* were abolished. However, the return to the ministerial system of management coincided with the political decision of the Government to relocate forest logging capacities to new promising but undeveloped regions of Siberia and the Far East, starting from 1966. Since the beginning of the colonisation of the areas east of the Urals, it was one of the mightiest expansions towards the east, dictated by the very nature of the planned economy and the need for economic development of remote areas in Russia to provide a basis for the development of all heavy industries (gas and oil, ore mining, metallurgy, machine-building, defence industries).

The forest logging relocation to the east reduced its volumes in the EUPR. In particular, over the period from 1966 to 1989, the production capacities of the USSR Ministry of Forest Industries (the main forest logger of the country) had been reduced by 13.2 mill. m³ (Table 1). To some extent, it was associated with the consequences of the intensive forest exploitation in the EUPR, aimed at generating timber export

Table 1. Dynamics of Forest Cut in Russia, 1966-1993

Years of FSA	1966	1973	1978	1983	1988	1993
Total cut	220671	209722	187646	174216	180875	105505
of which coniferous	158146	148385	127605	109676	113476	58922

earnings to restore the economy after the Civil war of 1917-1921 and after the Great Patriotic war of 1941-1945. As a rule, the allowable cut was overused in the EUPR. Coniferous stands were cut more intensively because wood-processing technologies and timber consumers required mainly coniferous timber.

Thus, the current problems in the Russian forest sector are not merely an outcome of the privatisation, taxation and changes in the forest legislation. These problems were exposed once the Government ceased to give significant "financial injections" into the system of timber industries (forest logging, furniture, pulp and paper, etc.) and into the wood-dependent sectors (construction, transport, energy, infrastructure), i.e. subsidies from the national budget, which had been based on their declared (projected) needs for maintenance or up-building of their capacities. The planned economy had created the environment of inadequate economic information, which increased the uncertainty of development with seeming predictability.

The former USSR forest sector was represented by a system of public enterprises and managed and administered by the Ministries, which were dissolved after the disintegration of the USSR. The legal successor of the Union body of forest management was the Forestry Ministry of Russia, which soon was transformed into the Federal Forest Service of Russia.

The USSR Ministry of Forest Industry (which had been playing its managing and co-ordinating role in logging and processing industries) ceased to exist with the disintegration of the USSR. The economic reforms led to privatisation of forest and wood-dependant national industries, aimed at creating an enabling environment for the whole system in the framework of market relations, but this did not happen. One of the main reasons for the failure was the loss of control on all levels: from the federal to the local ones. The dimensions of Russia had a fatal effect upon the situation (Table 2). Long-standing technological, operational and co-operative ties were disrupted practically simultaneously because they could not be preserved or transferred to new commercial non-governmental agencies of a mediatory type. At that stage, they only added to the burden of unproductive inputs and had an adverse effect on the process of stabilisation in the forest industry.

In December 1992, the Union of Timbermen of Russia was established to unite over 800 companies, associations, firms and enterprises of the forest industry and to represent its interests in various federal legislative and executive institutions. In January 1993, the State Forest Industry Company "Roslesprom" was founded to manage and co-ordinate the activities of the forest industry on the federal level.

In 1996, the Government set up the State Committee for Forest, Pulp and Paper and Wood-Working Industries (Goskomlesprom) based on the Roslesprom. The Roslesprom itself continued to function as a large company. The Committee, however, faced significant difficulties in its functioning, associated with changes in the views of the Government upon the structure of management as a whole and with the changing tenure patterns. From the very beginning, the activity of the Goskomlesprom, in many respects, was ambiguous within the existing ownership pattern of the forest industry: the Committee was a governmental agency whereas the enterprises were private. This problem could not be quickly resolved because, in the forest industry, the restructuring of ownership patterns was accomplished without setting up effective investment mechanisms and cheap credits for the development of privatised enterprises.

1.1.4. The current situation in the forest sector

The Russian Government, renewed in February 1997, decided not to follow the traditional way of reforming the forest industry under the existing economic conditions. Instead it applied a radical method, i.e. it abolished the Goskomlesprom and other federal agencies (ministries and committees), responsible for managing industrial enterprises, 90% of which are joint-stock companies and private enterprises. On the federal level, definite co-ordination will be accomplished by the Federation's Ministry of Economy, where a Department of Forest, Pulp and Paper and Wood-Working Industries is likely to be created.

From 1992 to 1996, the forest sector of Russia could hardly overcome the inertia of the pre-reform processes. Due to the lack of a single federal forest policy, which would unite all the elements of the forest sector from forestry to the production of paper, furniture, etc., many specialised programmes were initiated and funded very scarcely, if funded at all. As a matter of fact, they only prolonged the process of abolishing the old forest sector, thus preventing the implementing of a new forest sector.

In the Russian bureaucratic slang there are two complicated terms: "commission of production capacities" and "withdrawal of production capacities". They mean simply to open (commission) and to close (withdrawal) factories and plants. Apart from the supplies of goods and services, they involve also the availability of jobs, household welfare, and hopes for a better future. In the recent years, Russia has been constructing mainly banks, hotels, rich mansions and churches. In the forest sector, the commission of new capacities has been suspended, but their withdrawal has not ceased, and in some areas, it has even accelerated. Therefore, only 5% of the forest sector equipment can meet up-to-date requirements, while more than half of it needs retrofitting, and some of it should be completely replaced.

Due to the decline in the production of timber and wood-based products, the utilisation of the production capacities has dropped to the level of the initial period of the USSR industrialisation. In 1996, the actual volume of final cutting equalled 100 mill. m^3, i.e. about 25% of the allowable cut (Table 3). Even together with the timber from intermediate cuttings, the harvesting level is 50% less than in the most favourable year of 1988 (VNITsLesresurs 1995).

At present, Russia has about 3500 state-owned specialised forest logging and wood-processing enterprises and about 3300 various firms, involved in forest logging, wood-working and reforestation.

Today, the bulk (73%) of timber removal is concentrated in the richly-forested areas of the EUPR and industrial forests of Siberia and the Far East. It is distributed more or less equally between them, though the area of industrial forests east of the Urals is twice as large as that in the richly-forested areas of the European-Ural Russia. On the other hand, 3/4 of all Russian timber consumers are concentrated in the EUPR. As for the logging enterprises, they are located unevenly and their work relies on the principle of periodic operations, involving unsustainable (exhaustive) cutting on the exploitable lands in the zone of operation of one or several enterprises. The most accessible and valuable industrial forest stands have been already removed (Table 4). The condition of the exploitable lands is constantly deteriorating due to lack of balance between timber removal plans and the utilisation structure of the cutting areas (Pisarenko and Strakhov 1996).

Table 2. Main Forest Products Dynamics in Russia, 1970-1995

	1970	1975	1980	1985	1988	1989	1990	1991	1992	1993	1995
Plywood, Th sq.m	1421,4	1558,8	1459,3	1594,2	1727	1730,1	1597	1519,7	1268	1026	821
Particleboard, Th sq.m	1376,5	2612,8	3491,2	4672,6	5490	5653,8	5568	5409	4522	3960	2199
Fiberboard, M sq.m	170,9	324,1	386,2	453,1	501	497,4	483	474	427	365	224
Pulp, Th tons	4735,4	5409,3	6765,4	7953,9	8349	8110,7	7525,2	6400,4	5676	4331	864
Paper, Th tons	3476	4317,5	4462,1	5029,6	5334	5344,1	5239,8	4764,7	3608	2282	2771
Paperboard, Th tons	1972,6	2513,9	2536	2876,5	3249	3139,8	3084,7	2619,2	2157	1613	1299

Table 3. Dynamics of AAC and Actual Cut in Russia, 1965-1995

Years	1965	1970	1975	1980	1985	1990	1992	1993	1994	1995
AAC	603,9	605,6	620,4	619	617,2	603	542,6	529,4	504,7	496,2
Fact Cut	330,4	325,7	335,6	309,6	302,7	283,5	227,5	174,2	123,8	120,0

Table 4. Dynamics of some important data on Russian forest resources governed by Federal Forest Service (94% forested area of Russia), inclucing forest, given in long term use.

Years	1966	1973	1978	1983	1988	1993
Growing stock, Total, Billion m^3	73,5	73,8	74,7	75,4	74,6	73
Growing stock, Coniferous, Billion m^3	61,2	61,3	61,1	61,3	60,2	57,7
Growing stock, Total, m^3/ha	112	116	108	106	104	103
Growing stock, Coniferous, m^3/ha	125	120	118	116	114	114

Nowadays, in the established logging areas of the EUPR, the yield of mature and overmature stands is below average. In some of the richly-forested regions of the EUPR, the growing stock of mature stands is equal to or less than that of maturing stands. In the EUPR, 39% of the total mean increment is not used, and in Asian Russia, the unused increment amounts to 78%. Therefore, in spite of the abundance of forest resources, the deficit of high-quality coniferous timber will persist in Russia in the nearest future, and it will be especially tangible in the EUPR. The depleted wood supply areas of this region have rather limited prospects for expanded wood supplies (VNITsLesresurs 1995).

In the EUPR, the decrease of harvesting volumes was only partially compensated by the use of deciduous species, logging and wood-processing residues and fuel wood for deeper chemical and chemical-mechanical processing. It should be also noted that significant areas are occupied by forests of the I and II groups where the status forbids or significantly restricts the use of profitable clearcutting as a harvesting practice. Partial cuttings are not widespread yet. Often the situation is explained by the lack of special machinery since the use of foreign harvesting machines is not profitable and does not allow to meet the environmental standards. This makes a significant part of Russian forests inaccessible for commercial use.

In the course of the recent transformations of the governmental agencies, the federal Forest Service has preserved its strong position as a governmental body of forest management. On January 29, 1997, the President of Russia signed the new Forest Code of the Russian Federation, which was enacted on February 4, 1997 to replace the Principles of the Forest Legislation of the Russian Federation.

The Forest Code opens a new stage in the forest sector development. Forest policies of the Russian Federation are defined only on the federal level with due regard to regional aspects. According to the new Forest Code, only the Russian Federation has the right to own forests, the regions do not have this right. But according to the federal law, the Russian Federation can transfer parts of its forest fund into the ownership of its regions (its subnational entities) (Forest code of … 1997).

1.2.The European and Russian Markets of Forest Products

1.2.1. Roundwood

In 1995, the total timber removal in Europe made up 354.5 mill. m³, including 246.2 mill. m³ of conifers (Forest products annual…1996). The logging performance has been manifesting some positive trends in the recent years. In particular, in 1994-1995, the volumes increased by 2.6%, and those of unprocessed roundwood by 3.0%. In 1995, the total output of unprocessed industrial wood amounted to 298.3 mill. m³, including 166.3 mill. m³ of saw logs and 116.3 mill. m³ of pulpwood.

Statistic data indicate that the European trade deficit of unprocessed timber keeps on growing. This implies that exports are increasingly lagging behind imports. In 1995, the difference between them was 28.5 mill. m³ versus 14.8 mill. m³ in 1992. In 1994-1995, roundwood exports decreased by 0.9% to amount to 16.7 mill. m³ whereas imports increased by 11.7% and reached 45.2 mill. m³. In recent years, exports have been

accounting for about 5.6-5.8% of the output while the share of imports in the total consumption increased from 10.9% in 1993 to 13.8% in 1995 (Strakhov et al. 1996). Such dynamics of roundwood trade increased the European consumption of unprocessed timber by 11.4% and by 4.3% in 1993-1994 and in 1994-1995, respectively.

The main contribution into the growth of industrial timber output was by pulpwood: its demand sharply increased in most European countries, because of the rise in prices for pulp in the beginning of 1995. However, in 1996, the prices for pulpwood went down again (UN-ECE/FAO 1996b).

In Russia, from 1992 to 1994, the output of roundwood was curtailed by 52% (from 164.2 down to 78.9 mill. m^3). At the same time, the share of exports in the output continued to grow. In 1995, the exports of coniferous saw logs and those of pulpwood amounted to 24.2% and 20.9% of their output, respectively. The 1995 export volumes remained on the same level as in 1994, i.e. 14 mill. m^3. But 93% of timber exports went to non-CIS countries (12.8 mill. m^3). Exports of roundwood to the CIS countries were drastically reduced. In 1991-1994, this reduction amounted to 96% versus 16% for non-CIS countries. In 1993 and 1994, the total Russian consumption of roundwood, comprised of exports and domestic consumption (Table 5) and exports (Table 6), was 57 mill. m^3 and 65.2 mill. m^3, respectively (Union of the…1995).

The bulk of Russian exported coniferous roundwood is shipped to Japan, Finland, Sweden, Norway, China, South Korea, Italy, and Austria. Finland received a significant share of exported pulpwood. In 1995, 74% of Finnish imported pulpwood (including birch pulpwood) was from Karelia. These exports were expanded in 1995 and in 1996, while the demand for pulpwood dropped because of excessive supply of pulp and saw

Table 5. Domestic consumption of forest products in Russia per 1000 people

Kinds of Forest products	1992	1993	1994	1995	Average
Forest products, total m^3	no data	650	440	385	491,7
Roundwood, m^3					
including: softwood					
hardwood	255	178	131	116	170
Flakeboards, m^3	30.6	26,4	17,7	14,2	22,2
Fiberboards, m^3	10,3	7,3	4,6	4,1	6,6
Plywood, m^2	7	3,9	2,2	2,2	3,8
Pulp, metric tons	29,4	19	14	21,1	20,6
Paper and board, m.tons	3,8	2,2	1,7	2,3	2,5
Forest products by groups:					
Roundwood, m^3	320	232	171	151	218
Sheetings, m^3	48	38	24	20	32.5
Paper and board, tons	38	22	17	23	25
Total, m^3	733	518	383	358	498
Total*, m^3	no data	120.32	854.1	767.2	1018.7

*Total has recalculated into conventional roundwood

Table 6. Russian export of wood products in Europe in 1993

	Total	Including export in Europe	
Roundwood, mill. m^3	11,54	5,63	48,8 %
Sawnwood, mill. m^3 including softwood	4,6	4,07	85,5 %
Flakeboards, mill. m^3	0,046	0,017	36,8 %
Fiberboards, mill. m^3	0,10	0,06	62,9 %
Scaleboard, mill. m^2	0,36	0,27	75,6 %
Pulp, mill. metric tons	0,31	0,62	76,1 %
Paper and board, mill. metric tons	0,89	0,43	48,0 %
Total Wood Products, calculated as roundwood, conventional*	171,15	17,59	

* in order to recalculate volume index into conventional roundwood one uses standard factors

logs, and enterprises merely were stocking their reserves. In the future, the improvement of the structure of production is expected to reduce exports of unprocessed roundwood from Russia (Forest products annual…1996).

1.2.2. Coniferous sawn timber

The European production of coniferous sawn timber is steadily growing (by 2.1% in 1994-1995) but, over the same period, its internal consumption decreased by 3.5% and amounted to 73.4 mill. m^3 in 1995. These trends developed on the background of a slight increase of exports (only by 0.2%) and a drop of imports (by 12.9% or 28.2 mill. m^3 in 1995). The share of exports (39.9%) in the output decreased by 2.0%, and the share of imports (38.4%) in the consumption decreased by 9.9%. As a result, Europe, for the first time, became a net exporter of coniferous sawn wood.

The imports and domestic consumption of sawn wood decreased also in such major sawn wood importers as Germany and Great Britain. At the same time, the leading exporters of coniferous sawn timber (Sweden, Finland and Austria) continued to build up their exports and sawn wood outputs (Strakhov et al. In press.). They succeeded in expanding their supplies of both coniferous and deciduous sawn wood outside Europe, in particular to Japan, thus competing with Russia.

In the European market, Russia also competes with other countries. The buyers, who have no long-term commitments to Russian suppliers, purchase timber mainly from the Scandinavian countries. Currently, the Russian coniferous sawn wood exports have changed from the former socialist countries to Germany, Great Britain, Egypt, Italy, and Finland.

The main purchasers of Russian coniferous sawn timber are: Great Britain (18%), Germany (10%), Italy (9%), Finland (3%), Japan (8%), Bulgaria (7%), Turkey (5%), France (4%), the Netherlands (4%), Hungary (4%), Lebanon (3%), and other countries (16%). The main producers of exported timber are the Krasnoyarsk Region (Kray) (22.6%), Arkhangelsk Region (Oblast) (31.4%), and the Republic of Karelia (16%). A

high export potential exists also in the Nizhny Novgorog, Vladimir, Kirov and Kostroma Regions (Strakhov et al. 1996).

The Union of Forest Loggers and Timber Exporters reports that from 1991 to 1994, the output of coniferous sawn wood reduced by 2.6 times in the Russian Federation. Its exports also decreased from 8.5 mill. m³ to 5.9 mill. m³ over this period, primarily, at the cost of the CIS countries. In 1995, the drop of exports to 4.7 mill. m³ reduced their share in the output from 24.6% to 21.4%. However, absolute volumes of sawn wood, exported to the non-CIS countries, were increasing.

Despite the current deficit of coniferous sawn wood in the Russian domestic market for all sectors, the level of its internal consumption is continuously decreasing. While in 1990 the internal consumption was 50.6 mill. m³, it dropped to 18.1 mill. m³ 17.3 mill. m³, respectively, in 1994 and 1995 (Strakhov et al. In press.). Such a fall of the internal consumption in Russia was associated with the drastically diminished purchasing capacity of the Russian consumer and the efforts of coniferous sawn wood producers to maximise their profits at the expense of the difference between internal and export prices (Table 7).

1.2.3. Deciduous sawn wood

In 1995, almost all European countries (except Germany) expanded their production of deciduous sawn wood by 5.4%, as compared to 1994. A major European producer, consumer and exporter of this product is France. Another significant consumer and importer of deciduous sawn wood is Italy.

The European consumption of deciduous sawn wood also increased, reaching 17.2 mill. m³ in 1995. Also the exports and imports increased by 5.8% and 2.8%, respectively, while the trade deficit remained on the same level: 3.2 mill. m³. Forecasts indicate that the tendency towards an increase of deciduous sawn wood supply is to

Table 7. Russian input in European import of wood products

	European import, total, 1993	Annual average	Russian share, %
Roundwood, mill. m^3	30,68	37,6	18,4
Sawnwood, mill. m^3	33,55	35,45	12,1
including: softwood	27,11	28,80	no data
hardwood	6,44	6,64	no data
Flakeboards, mill. m^3	6,26	6,64	0,27
Fiberboards, mill. m^3	2,09	2,34	2,9
Scaleboard, mill. m^2	4,41	4,53	6,1
Pulp, mill. metric tons	13,41	14,0	4,6
Paper and board, mill. metric tons	32,96	34,2	1,3
Total of wood products roundwood (conventional*), mill. m^3	259,58	277,03	6,8

* in order to recalculate volume index into conventional roundwood one uses standard factors

persist which should lead to a rise of internal consumption, providing that the trade is stable (Strakhov et al. In press.).

FAO data show that Russian deciduous sawn wood consumption decreased by 15.4% from 1994 to 1995, which was accounted for by the steady contraction of production and growth of exports. The share of exports in the output increased more than 3 times and reached 3.8% (Forest products annual… 1996).

1.2.4. Wood-based panels: plywood, particleboard and fibreboard

Over a number of years, the internal consumption of these products has been steadily growing in Europe. From 1992 to 1995, it increased from 39.3 to 42.2 mill. m³. The ECE Timber Committee predicted a further increase in their consumption by 14% in 1996. Thus, the rates of fibreboard consumption were significantly higher than those for other products in this category, which was associated with the rapid growth of the MDF consumption to replace particleboard and sawn wood in some markets. The share of fibreboard in the total European consumption of the products in this category rose from 11.2 mill. m³ in 1991 to 14.2 mill. m³ in 1995.

Some estimates indicate that currently the global demand for MDF is 19 mill. m³, which is lower than the existing capacities by 5 mill. m³. (Forest products annual… 1996).

Imports of fibreboard to the European market are constantly growing, and in 1995, they amounted to 2.7 mill. m³, i.e. 45% of the internal consumption, which reached 5.7 mill. m³. The share of exports in the output comprised 48.5%, and the net exports of 1995 were 0.38 mill. m³. The share of exports in the output and that of imports in the consumption tend to be growing as well. In Europe, the main importers of fibreboard are Germany and Great Britain, and the main exporters are Italy, France, Germany and Poland (Forest products annual… 1996).

European production and consumption of particleboard are constantly growing (UN-ECE/FAO 1996a). In 1994-1995, they increased by 4.1%, and the output reached 30.0 mill. m³. In recent years, Europe has remained a net exporter of filing boards. In 1995, the net exports amounted to 0.96 mill. m³. And it is expected to reach up to 1.5 mill. m³. The changes in the shares of imports and exports in the consumption and production, respectively, reveal positive trends (in 1995, 24.3% and 26.8%, respectively). The main European exporters are Belgium, Germany, France, and Austria, while the main importers are Germany and Great Britain.

In 1995, the European production and consumption of plywood amounted, respectively, to 3.5 mill. m³ and 6.2 mill. m³ (UN-ECE/FAO 1996a). In spite of some decline in production (by 4.9%) in 1995, the level of internal consumption did not decrease: it revealed positive trends owing to a high share of imports in the consumption (74.4%), which is expected to be growing further. The trade balance has the same deficit of 2.7 mill. m³. It is assumed that the commission of new capacities in Finland will increase exports, and imports will remain on the same level (in 1995, they were 1.9 mill. m³ and 4.6 mill. m³, respectively). The share of exports in the output will also rise (in 1995, it was 54.4 mill. m³). The main importers were Germany, France and Great Britain. The main exporter was Finland.

The Union of Timber Exporters reports that in Russia, in 1991-1994 (Union of forest…1995), the internal consumption of fibreboard curtailed from 376 mill. m² to 190 mill. m² (0.67 mill. m³). This was accompanied by a fall in the outputs and a rise in exports (to non-CIS countries). In 1994, the share of exports in the output comprised 20.8% and, according to predictions, it will continue to decrease. Due to the reduction of the share of exports to the CIS countries, the total exports of fibreboard decreased by 26.5% over this period, thus being 50 mill. m² (0.16 mill. m³), therewith, exports to non-CIS countries accounted for 60% of the total exports. In the nearest future, both output and exports will remain on a stable level (250-260 and 40-50 mill. m³, respectively).

The Russian market of particleboard is oriented mainly to internal consumption, which decreased to 2.4 mill. m³ in 1994. Exports accounted for only 7.2% (0.19 mill. m³) of the output. Only 7.9% of the particleboard exports went to non-CIS countries. This is explained by the limited assortment and low quality of the product (Forest products annual…1996).

Since both international and domestic demand for plywood is rather stable, the plywood exports increased by 57.7% since 1991 to reach 648 000 m³ in 1994 regardless of the decline in its production, amounting to 890 000 m³ in 1994 versus 1 268 000 m³ in 1991. The share of exports in the output increased up to 72.8%. 87.6% of the total exports went to non-CIS countries (Strakhov et al. In press).

Though the internal demand for plywood is not satisfied, its internal consumption plummeted from 1 119 000 m³ in 1991 down to 242 000 m³ in 1994. Plywood consumption is expected to grow in such domestic sectors as construction and machine-building (Table 8).

Table 8. Domestic consumption of Forest Products in Europe per 1000 people

Forest Products	1992	1993	1994	1995	Average
Forest products Total, m^3	492	493	547	566	524,5
Roundwood (softwood), m^3	142	120	138	128	132
Roundwood (hardwood), m^3	37	29	29	30	31,2
Flakeboards, m^3	51,7	47,9	48,7	49,4	49,4
Fiberboards, m^3	8,3	7,8	8,1	9,9	8,5
Plywood, m^2	10,6	10,5	10,8	10,8	10,7
Pulp, metric tons	51,2	50,6	52,6	53,7	52,0
Paper and board, metr.tons	119	120	127	127	123
Forest products by groups:					
Roundwood, m^3	158	151	152	158	154,8
Sheetings, m^3	69	69	71	73	70,5
Paper and board, tons	119	120	127	127	123,2
Total, m^3	776	770	814	809	792
Total (m^3) recalculated into conventional roundwood	1515,8	1507,9	1615,6	1634,9	1568,2

Reference figures for European and Russian domestic consumption are given according to FAO/ECE data.

1.2.5. Pulp and paper products

The total European output of pulp and paper is steadily growing although the levels vary with individual grades and countries. In 1995, the average increase was 1.2%, while consumption rose only by 0.4%. In 1995, the European output of newsprint paper increased by 3.1%, reaching 10.0 mill. tons. It should also be noted that in such countries as Finland and Sweden (which are traditional suppliers of the world market), the outputs were reduced, while in Germany and France they increased (Forest products annual…1996).

In regard to other types of stationary and print paper, their outputs increased by 0.7%, the main contributor being France where the output increased by 4.8%. In other countries, change was observed. Finland accounts for 22.5% of this product output in Europe: in 1995, it produced 28.7 mill. tons. The output of other types of paper and cardboard grew by 1.1% to 40.1 mill. tons. Finland and Sweden reduced their outputs. Thus in 1995, the total output of paper and cardboard amounted to 78.9 mill. tons.

Pulp production is also increasing on a steady basis. In 1995, the total European output of pulp increased by 0.7%, and reached thus 23.9 mill. tons. However, the new capacities of the Asian and South-American regions, commissioned by the end of 1995, are expected to reduce the European outputs of pulp due to lower demand and prices.

In Russia, in spite of sufficient demand, the outputs of pulp decreased by 38.6% during 1992-1994 mainly because of a decline (more than 3 times) in production of pulpwood. However, owing to good conjuncture, exports of pulp decreased merely by 10%, and amounted to 1 026 000 tons (31.7% of the output). It should be noted that over this period, the exports to non-CIS countries more than doubled. In 1994, internal consumption amounted to 2 218 000 tons. In 1995, both production and consumption increased up to 4 400 000 and 3 205 000 tons, respectively, while the share of exports in the output decreased to 27.3% (Strakhov et al. 1996).

The Russian demand for different types of paper varies, determining the general trends in production. While the total Russian output of paper and cardboard dropped from 8 583 000 tons in 1992 to 3 407 000 tons in 1994, i.e. 2.5 times, the output of newsprint paper increased from 943 000 tons to 1 038 000 tons.

Over this period, the total exports decreased to 1 450 000 tons, and the exports to non-CIS countries increased to 1 050 000 tons; in 1994, the Russian internal consumption of paper and cardboard was 2 137 000 tons, and in 1995, both production and consumption increased to 4 160 000 tons and 2 830 000 tons, respectively, whereas the share of exports in the output rose to 36%.

2. TIMBER EXPORTS AND SUSTAINABLE DEVELOPMENT OF THE FOREST INDUSTRIES OF RUSSIA

At present, Russian forest products are exported to more than 70 countries. The largest importer of Russian forest products is Japan, which accounted for 23% of export

earnings in 1994. It is followed by Finland, Germany and Great Britain, accounting for 9.4%, 8.2% and 6.8% of export earnings, respectively. All these countries import from Russia primarily roundwood, sawn wood, panels and plywood (Table 9).

From 1992 to 1994, there were increased exports of all forest products except for roundwood and particleboard to non-CIS countries. Thereby, in 1992-1995, the exports to non-CIS countries totalled in 48%, and in 1993-1994, exports rose 1.7 times (while the output decreased by 50-55%). However, due to a sharp cutback of timber supplies to the CIS countries, in 1991-1994, total exports of roundwood reduced by 50%, sawn wood by 39.2%, particleboard 3.3 times, paper and cardboard by 28%, and pulp by 6.9%. Only plywood exports increased (by 57.7%) (Union of Forest…1995).

During the first four months of 1995, exports of industrial pulp and newsprint paper increased by 48.5% and 32.7%, respectively, compared to the same period in 1994. At the same time, exports of plywood decreased by 13%, and of roundwood and sawn wood by 26-27%. Thus, almost the entire increase in the export earnings of this period resulted from higher prices rather than from higher volumes.

It should be noted that the growth of Russian exports to non-CIS countries occurred on the background of a decline in the production of the main products in Russia. These exports are clearly dominated by raw wood products, and their efficiency, compared to exports of other countries, has practically no weight. Meanwhile, the withdrawal of unprocessed timber from the Russian internal consumption leads to a reduction of industrial timber resource, meant for further processing, and to the termination of work at many wood-processing enterprises due to lack of raw wood. Russian pulp and paper enterprises still have difficulties with wood supplies for the reason of a sharp curtailment of harvesting volumes and lack of working assets to pay for timber. Difficulties with wood supply are experienced even by those enterprises which possess needed operational assets and have markets for their products both in Russia and abroad. At the same time, although Russian wood-consuming industries have difficulties with wood supply, preventing them from functioning stable, a significant portion of wood is exported abroad for low prices. In particular, in 1994, 30% of wood products was sold abroad for the prices which were substantially lower than the domestic ones (VNITsLesresurs 1996).

Table 9. An assessment of Russian forest exports used the consumption level in Europe

Kinds of Forest products	TRDC*	SRE**	TAE***	long distance	European countries
Forest products, Total mill. m^3	77,6	19,3	14,9	13,8	6,7
Roundwood (softwood) mill. m^3	19,54	21,9	4,28	3,72	3,29
Roundwood (hardwood) mill. m^3	4,58	1,3	0,06	0,05	0,04
Flakeboards, mill. m^3	7,25	1,5	0,11	0,009	0,003
Fiberboards, mill. m^3	1,26	9,8	0,12	0,07	0,04
Plywood, mill. m^2	1,58	81,2	1,28	1,12	0,85
Pulp, mill. metric tons	7,69	28,6	2,20	1,88	1,43
Paper and board, mill. metric tons	18,2	28,4	5,17	3,74	1,79

* TRDC -Theoretical volume of Russian domestic consumption based on the middle-European level of consumption,
** SRE-Share of Russian export to domestic use, %
***TAE-Total amount of export calculated on the basis of the middle-European level of consumption per capita

In the future, the export efficiency is expected to grow only pertaining to those items for which world prices will rise faster than domestic ones (in US$). At the same time, it is assumed that the profitability of unprocessed roundwood exports will remain rather high.

The Federal Programme of the Russian Forest Industry Development (valid until 2005) (Roslesprom 1995) envisages a 1.6-1.7 times increase of harvesting volumes. This programme is underlying "The Forecast of the Russian Forest Industry Development for the year 1996", which projected a rise in harvesting volumes. However, instead of the expected increase of timber removal by 2.5% and that of industrial wood flow by 2.2% (compared to 1995), these volumes dropped by 16.5% and 18%, respectively (Ministry of economics…1995). In 1997, it will project both timber exports and internal consumption. According the Programme the Russian Forest Industry Development, by the year 2005, the internal roundwood equivalent consumption was expected to rise up to 304 mill. m³.

FAO/ECE data show that, in 1993, the former Soviet Union republics accounted for the following shares in imports: 11% for roundwood, 15.1% for sawn wood, 3.7% for wood-based panels, 3.6% for wood pulp, and 0.6% for paper and cardboard. The State Statistics Committee of Russia reports (The Russian Federation…1996) that a significant amount of timber and wood-based products exports is delivered to the European market: 49% of roundwood, 88% of sawn wood, 37% of particleboard, 63% of fibreboard, 76% of plywood and pulp, and 48% of paper and cardboard. In 1993, the total Russian forest exports to Europe amounted to 17.6 mill. m³ (roundwood equivalent units), which defines the share of Russia in the European imports as 6.8%. However, the shares of individual forest products significantly deviate from this average value. E.g. the shares of roundwood and sawn wood are 18.4% and 12.1%, respectively, whereas those of value-added products are much lower: they are 4.6% for pulp and 1.3% for paper and cardboard (VNITsLesresurs 1996).

To assess the potential of the European market to incorporate Russian timber exports, the ARICFR used the following data, thoroughly reviewed in a paper which is now in press (Strakhov et al. In press):

1. an analysis of Russian export growth rates in the period from 1990 to 1996 in comparison with the actual growth rates of the European imports and consumption of wood products;
2. the FAO/ECE Forecast of prospects and trends in exporting the main timber products to the European market by its main exporters in the period up to the year 2020;
3. a forecast of the competition in the European market between Russian and tropical timber products and exports from the moderate zone countries, practising large-scale plantation forestry.

Although even in the periods of relative economic stability, there has always been a deficit of forest products in Russia, and the demand has always been higher than the supply, at present, the actual needs for products of wood-dependent industries remain unsatisfied and their possibilities unclaimed because the ineffective demand for these products is equivalent to over 100 mill. m³ (ARICFR Annual Report 1995, Project "Forest Resources").

When the structure of forest exports is improved, there will be a real opportunity to raise the export efficiency through a better quality of goods and increased shares of added-value products rather than through increasing volumes of shipments. At present, due to the triple difference in prices for edged boards and unbarked logs, Russia loses about $100 mill. a year (Union of Forest…1995).

3. A PRELIMINARY PREDICTION OF THE EUROPEAN MARKET POTENTIAL TO INCORPORATE RUSSIAN TIMBER PRODUCTS

The most acceptable indicators of market situations are such relative values as the share of imports in consumption and the share of exports in production (in output). An analysis of FAO/ECE data shows that in contrast to volume indicators, characterising the level of production and consumption of exported and imported forest products, these indicators have been rather stable, and their annual deviations from the average value have been insignificant for a long time. Therefore, it may be assumed that the ratio between imports and internal consumption in Europe will remain on the level of the 1990s in the nearest future (Table 10). And it is unlikely that the structure of Russian exports to the European market will undergo any essential changes.

In 1992-1995, the European internal consumption of wood products (sawn wood, wood-based panels, paper and cardboard in the roundwood equivalent) rose from 441.8 mill. m^3 to 466.7 mill. m^3, and the consumption of unprocessed timber rose from 280.0 mill. m^3 to 326.8 mill. m^3 (UN-ECE/FAO 1996a). In the average over this period, the internal consumption of all forest products, including pulp, amounted to 844.2 mill. m^3 (roundwood equivalent). In Russia, the domestic consumption reduced almost by half over the same period, and in 1995 it equalled 57.0 mill. m^3 for roundwood and 53.1 mill. m^3 for the main wood products. In the roundwood equivalent, it averaged 150.8 mill. m^3.

The share of imports in the European consumption ranges from 12.5% for roundwood to 74.2% for plywood. In general, in the roundwood equivalent, the European imports averaged 277 mill. m^3 over the period. This figure may be regarded as an actual current capacity of the European market (Table 11).

According to the FAO/ECE baseline scenario of annual average growth rates of timber consumption, provided that the annual internal consumption grows at rates of 0.8-1.0% for sawn wood, 1.5-1.8% for wood-based panels (plywood, particleboard and fibreboard), 2.1-2.6% for paper and cardboard, and 0.9-1.1% for pulp, Europe will be able to reach the following levels of consumption (in the roundwood equivalent): 933-943 mill. m^3 by the year 2000, 991-1010 mill. m^3 by the year 2005, and 1050-1084 mill. m^3 by the year 2010 (UN-ECE/FAO 1996b).

The defined shares of imports in consumption for each product allow to predict the following values of European timber imports:

- total European timber imports: 306-311 mill. m^3 in 2000; 328-336 mill. m^3 in 2005; 350-362 mill. m^3 in 2010;
- unprocessed timber: 43 mill. m^3 in 2000; 45 mill. m^3 in 2005; 47 mill. m^3 in 2010;

Table 10. Domestic consumption and import in Europe

Forest products	Domestic Consumption in Europe		European Import in Consumption, %	
	1993	Annual average	1993	Annual average
Roundwood, million m^3	281,09	307,05	10,9	12,5
Sawnwood, mill. m^3	85,45	89,42	39,3	39,6
including: softwood	68,67	72,33	39,5	39,8
hardwood	16,78	17,10	38,4	38,8
Flakeboards, mill. m^3	27,34	27,70	22,9	23,98
Fiberboards, mill. m^3	4,47	4,81	51,8	49,0
Scaleboard, mill. m^2	5,99	6,10	73,6	74,2
Pulp, mill. metric tons	28,85	29,78	46,5	47,2
Paper and board, mill. metric tons	68,69	70,57	48,0	48,4
Total	800,80	844,16	32,4	32,8

1) Total of wood products has calculated as roundwood (conventional) , mill. m3 (*)
2) in order to recalculate volume index into conventional roundwood one uses standard factors of recalculation for separates kinds of products

Table 11. The balance of forest products in Europe: production and consumption

Kinds of products	Production			Consumption		
	1990	Rate	2000	1990	Rate	2000
Softwood sawnwood mill. m^3	74,28	1,1	82,85	83,88	1,0	92,65
Hardwood sawnwood mill. m^3	17,64	1,1	19,67	21,52	1,0	23,78
Sawnwood, mill. m^3	91,92	1,1	102,52	105,40	1,0	116,4
Flakeboard, mill. m^3	28,51	1,6	33,42	29,01	1,8	34,66
Plywood, mill. m^3	3,35	1,6	3,93	6,36	1,8	7,60
Fiberboard, mill. m^3	4,48	1,6	5,24	4,76	1,8	5,68
Sheetings,mill. m^3	36,34	1,6	42,59	40,13	1,8	47,94
Groundwood, mill. metric tons	35,51	0,9	38,49	41,14	0,9	44,59
Paper and board, mill. metric tons	68,23	2,1	82,25	66,37	2,6	83,62

- sawn wood: 34-65 mill. m^3 in 2000; 67-68 mill. m^3 in 2005; 69-71 mill. m^3 in 2010;
- particleboard: 11 mill. m^3 in 2000; 11-12 mill. m^3 in 2005; 12-13 mill. m^3 in 2010;
- fibreboard: 5-6 mill. m^3 in 2000; 6 mill. m^3 in 2005; 6-7 mill. m^3 in 2010;
- plywood: 14 mill. m^3 in 2000; 15-16 mill. m^3 in 2005; 16-17 mill. m^3 in 2010;
- pulp: 74 mill. m^3 in 2000; 78 mill. m^3 in 2005; 82-83 mill. m^3 in 2010;
- paper and cardboard: 96-98 mill. m^3 in 2000; 106-111 mill. m^3 in 2005; 117-125 mill. m^3 in 2010.

If no substantial changes occur either in the structure of the Russian exports or in its share in the European imports, their total roundwood equivalent volume will be 21 mill. m^3 in the year 2000; 22-23 mill. m^3 in the year 2005; 23-24 mill. m^3 in the year 2010, and thus, roundwood will account for 8-9 mill. m^3 a year.

The European internal timber consumption per capita is estimated to have been growing, and over 1992-1995, its roundwood equivalent averaged 1568 m³. In Russia, over the same period, it decreased to 1019 m³. This indicator was higher in Russia than in Europe only for sawn wood; the total consumption, based on the average European rates of per capita consumption, could have amounted to 219 mill. m³ in Russia whereas its actual roundwood equivalent level was 113 mill. m³ in 1995, and over 1990-1995, it averaged 151 mill. m³.

The internal consumption may be raised both through expanded production and increased imports and through decreased exports (Table 12). Proceeding from the European average rates of consumption, Russian total timber exports would amount to 50 mill. m³, out of which 26 mill. m³ would be the share of exports to European countries (Table 13). Thus, a number of standard methods, thoroughly described in our

Table 12. Forest products' balance in Europe in 1990 and 2000: export and import

Kinds of products	Export			Import	
	1990	Rate, %	2000	1990	2000
Roundwood, mill. m³					48,0
Softwood sawnwood, mill. m³	20,00	2,6	25,84	29,60	35,64
Hardwood sawnwood, mill. m³	2,95	2,6	3,82	6,83	7,93
Sawnwood, mill. m³	22,95	2,6	29,66	36,43	43,57
Flakeboard, mill. m³	6,21	5,0	10,13	6,71	11,37
Plywood, mill. m³	1,66	5,0	2,71	4,67	6,38
Fiberboard, mill. m³	1,87	5,0	3,03	2,15	3,47
Sheetings, mill. m³	9,74	5,0	15,87	13,53	21,22
Groundwood, mill. metric tons	7,94	3,2	10,55	13,57	16,65
Paper and board, mill. metric tons	32,94	3,2	43,72	31,08	45,09

Table 13. Forest products' balance in Europe: forecasting European market capacity

Kinds of Products	K eu*	EU Import 2000, mill. m³	Forecasting Russian Share,%	Russian export Capacity, mill. m³
Roundwood, mill. m³		48,0	11,1	5,3
Softwood, sawnwood, mill. m³	1,76	62,73	15,1	9,5
Hardwood, sawnwood, mill. m³	1,69	13,40	15,1	2,0
Sawnwood, mill. m³		76,13	15,1	11,5
Flakeboard, mill. m³	1,44	16,37	3,7	0,6
Plywood, mill. m³	2,89	18,44	3,7	0,7
Fiberboard, mill. m³	1,82	6,32	3,7	0,2
Sheetings, mill. m³		41,13	3,7	1,5
Groundwood, mill. metric tons	4,15	69,10	3,6	2,5
Paper and board, mill. metric tons	2,45	110,47	0,6	0,7
Total capacity of European market, mill. m³		344,83		21,5

*K eu = Recalculation factors for forest goods

paper (Strakhov et al. In press), have allowed us to estimate that by the year 2000, The European market is likely to be able to absorb a maximum 21.5 mill. m³ of Russian timber.

CONCLUSIONS

Russia has not yet overcome its perception of forests as an unlimited natural gift. Further development of the Russian society is implausible without an alteration of the attitude towards forests on the part of both people and government agencies. The main efforts should be focused on enhancing the functions of forests, providing social, economic and environmental public benefits. First of all, it is referred to scarcely forested areas and locations of environmentally reduced accessibility of forests, such as mountainous, permafrost and pre-tundra areas.

In order to cope with the crisis in the forest sector under the transition to market relations, a whole set of challenges should be answered practically simultaneously:

1. to mend the existing disproportion in the territorial allocation of timber resources and enterprises;
2. to eliminate the concentrated forest use patterns;
3. to resolve the problems of transportation and taxation;
4. to address the problem of uncontrollable migration of people.

In Russia, the main goal of sustainable forest management is to promote the development of the forest industry. But it should be recognised that without a powerful and efficient forest industry in Russia, sustainable forest management would fail. And hence, all the efforts to ensure forest profitability and to conserve biodiversity, associated with the Russian forest lands, would fail, too. It should be also admitted that in the course of many decades, activities of the Russian forest industry have been adversely affecting the health of forest ecosystems in Russia.

The Forest Code of the Russian Federation (enacted on February 4, 1997) provides a legal framework for implementing new forest policies, based on the strategy of sustainable development in the Russian Federation, adopted by Presidential Decree N 440 of April 1, 1996.

Globally, sustainable development of the world forest sector and forest conservation are regarded as a guarantee for biodiversity conservation and prevention of a climatic disaster, whereas in Russia, sustainable development of the forest sector is a realistic way for many regions to survive and implement a sustainable development.

A vital goal of regional sustainable development and of regional forest policies is to use information on the health and the status of lands within the Russian forest fund (i.e. national forest lands) for attracting investments into the forest and its related sectors, aimed at their balanced development on a given territory, creating new jobs in such fields as infrastructure development, forest growing, forest use, wood-processing, paper industry, resin industry, agrarian, commercial and other activities on the basis of various tenure patterns within the Russian forest fund. This makes us look for new mechanisms

of mutually advantageous trade-offs between various sectors and groups of population on the basis of new environmentally sound machinery and technologies for forest logging and wood-processing to ensure technical and technological independence of the Russian forest sector. It would be also facilitated by stepwise implementation of the criteria and indicators for sustainable forest management in Russia, including the development of a national certification system for forest products to check the compliance of their sources (i.e. areas of the forest fund) with the criteria of sustainable forest management.

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FORESTRY MEETING DIVERSE NEEDS IN SOCIETY

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1. INTRODUCTION

My topic in this meeting is "Forestry meeting diverse needs in society". Because society means people, I will begin with Maslow's hierarchy pyramid. It was back in the 1960s when Abraham Maslow created his theory that human growth and development need to form a predictable hierarchy: First comes a layer of survival issues, then a layer of security matters etc. continuing through a series of increasingly complex human needs. Each layer in the hierarchy builds on the previous one, and together they form a triangle shape. I think it is amazing how accurately this hierarchy fits in the recent years' discussion on forestry.

Two reflections can be based on this: First, perhaps society as such has, in Finland to a great extent because of forestry, moved up some levels. Thanks to forestry, our physical needs have been met, and we can afford to think about the other levels.

Secondly, one reason for conflicts is that people participating in the debate look at forestry from different levels of the Maslow pyramid. Some people, for instance forest owners, are physically depending on the outcome of their forests; others can meet those needs by other means than forestry, and they see forestry only as a tool to reach the upper levels.

2. FOREST RESOURCES AND FOREST OWNERSHIP

As an introduction to my presentation, I will present briefly some general facts about forestry in Finland:

Of the total land area of Finland (30.5 million hectares), 26.3 million hectares are classified as forestry lands. Forestry land is divided into three classes according to the site productivity, namely (i) forest land, (ii) scrub land and (iii) waste land. According to the results of the eighth nation-wide forest inventory (1986-1994), the area estimates are as follows:

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- forest land: 20.0 million hectares
- scrub land: 3.0 million hectares
- waste land: 3.1 million hectares

Finnish forestry is primarily based on forests owned by private families, who own 64 % of Finland's forest area. Forest industry companies own 8 %, the state 24 %, and others (including municipalities, parishes and other collective bodies) own 4 %. Most of the privately owned forests are located in southern Finland while state-owned forests are predominantly in northern Finland. Hence the shares from the growing stock and annual increment owned by private families are bigger than the share from the forest area, 69 % and 72 % respectively. Private forest are also the main roundwood source for the forest industries, accounting for approximately 79 % of the total roundwood fellings (during 1990-1994). Especially in the rural areas forests provide a significant source of income and an important form of capital.

The number of private forestry holdings is approximately 430 000. Forest ownership is small scale as the average size of private forest holding is about 30 hectares Earlier on, farmers used to be the largest group of private forest owners. Now about half of the private forest owners are farmers, and the other half are so-called forest estate owners, most of whom are wage earners or pensioners. The objectives of forest owners are diverse due to the large number of forest owners and their changing values. The significance of the multiple use is increasing continuously.

The forest industry plays a key role in the Finnish economy. Its significance is most clearly seen in exports: in 1994 the forest industry provided some 34 % of total commodity exports. Also the fact that the industry requires a smaller import input than other export sectors further underlines its importance. In consequence, the forest industry accounts for approximately half of Finland's net foreign currency earnings.

In addition, the forest industry makes a substantial indirect contribution to the Finnish economy, as most of its investment commodities such as paper machines, pulp digesters, roundwood mills and forest machines are manufactured in Finland. These products account for approximately 15 % of the deliveries by the engineering industry, which is thus closely linked with the forest industry.

Forests and forestry have a central role in the general regional development work. Especially in southern Finland private forestry has a very important role in the regional economy. As the total income from agriculture is decreasing, the relative importance of forestry is increasing.

Especially in the sparsely populated and rural areas forestry plays an important role in the employment. However, despite the increasing production in the forest industry, the importance of the forests for the employment is fairly small and diminishing. In forestry, the labour force has decreased from 200 000 after the WW II to the current 30 000 people. This, 30 000 people on 20 million ha of forests, also tells something about the cost-awareness in the Finnish forestry.

But because of the fact that most forests are owned by private people the income from forestry has a big importance for society. We have more than 400 000 forest owners in Finland. Every year about 100 000-150 000 of them sell wood. The total stumpage price for the forest owners is about 5-8 billion FIM annually. Despite the fact that many forest owners today live in urban areas, clearly more than half of the income from the stumpage price still goes to rural areas.

3. THE FOREST OWNERS HAVE PARTICIPATED IN THE FOREST POLICY FRAMEWORK FOR SEVENTY YEARS

Because of the considerable share of private holdings it is obvious that forest policy in Finland, and, in fact, in a large part of Europe, can be successful only if the forest owners are incorporated in the forest policy process. We have an example of that here in Finland. The Forest Act of 1886 as such was fairly good and modern, but because it was only supervised by the authorities it did not really have the effect the policy-makers of the time had hoped for. It is difficult to supervise 20 million hectares of forests and 300-400 000 forest owners.

In fact we have an example from as early as 1869 that only legislation and supervision is not enough. Anton Gabriel Blomqvist "the father of Finnish silviculture" travelled a lot in Finland. At that time shifting cultivation was still very common in Finland. From the municipality of Keuruu, Blomqvist tells about a case where none of the local people dared to lit the fire. However, the people got two tramps, who happened to be in the neighbourhood, to lit the fire by paying them about 6 litres of vodka. The fear of the authorities had thus some effect, but not enough.

The concept of forest-owner-controlled, semi-governmental authorities was established some 70 years ago. The concept has changed during this time, and is now continued by the forestry centres. There are currently 14 regional Forestry Centres in Finland. They provide forest owners with training, information and extension. They also prepare forestry plans, carry out forest improvement activities, and distribute forest improvement grants and loans annually taken into the state budget. In addition, the Forestry Centres control the implementation of the forestry legislation at the regional level. Regional Forestry Centres give guidance and supervise Forestry Associations.

The forest owners have played, and still do, an important role in the governing bodies of the forest centres. The authorities, on one hand, have important input and knowledge of the way forest owners think, and on the other hand, there have been committed forest owners who have spread the message in the regions. I think this has been one of the basic reasons why the Finnish forest policy (in wood production) has been fairly successful and we think that we should keep this concept in mind when implementing the other aspects of sustainable forest management.

4. EDUCATION AND INFORMATION

Changes in the Finnish forestry legislation took effect in the beginning of 1997. The new laws pay more attention to economically, ecologically and socially sustainable management of forests in a more versatile manner than the previous legislation.

The new Forest Act defines forest owner's minimum obligations for care and minimum restrictions for use of forests. Different incentives and recommendations are the main means for reaching the goals of the legislation. The new Act defines the general obligation for forest management to maintain the varying biological environments. According to this principle, such working methods are used in forest which secure the survival of organisms adapted to different biotopes, forest life cycle phases and ecological situations.

To maintain the biodiversity of forests, the new Act restricts the use of certain important environments. These environments are areas where either rare or specially demanding organisms live. Examples of such areas are the neighbourhoods of springs, brooks and small lakes, as well as ravines. All forest management activities in such areas should be conducted in a way that preserves the special features of these environments. Regulations concerning wood production remain largely unchanged.

The reformulation of Finnish forestry practices is a challenge to the education of foresters, forest workers and owners, and to the co-operation between foresters and biologists. The education and learning process has already started at every level of the forestry organisations.

In order to achieve the objectives set, forestry organisations have focused on continuous in-service training of their personnel. For example, in 1993 alone some 10 000 persons, i.e. all who work in the forest at all different levels, were given further training with special focus on the maintenance of the biological diversity in forestry operations. Moreover, the number of special courses concentrating on the management of the ecosystem and extension courses for people already working in the forest domain have increased significantly in recent years. For example, tracks with keybiotopes are common all over Finland.

The Forestry Development Centre Tapio and the regional Forestry Centres have conducted a survey in the field where they have assessed how well the environmental issues have been implemented in practice. The results of the assessment show that the nature management level is high in the commercially tended forests, and it has increased somewhat from the previous year. In fact, forest owners voluntarily diminish their income from the forest. We do no not yet have sufficient research data in how much standing trees ought to be retained in order to preserve the forests biodiversity, so the current recommendations may still be changed. The current directives concerning trees retained on a cutting site are drawn up following the principle of caution.

The results show that forest owners have voluntarily paid several hundred million Finnish marks for the environment. There are several factors which diminish the cutting budget, such as key biotopes, special values (scenic landscapes) and residual trees. According to a survey made by the Finnish Forest Research Institute, the loss might be even bigger, about 10 % lower than normally.

When examining the results, it is good to bear in mind that safeguarding biodiversity in the forests has so far been a matter of voluntary measures. Most of the forest owners have carried out this responsibility well. This all has been achieved by education and information, not with too strong legislation.

5. MULTIPLE FUNCTIONS

In Finland, as well as in Norway and Sweden, we have a principle of old Nordic land-use traditions: there is a public right of access (Every Man's Right). It permits everyone to use all forests freely for hiking, for picking berries and mushrooms, and for other recreational activities both on privately owned land and on state-owned land. Long before the term sustainable forest management became commonly used, Finland has

had a tradition of multiple use of all forests. This has made it possible to implement the objectives of multiple use forestry in all forests without having to set aside vast forest areas only to meet the recreational needs of people.

6. REGIONAL TARGET PROGRAMMES

However, due to the growing popularity of recreational use, it has been necessary to modify forest management practices in order to satisfy the new forest user groups. This is especially the case in southern Finland in areas close to cities and other settlements. Forestry measures concern many people living in a particular region, not only foresters or forest owners. That is the reason why participatory planning with all interested people is a much discussed and implemented, but nevertheless a fairly new concept in forestry all over the world.

Participatory planning has showed that we all can learn something from each other. We (both inside and outside forestry) tend to look at the issue as forestry against the rest of the world. But of course also the rest of society is divided into different groups. We can recognise that, for instance, people representing recreational and environmental stakeholders far from always have similar views on forest practise.

The Forest Centres will prepare regional target programmes for forestry. These programmes will play an important role both for wood production and environmental target setting. They comprise general targets for maintaining sustainable management of forests. The target programmes cover aspects of economic, ecological and social sustainability (See Appendix 1). The target programmes are joint efforts. The forest centre functions in co-operation with environmental authorities, representatives of forestry and environmental organisations (NGO's) and other relevant parties.

The practices take into consideration different regional, economic, environmental, social and cultural conditions within the country. The regional target programmes drawn up by each regional centre embody the general objectives in the endeavour to maintain sustainable forest management and to merge the wood production objectives, the multiple-use objective, and environmental objectives focusing on the country's forests.

7. PARTICIPATORY PLANNING IN STATE-OWNED FORESTS

Multi-purpose forest management planning was started in state-owned forests. Regional natural resource plans will be prepared for all state-owned forests. Currently two plans – for the regions of Kainuu and western Finland – have been accomplished. A regional natural resource plan is a large-scale strategic land-use plan fulfilling the requirements of ecological, social and economic sustainability. Participatory planning, which offers local inhabitants and interest groups the opportunity to participate in the planning of state forests, has been introduced in the process.

The Forest and Park Service offers all citizens who are interested in the use of state-owned land the possibility to participate in the planning and decision-making process in

these areas. The possibility to participate in the projects is offered at an early stage. Since 1993, the Forest and Park Service has maintained a Geographical Information System (GIS) listing key biotopes, small sites with special natural values and habitats of threatened species. Projects that have public participation of local people in their planning and accounting of natural resources have been launched. The Forest and Park Service has its own comprehensive planning system for protection and multiple use of natural resources (Landscape Ecological Planning).

During the updating phase, several public meetings and open houses are arranged. These occasions results in valuable information on the expectations, knowledge and priorities of the public. This input is used especially in determining social sustainability.

Landscape ecological planning has been introduced in the state-owned forests in order to safeguard biodiversity in managed forests, as a supplement to the protected areas. A landscape ecological plan is an ecological study of a large forest area of 10 000 to 40 000 hectares. The plan gives guidelines to forestry practices in such a way that the natural species of the forest area are maintained and the chances for the species to spread are safeguarded in the long run. Public participation is used also in this planning process. All state-owned land areas will be covered with landscape ecological planning by the year 2001.

8. THE NEEDS DIFFER

It is obvious that the needs differ. Naturally they differ between different individuals. As discussed earlier, participatory planning could be one tool to consider the needs of different individuals and organisations. We also have the different needs of the individual, the local community, the regional level, and the national level. In many cases they are the same, but not always.

But must also consider the change in needs in different times. For instance, the well-known Swedish professor Carl von Linné, who launched the taxonomy system for plants, expressed the opinion that shifting cultivation would be more feasible and give the peasant a nice crop instead of his useless forest. Today we are planting fields.

The decisions we make today are the reflections of our time. We cannot be sure how our decisions on protected areas, key biotopes, and trees left on the cutting area are judged in fifty or one hundred years.

APPENDIX 1

DECREE, Given in Helsinki on December 20, 1996

1 §

Regional forestry target programme

The regional forestry target programme specified in Article 4 of the Forest Act should include:

1) general description of the state of forests and forestry and the requirements and targets for development
2) description of biological diversity of forests, taking into consideration also the protection areas created on the basis of the Nature Conservation Act, and the areas among restricted forest utilisation
3) wood production and targets and needs to develop it
4) needs and aims to maintain the biological diversity of forests according to paragraphs 1 and 2 of Article 10 of the Forest Act
5) targets set for the activities according to the Act on the Financing of Sustainable Forestry
6) utilisation of wood and its current level, targets and needs to develop it
7) description of forestry related entrepreneurship and suggestions to promote especially small-scale enterprises
8) employment effects of forestry and possibilities to develop employment and proposals to improve employment opportunities
9) an estimate of the economic effects of implementation of the regional forestry target programme
10) an estimate of the environmental effects of implementation of the regional forestry target programme

In drawing up the programme the forestry centre is to co-operate with the relevant bodies representing forestry, environmental authorities and organisations and other relevant parties. Forest and Park Service (FPS) is to help the forestry centre in drawing up the programme for the areas in the possession of FPS.

The programme is revised when necessary, at least in five years intervals.

SESSION II

POLICY RESEARCH RELATED TO INTERNATIONAL AND NATIONAL FOREST POLICY DEVELOPMENT

Moderator: Prof. Dr. Birger Solberg

DEVELOPMENT OF INTERNATIONAL FOREST POLICIES AND RELATED POLICY RESEARCH NEEDS

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1. INTERGOVERNMENTAL PANEL ON FORESTS

As an introduction, I would like to underline that we all need to acknowledge the significant progress which has been made in the global, regional and national forest policies after the UNCED in Rio de Janeiro in 1992. After Rio, the international cooperation has been based on the cooperation with all relevant stakeholders emphasising openness and transparency, and taking into account cross-sectoral issues in forestry. The decisions made during and after Rio, along with several forestry related processes and agreements, have all contributed to the progress in attaining sustainable forest management.

The decision of the UN Commission on Sustainable Development to establish the Intergovernmental Panel on Forest (IPF) was a significant step in international forest cooperation. The IPF reached a consensus on several proposals for action. However, in my opinion, a holistic approach taking into account the ecological, economic, social, and cultural values of forests is still needed in order to enhance the effort towards sustainable management.

I have divided my presentation into four sections. First of all, I shall discuss the challenges for research, identified by the IPF, and secondly, I would briefly like to share with you some Finnish research priorities. Then I shall move on to national forest programmes as a key instrument in identifying different needs, and finally, I shall give an example of the specific problem of research on biodiversity.

2. CHALLENGES FOR RESEARCH

The outcome of the work of the IPF includes several challenges for forest research. In pursuing a consensus and the formulation of coordinated proposals for action, the Panel was mandated to consider a number of interrelated categories of issues. **Programme**

Ilpo Tikkanen and Brita Pajari (eds.)
Future Forest Policies in Europe – Balancing Economic and Ecological Demands
EFI Proceedings No. 22, 1998

element III, namely, **scientific research, forest assessment, and development of criteria and indicators for sustainable forest management,** dealt specifically with the research issue.

Before going on any further, I would like to emphasise what Dr Jag Maini, Head and Coordinator of the IPF Secretariat, wrote in his abstract for this conference. I fully agree with Dr. Maini in that:

"There is a critical need to strengthen forest policy research world wide. Defining priorities for research in forest policy requires a good understanding of the forest policy environment."

The issue of research was brought into the work of the IPF as a broad, cross-cutting issue. In the annex, I have included a compilation of conclusions and proposals for action of the IPF concerning the research needs. The list of research topics that countries by taking part in the IPF work have committed themselves to address is rather impressive. There will be a lot of new challenges for researchers. Let me point out some priorities identified by the IPF:

- Long-term supply and demand for forest products and services
- Sustainable forest management in the context of certification
- Eco-labelling
- Criteria and indicators for sustainable forest management
- Forest valuation
- Land tenure issues
- Approaches to effective cross-sectoral policy harmonisation
- The relative role of private sector and bilateral assistance to developing countries

Many of these issues have already been addressed by existing international organisations e.g. FAO, research institutions such as EFI, IUFRO and CIFOR, as well as various networks and universities. There is a wide consensus that future research challenges cannot be met without international and interdisciplinary cooperation.

3. FINNISH FOREST RESEARCH PRIORITIES

Forest research priorities for the next 5-10 years period were defined in 1995, when the Ministry of Agriculture and Forestry published the Forest Research Policy Programme. For this national programme, the research priorities were derived from discussions with policy makers, researchers, and forest managers. The following 11 topics were listed:

1) Natural forest ecosystems
2) Development of forest management practices
3) Sustainable management of natural resources
4) Biodiversity of forests
5) Accounting of natural resources
6) Multiple use of forests
7) Forest health
8) Environmental effects of forestry

9) Forestry in developing countries
10) Business research
11) Impact of forest research

A look at another list, the list of priorities of the research work to be performed by the Finnish Forest Research Institute, reflects the present Finnish situation quite well, since the Finnish Forest Research Institute represents some 60% of all forestry research done in Finland. If we compare the 1995 list with the work programme of the Finnish Forest Research Institute for next year, we have to admit that even remarkable changes take place. A gradual concentration on broad research programmes is one trend that seems quite obvious. This will improve the holistic approach in many cases. Let me mention two new, rather broad programmes as examples, one on biodiversity and another dealing with the development of the whole forestry sector. These two programmes are funded jointly by several organisations. Another trend is that research today is more linked than previously to forest policy priorities.

I think it is correct to say that one important reason for changing the emphasis in our forest research is the evolution in forest policy. This can be observed in the recent forest policy events in Finland. We have had a major forest policy and forestry legislation review during the last three years. This review affected research already when the review work started, while it was performed and now, when we arrange the follow-up of the consequences of the new forest policy. The enhancement of biological diversity serves as a good example; it has become an integrated part of our forest management practices. Ecological sustainability and especially the biological diversity is clearly underlined in our new forestry laws. We have, however, several unsolved ecological and economic problems related to biodiversity enhancement in forestry. These biodiversity related problems must be addressed by the forest research community. I will come back to this issue later on.

4. NATIONAL FOREST PROGRAMMES AS A KEY INSTRUMENT IN IDENTIFYING AND COMBINING DIFFERENT NEEDS

Now, let me briefly discuss national forest programmes (NFPs) which should also enable us to identify research needs. NFPs are an essential instrument in the promotion of sustainable forestry. They should be used in an holistic and integrated manner, which has been proven in practice as an effective means to organise policy reform, to introduce the participation of interest groups in the decision making process, and to decentralise development and conservation interventions. Forest plans and national programmes are also a key instrument in improving sectoral, cross-sectoral and financial co-ordination.

National forest programmes should apply economic and social incentives, and efficient national and international financing mechanisms such as the proposed forest partnership agreements. Programmes should support the objectives of developing appropriate technologies, including indigenous and traditional knowledge. NFP is equally applicable both to developing and developed countries, and at sub-national

level. However, in some countries, especially with low forest cover or with fragile ecosystems dominating, forestry is better considered in the context of sustainable land-use plans.

Due to the diversity of physical and socio-economic conditions and to the ecological and socio-economic dynamics, it is also necessary to continuously develop planning methods and strategic approaches. National-level efforts could be facilitated at international level through (i) the preparation and dissemination of guidelines and (ii) an organised exchange of findings. There are a number of specific other issues on which further action is needed such as (iii) conflict management, (iv) addressing macro-economic and cross-sectoral linkages in policies and programming, and (v) operationalization of decentralised forestry development.

As NFPs are comprehensive, they also serve as a tool for organising the policy process and addressing various linkages. Of particular value is the fundamental role of NFP for co-ordination between public and private sectors, between domestic and external financing, and between research, administration and forest managers. In summary, we see the following elements as key issues:

- Full integration of forestry sector planning with wider economic and land use planning,
- Decentralised regional, participatory planning with improved co-ordination and strengthened national policy dialogues between those involved in planning and implementation,
- Co-ordination of various internationally initiated planning frameworks and improved coherence of national forest policy,
- Efficient and effective use of the existing international technical and financial mechanisms for improved capacity building to achieve country driven implementation of national forest and land use programmes,
- Incorporation of criteria and indicators for sustainable forest management in national forest programmes.

5. BIOLOGICAL DIVERSITY

Let me now briefly return to biodiversity. One of the broadest, most complicated and urgent research needs is in the relatively new concept of biological diversity. It has as well biological as economic, social and cultural dimensions. Let us take a look at some of the biological and economic questions which arise.

The biodiversity of the boreal forests is based on the variation in space and time factors. Spatial variation is determined by the bedrock, soil, moisture, temperature, and other physical and chemical factors. The forest ecosystem is composed of a range of diverse woodlands, mires and meadows etc. Depending of the site factors, each biotope has its own assembly of plant species. The scope of variety of the animal kingdom, fungi and microbes is regulated mainly by the vegetation, primarily by the trees.

It is relatively easy to understand the variation from one point to another between different biotopes. What is much more difficult to understand is the variation over time, i.e. successional diversity. The problems are mainly caused by the long periods of time,

hundreds of years. Succession is an essential part of the boreal forest ecosystem, and is primarily maintained through the action of different disturbing factors.

Even today, trees covering fairly large areas can be totally destroyed by fire, storm, drought or snow. Insect outbreaks and disease epidemics often occur as a result of these disturbances and bring about the final death of the trees. However, the boreal forest ecosystem is not changed permanently following a disturbance. A catastrophic disturbance is merely the beginning of a new succession that gradually develops into a forest similar to that present on the site before the disturbance.

Hence, there seems to be a vast task for forest research in further defining what biodiversity is, how it varies in time and space, and how it can be preserved most efficiently. Until we get final answers, practitioners have to stick to the precautionary principle and to use their own experience and professional skills. In order to maintain the biodiversity of the boreal forests, we have to pay attention to the preservation of the special habitats in normal wood production forests. Furthermore, we need completely protected areas, for example some old-growth forests primarily to ensure the preservation of areas where the late successional stages of the boreal forest ecosystem can be found and observed.

I would also like to mention the issue of estimating the economic effects of preserving forest biodiversity. There are some recent estimations made in Finland that have caused a discussion, what kind of effects are tolerable to the forest sector and to society. For example, a study by Järveläinen, Tikkanen and Torvelainen (1997) shows, that rather moderate modifications in forest management in favour of biodiversity might lead to a significant decrease in the allowable cut (17%) and the forest net income (15%). This study clearly shows, that there is an urgent national and international need for continuing and intensifying research in this specific area.

APPENDIX 1: COMPILATION OF RESEARCH NEEDS IDENTIFIED BY THE INTERGOVERNMENTAL PANEL ON FORESTS

I. Implementation of forest-related decisions of the united Nations conference on environment and development at the national and international levels, including an examination of sectoral and cross-sectoral linkages

A. Progress through national forest and land-use programmes

Proposals for action

17. (e) The Panel urged countries to develop, test and implement appropriate participatory mechanisms for integrating timely and continuous multidisciplinary research into all stages of the planning cycle

B. Underlying causes of deforestation and forest degradation

Conclusions

21. The assessment of whether changes in forest cover are or are not beneficial should be made against a background represented by national policy frameworks for sustainable forest management and land-use plans, and should enable countries to identify the quantity and quality of forest required to provide the full range of benefits, goods and services needed now and in the future. The increasing pressure from demands for forest products and other forest goods and services, as well as for land for other uses, suggests a priority need strengthen intersectoral decision-making affecting land use. Increasingly effective institutions for resource management, land use, research, education and extension will be an important part of sustainable forest management.

C. Traditional forest-related knowledge

Conclusions

33. The Panel noted with concern that some communities with sustainable lifestyles based on TFRK have been undermined by the accelerated loss of forests resulting from the introduction of new technological changes and economic pressures, in the absence of adequate measures for conservation and sustainable management. It agreed that indigenous people and other forest-dependent people embodying traditional lifestyles should play a key role in developing participatory approaches to forest and land management. Such approaches should involve all relevant parties from both public and private sectors, and should focus on community forest management; land-use systems; research, training and extension; the formulation of criteria and indicators; and conflict resolution.

39. The Panel recognized that the Convention on Biological Diversity contains several provisions, including articles 8 (j) and 10 (c), that are relevant to TFRK, which is a subset of the knowledge, innovations and practices referred to in article 8 (j) of the Convention, while the genetic resources of forest ecosystems are a subset of the genetic resources referred to in article 15. It noted the statement annexed to decision II/9 of the Conference of the Parties to that Convention, and accepted that the conservation and sustainable use of biodiversity, and the fair and equitable sharing of benefits derived from research and development and from the commercial utilization of biological resources fell, inter alia, within the purview of the Convention. It also recognized the need to avoid duplication or overlap with other relevant intergovernmental processes. Those matters are considered further in section V below. Biological Diversity, in particular decisions related to the implementation of article 8 (j), invited Governments, international agencies, research institutions, representatives of indigenous people and forest-dependent people who possess TFRK, and non-governmental organizations to promote activities aimed at advancing international understanding on the role of TFRK in the management, conservation and sustainable development of all types of forests to complement activities undertaken by the Convention;

Proposals for action

40. Recognizing that indigenous people and forest-dependent people who possess TRFK could play an important role in sustainable forest management, the Panel: (k) urged countries, with the support of international organizations, to promote research on TFRK in regional and national institutions, with the full involvement of the holders of that knowledge, to maintain and enhance the capacity of such institutions, and to advance the wider understanding and use of the knowledge gained;

D. Fragile ecosystems affected by desertification and drought

Conclusions

43. The Panel noted that in some countries, forest cover had been or was expanding as a result of community action backed by government support. In many areas, plantations of fast-growing trees have had good and cost-effective results in terms of soil protection. While recognizing that forest land rehabilitation would be required in many areas and that would need international assistance, including financial resources and technology transfer to support local and national efforts, the Panel emphasized the need for prevention, rather than mitigation and restoration, wherever practicable, with emphasis on improved and sustainable management of existing natural forest and other vegetation. The restoration of arid, semi-arid and dry sub-humid zones should not focus narrowly on afforestation but should also deal with broader aspects of forest ecosystem management, including social and economic issues. The Panel identified the need to strengthen research, including support to regional research networks, related to the identification of appropriate species for arid, semi-arid and dry sub-humid land restoration, the rehabilitation of existing vegetation types, and the potential of non-timber forest products. Education, training and extension systems can play an important role.

Proposals for action

46. (d) The Panel called on countries, donors and international organizations to support education, training, extension systems and participatory research involving indigenous and local communities embodying traditional lifestyles in order to develop resource management approaches that will reduce the pressure on forests in fragile ecosystems affected by desertification and drought;

(g) The Panel invited the Committee on Science and Technology of the Conference of the Parties to the Convention to Combat Desertification to support research on appropriate plant species for use in arid, semi-arid and dry sub-humid land restoration; on rehabilitation of existing vegetation; on related water management techniques; and on the potential for multipurpose trees and the supply of timber and non-timber forest products.

E. Impact of airborne pollution on forests

Conclusions

49. The Panel stressed the need for international cooperation, including information exchange; research and field data collection; evaluation of the socioeconomic and environmental impact of airborne pollution on forests; studies of ecosystem function where pollutant deposition threatens sustainability; the development of methods for assessing and monitoring national level criteria and indicators that relate airborne pollution to sustainable forest management; the dissemination of information to the public; the provision of access to existing data by potential users, including managers and policy makers; and technical assistance in order to help build capacity for research.

F. Needs and requirements of developing and other countries with low forest cover

Conclusions

57. The Panel emphasized the importance of international cooperation to address the management, conservation and sustainable development of forests in low-income countries with low forest cover, particularly through financial assistance and the transfer of environmentally sound technology, as well as through the establishment of appropriate research and information networks. In that connection, the Panel noted that the increasing focus of private investments in countries with abundant forest resources has made forest ecosystems in developing countries with low forest cover particularly vulnerable. In those countries, ODA is and will continue to be the most important source of funding. National forest programmes should be considered as one of the main vehicles to channel and secure the effectiveness of the required financial and technical assistance.

Proposals for action

58. (b) The Panel urged countries with low forest cover: (vii) To develop adequate research and information systems based on reliable evaluations and periodic

assessments, including the use of national-level criteria and indicators and establishing sectoral and cross-sectoral mechanisms for information exchange, in order to allow for timely decisions related to national forest policies and programmes;

II. International cooperation in financial assistance and technology transfer

B. Technology transfer and capacity-building and information

Conclusions

75. The Panel agreed that established priority in technology transfer and capacity-building should be continuously reviewed, and could include: information dissemination to improve forest and land-use planning and improvement of forest yields; technology and methods that reduce environmental damages due to current forestry practices;conservation and protection; native species research**,** including biotechnology, for tree improvement; rehabilitation and restoration of natural forest ecosystems; reforestation and nursery development; technology and methods for retaining forest values, including biological diversity; incorporation of indigenous knowledge in forest management; utilisation, rehabilitation, restoration and regeneration of natural forest ecosystems; new and renewable sources of energy, in particular fuelwood and its appropriate substitutes; environmentally sound forest harvesting technologies; enhancement of technologies regarding wood processing; the development of new non-wood and wood forest products to promote techniques and design in order to add more aggregate value for forest products; and the development and implementation of national forest strategies.

III. Scientific research, forest assessment, and the development of criteria and indicators for sustainable forest management

A. Assessment of the multiple benefits of all types of forests

Proposals for action

89. (c) The Panel urged countries, universities and relevant organizations and major groups to strengthen research on forest inventory and monitoring techniques with a view to expanding the scope and improving the quality of forest assessments;

B. Forest research

Conclusions

90. The Panel recognized the need to strengthen research, which was relevant to all the programme elements of its programme of work. There was need for a more comprehensive and focused approach, including support to regional research networks.

Enhanced international efforts for more focused and effective funding and coordination of forest-related research and development were also required.

91. The Panel also took note of the recommendations on priorities for scientific research on biological diversity and forests made by the Conference of the Parties to the Convention on Biological Diversity. The Panel also recognized the important role of the Convention to Combat Desertification in addressing many of the forest-related scientific issues and research needs as regards arid zones.

92. The Panel recognized that institutional needs include the strengthening of existing national research institutions; subregional and regional networks; joint research ventures; approaches to enhancing and strengthening existing international, regional, subregional and national forest research institutions' participation in an international network dedicated to the conservation and sustainable development, management and utilization of forests and forest policy research; and the creation of appropriate mechanisms that could enable research findings to reach policy and field levels more effectively and could support concrete action.

93. The Panel recognized the importance of developing and identifying research priorities at all levels: national, with the involvement of local communities and other interested parties; regional; and international. The Panel noted that research priorities relevant to further understanding and implementation of chapter 11 of Agenda 21 and the Forest Principles that are in need of comprehensive intergovernmental examination include the development of criteria and indicators for sustainable forest management, including their testing at the field level in pilot studies; integrated site-specific socio-economic and biophysical studies to explore the relationship between human development and forests; periodic forest assessment; valuation of forests and forest resources; the use of forest valuation in national resource accounts; community participation, including the adoption of participatory appraisal and other participatory techniques to determine research and technology development agendas; TFRK; forest conservation, including human impact on protected forest areas; consideration of the long-term impacts of pervasive external stresses, such as climate change, ozone depletion and air pollution, on forest health, productivity and biodiversity; examination of trends in the supply of and demand for forest products; forest policy at the national, regional and global levels; and environmentally sound technologies for forest-based industries, including cost-effective processing techniques.

Proposals for action

94. (a) The Panel requested the Centre for International Forestry Research, in collaboration with relevant organizations and in consultation with a group of internationally recognized experts, as well as in conjunction with national, regional, intergovernmental and non-governmental bodies, to develop as soon as possible mechanisms to:

(i) Guide the identification and definition as well as prioritization of global and eco-regional interdisciplinary research problems, taking into account national priorities and closely linked to practical and operational forest management issues;
(ii) Promote consortia or networks to lead and organize global forest research and ensure that results are made available to all users;
(iii) Build global capacity for forest research and develop new and innovative means for disseminating information and technologies;
(iv) Mobilize resources to accomplish the above objectives;

(b) Called on the Conferences of the Parties to the Convention on Biological Diversity, the United Nations Framework Convention on Climate Change and the Convention to Combat Desertification, within their areas of competence, to promote research and analysis undertaken by those Conventions and to address gaps in existing knowledge where relevant to their mandate;

(c) Urged the United Nations system, international financial institutions and countries to examine the need to expand the capacity of existing research institutions at the regional and subregional levels, and where appropriate the establishment of new regional/subregional centres for research, development and extension, including for biological diversity and forest products and other forest goods and services;

(d) Encouraged countries and regional and international research organizations to extend on-site research and to enhance its prioritization and the application of its results, with the involvement of all interested parties, in the planning, implementation, monitoring and evaluation of research so as to enhance its relevance and impact.

C. Methodologies for the proper valuation of the multiple benefits of forests

Conclusions
103. The Panel expressed support for national forest-resource accounting as a means of providing strategic information for forest policy and management at the national and subnational levels, and of creating awareness of the value of forest goods and services.

Proposals for action
104. (c) The Panel invited countries and relevant international organizations and institutions to promote research to further develop forest valuation methodologies, in particular those related to deforestation and forest degradation, erosion, and criteria and indicators, taking into account the particular circumstances of each country.

D. Criteria and indicators for sustainable forest management

Conclusions
105. The Panel noted the widespread international interest in and support for the

development and implementation of criteria and indicators for sustainable forest management. It drew attention to the dynamic nature of that process, and emphasized that the current momentum of action must be sustained.

IV. Trade and environment in relation to forest products and services

Conclusions

Proposals for action on lesser used species
132. (a) Called upon countries and relevant international organizations and research institutions to intensify efforts to promote lesser used forest species in domestic and international markets, where increased use is consistent with sustainable forest management;

(c) Urged international organizations and research institutions to transfer technology, and to support national and community level efforts to develop and adapt technologies including traditional forest-related knowledge, for increasing the sustainable utilization of lesser used species.

Proposals for action on certification and labelling
133. (e) The Panel invited countries to consider the relevance to certification schemes of the Centre for International Forestry Research project on criteria and indicators for sustainable forest management;

Proposals for action on full-cost internalization
134. (b) Drawing upon the work being carried out by countries and relevant international organizations, encouraged the sharing of information on research findings and experiences concerning the implementation of full cost internalization and its application to sustainable forest management, and relevant policy mechanisms.

V. International organizations and multilateral institutions and instruments, including appropriate legal mechanisms

Conclusions
138. The Panel noted the need for enhanced international efforts in a number of interlinked forest-related areas, including effective governance of international institutions, organizations and instruments dealing with forest issues; improved mechanisms for focusing, coordinating and monitoring the activities undertaken by agencies and to implement instruments on international forest-related issues; improved participation of major groups in forest-related forums and processes to promote sustainable forest management; strategic data collection and analysis; projects to strengthen capacity-building, technology transfer and exchange, and human resource

development, in particular at the national and field levels; improved coordination between international and bilateral funding agencies; and more focused and effective funding for and coordination of research and development in priority areas concerned with sustainable forest management.

EUROPEAN FOREST POLITICS IN PROGRESS

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1. BACKGROUND

Five years after the UN Conference on Environment and Development (UNCED) in Rio de Janeiro, the implementation in Europe of both the Statement of Forest Principles and Chapter 11 on "Combating Deforestation" of Agenda 21 is finally showing its first results in the form of policy formulation at the national, international and European levels.

At the ***national level***, several European nations, for example Sweden, Norway, Finland, Slovenia, Hungary, Russia, Slovakia, and Portugal, have reformulated their forest laws in the spirit of the Earth Summit. In addition, some countries, such as Sweden, Finland, and Norway, have adapted their financial instruments to encourage environmentally-friendly forest management. Also, informational tools have been deployed in the form of PR campaigns (e.g. Sweden's "A Richer Forest"), guidelines (e.g. Finland, Norway, France) and programmes (e.g. Finland, Denmark, Ireland, Netherlands, Turkey, Slovenia) (Glück 1996).

The ***international activities*** peaked during the first half of 1997, when the Intergovernmental Panel on Forests (IPF) concluded its two-year negotiations and reported its findings to the UN Commission for Sustainable Development. Although much consensus has been achieved about the world-wide causes of deforestation and forest degradation and proposed actions, the decision on how to continue the intergovernmental policy dialogue on forests in the future was left to the UN General Assembly in a meeting held in June, 1997.

Within the ***European Union***, forestry policy has received high attention from three important institutions: the European Parliament, the Economic and Social Committee, and the Committee on the Regions. In January 1997, the European Parliament General Assembly voted by a large majority in support of the Resolution on the *European Union's Forestry Strategy*, better known as the outcome of the so-called Thomas Report. According to Article 138b of the EC Treaty, the Commission must put forward a legislative proposal for a European forestry strategy within two years. The EU forestry strategy sets priorities in the commercial use of forests and in developing supra-national

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activities in accordance with the Rio and Helsinki Resolutions. Similarly, in its *own-initiative opinion on the forestry sector* the Economic and Social Committee stresses the important impact – both direct and indirect – on economic wealth and employment, especially in rural areas (Wirtschafts- und Sozialausschuss 1997). Within the next few weeks, a position paper of the Committee of the Regions should be expected which might emphasise the contribution of forestry and the forest industry sector to rural development.

The European Union does not comprise all of Europe, as the Pan-European Conferences of Ministers of Agriculture and Environment do. The follow-up to the *Pan-European Conference on the Protection of Forests in Europe*, better known as the Helsinki Process, has been working on a more substantial definition of sustainable forest management by using guidelines based on the six Helsinki criteria. This approach allows policy-makers to derive national and sub-national indicators that comply with the guidelines. In comparison with the existing 20 indicators for all of Europe, the new approach is a substantial step forward towards more ecological sustainability.

Besides the Helsinki Process there is another European initiative on biological and landscape diversity. At the Ministerial Conference on the "Environment for Europe" in October, 1995, in Sofia, Bulgaria, the environment ministers of 55 European countries endorsed the *Pan-European Biological and Landscape Diversity Strategy* (Council of Europe…1996). It aims to integrate all existing legally binding instruments (such as the Convention on Biological Diversity, the Bern Convention, the Bonn and Ramsar Conventions, the EU Birds and Habitats Directives) and initiatives like the Helsinki Resolution H2 (concerning the management of biological diversity) into one common programme.

Both the Ministerial Conference on Forests and the Ministerial Conference on the Environment in Europe have decided to cooperate, whereby the *European Biological and Landscape Diversity Strategy could serve as an example for future forest politics in Europe*. It is an *innovative approach* in that the strategy provides a framework for implementing legally and non-legally binding instruments for ensuring biological and landscape biodiversity. It sets long-term aims via four 5-year Action Plans, introduces principles for action, and identifies priority action areas. It is a *pro-active approach* for enhancing political decisions by policy planning (Council of Europe…1996).

2. PROMISE OF POLICY PLANNING

The EU Forestry Strategy, the EU's position in the IPF process, and the Helsinki Resolution H1 all regard a global convention on forests as an appropriate instrument to ensure sustainable management, conservation and sustainable development of all types of forests. In his statement to IPF-4 on Program element V.2, the representative of the Netherlands, on behalf of the European Union, enumerates the following merits of a global forest convention on forests (European Union 1997):

a. forming the basis for a comprehensive and holistic approach to address all the aspects of management, conservation and sustainable development of all types

of forests, taking into account the ecological, economic, social and cultural aspects;

b. providing a general framework for actions undertaken by the different actors regarding management, conservation and sustainable development of all types of forests;
c. promoting *development and implementation of national forest programmes* (emphasis by the author), developed in a participatory and transparent manner, and national reporting on the progress in achieving sustainable forest management;
d. facilitating the cooperation and co-ordination among international institutions and organisations and national organisations and groups involved in forest related issues;
e. offering a framework for improved mobilisation and more effective use of public and private financial resources for sustainable forest management as well as technology transfer and for a fair and equitable sharing of the multiple benefits of the forests and forestry;
f. providing a framework for regional and subregional initiatives to promote sustainable forest management;
g. facilitating initiatives for voluntary certification and labelling of forest products;
h. supporting the coordination of forest-related elements of relevant conventions;
i. providing a framework for active involvement of major groups in promoting sustainable forest management.

Accordingly, the Minister of Housing, Spatial Planning and the Environment of the Netherlands repeats on behalf of the EU in her report of IPF-4 to CSD-5 that a global forest convention is needed (de Boer 1997):

> "Although existing instruments cover elements of sustainable forest management, there are several gaps in relation to sustainable forest management. For example support for national forest programmes, international cooperation and scientific research and data collection.
> A convention could fill those gaps.
> Besides filling those gaps, a global forest convention (...) would (...) have many other merits.
> It would provide a general framework for actions undertaken by different actors regarding management, conservation and sustainable development of all types of forests.
> It could integrate the social and environmental aspects in the forestry sector.
> It can also deal with trade in forest products of all types of forests.
> A convention would promote *development and implementation of national forest programmes* (emphasis by the author) and can ensure that those are developed in a participatory and transparent manner."

As we know, out of the various proposals for action of the IPF process only a few were agreed to by CSD-5. While the time is still not yet ripe to commence deliberations on a global forest convention, the CSD has concluded in its report to the UN General Assembly which will meet in June 1997 the following:

> "To maintain the momentum generated by the IPF process and to facilitate and encourage the holistic, integrated and balanced intergovernmental policy dialogue on all types of forests in the future, which continues to be an open, transparent and participatory process, requires a long-term political commitment to sustainable forest management world-wide. Against this background, there is an urgent need for:
> (...)
> b. countries to *develop national forest programmes* (emphasis by the author) in accordance with their respective national conditions, objectives and priorities;"

The statements quoted above all have in common that they refer to the development and implementation of *national forest programmes* (NFPs). It is no coincidence that so much agreement on NFPs has been achieved during the inter-governmental policy dialogue over the last months. In connection with NFPs there is the *expectation that NFPs can contribute to the sustainable management, conservation and sustainable development of all types of forests at the management unit level.* Although an NFP is an integral part of any forest convention or protocol (Fig. 1), principally it could also be developed without an international legally binding framework. NFPs could revive the euphoria for policy planning which peaked in the 1960s and ended with disappointment, partly as a result of excessive negligence of systemic restrictions (Jänicke and Jörgens 1997). Today we know more about the policy-making process which enables us to better meet the demands of policy planning.

Policy planning strives to accomplish at least three objectives: first, to enhance the rationality of policies, second, to ensure long-term orientation of policies, and third, to better coordinate the decisions of various political actors.

Figure 1. Elements of a global forest convention for sustainable management, conservation and sustainable development of all types of forests. Source: Glück et al. 1997.

Enhancing the rationality of policies

Political actions are always ends-means actions, directed towards given goals. Appropriate means are sought in order to accomplish a certain purpose. Encouraged by the successes in the area of micro-economic investment planning (applying operations research, cost-benefit-analysis, econometric analysis, etc.) such approaches were also proposed for policy planning by policy analysts. In principle, these efforts aimed at comprehending the consequences of various policy decisions in varied policy areas, quantifying them, and making them comparable in order to enable the optimal choice among the available alternatives (Sharpf 1979).

This *old paradigm* of policy planning suffers from the assumed hierarchical relationship between state and society. The state governs by setting goals and developing appropriate measures on which society reacts. However, in pluralistic democracies, instead of a uniform decision maker, there are a multitude of political actors with varying empowerment, interests, and objectives. Due to the lack of a mutually agreed upon objective function, the real political process of compromise amongst the participating actors cannot be represented in optimisation models. The *new paradigm* of policy planning focuses on governance processes which take place in *policy networks* or bargaining systems (Mayntz 1993). "Networks" are informal groups of interacting political actors of the policy making process. State and society are not hierarchically separated but interacting (Lütz 1995). The state is rather dependent on the voluntary cooperation of large organisations in order to achieve its goals. The participants are provided with resources which are valuable for others and, therefore, they are relatively autonomous (Scharpf 1993).

Another defect in the *old paradigm* is the assumption that there is a scale for measuring the differing consequences of policy programmes for various groups of the society. For logical reasons, however, such a gauge is not available which allows the cost and benefits of policy decisions to differing societal interests to be compared, unless consensus can be achieved (Scharpf 1979). The *new paradigm* replaces the unrealistic gauge by *participation* of all relevant actors in the planning process. Though the influence of power will still be present, it can be made obvious by interactive GIS planning models which visually simulate the effects of one stakeholder on the interests of others (Ottitsch 1996).

Ensuring long-term orientation

The required long-term orientation attempts to anticipate future developments in order to reduce dependency of policy making on short-term considerations. In the *old paradigm*, the long-term orientation should have been accomplished by scientifically based forecasts of today's policy programmes as well as of future developments and goals. However, these attempts have also been disappointing. Many developments could not have been foreseen because they were caused by value changes (e.g. oil crises, protest groups against nuclear power plants) or new inventions (e.g. birth control pill, genetic technology). At the present, only a small part of the factors that influence societal and economic development can be explained by state-of-the-art social sciences.

In particular, forecasts fail to indicate time and direction of future tendency changes (Scharpf 1979).

The basic feature of government policy is uncertainty which cannot be replaced by apparent certainty based on extrapolations of past developments. Nevertheless, the long-term impacts and outcomes of today's decisions must be considered (e.g. new plantations with exogenous species). Many desirable objectives (e.g. conservation and timber production) can only be achieved using long-term strategies. The response to this challenge by the *new paradigm* is the *fragmentation of the long-term strategy into medium-term action plans and short-term work programmes*. The motto of this planning process could be: "The plan is not the goal, but the way to this end." In order to ensure a sustainable planning process independent from changes in the government, a *legally binding framework* is desirable.

An excellent example for grasping long-term policy planning is the above mentioned Biological and Landscape Diversity Strategy. The strategy is based on several conventions, EU directives and national conservation laws. The strategy covers a twenty-year period. It reads as follows (Council of Europe…1996):

> "Over the next twenty years circumstances will change; opportunities and challenges will arise which it is impossible to foresee at the moment. The strategy must be flexible enough to deal with changing circumstances, without losing sight of its overall aims. A structure of Action Plans, each covering a five year period, will make this possible.
>
> For every five year period, specific goals will be set. The Action Plans list the fundamental actions needed to realise the five year goals. These actions are based on the Strategy priorities and principles. The actions can be elaborated into projects, to be undertaken by a variety of organisations."

The two-year work programmes operationally describe how the action plans will be implemented. The Action Plan also serves to review and assess the Strategy. For this purpose, the concrete actions include clear goals, time frames, and expected results. This makes it possible to monitor the progress and compare the results to pre-agreed standards (Council of Europe…1996).

Improving the coordination of political actors

Due to the vertical and horizontal fragmentation of pluralistic, federal democracies, coordination of the political actors, with their preferences for differing goals and measures, is essential for the success of policy planning. In the *old paradigm*, the coordination of political actors and their goals and aims was not regarded as a serious problem. Against the background of separation of state and society, the state could trust in its implementation power even if the consensus building processes failed.

In the meantime, political science has learned that implementation power is scarce. Where it is available, it is not likely to be used due to mutual consideration of the interests of the political actors. If somebody pushes his interests against the resistance of others, he must expect their revenge sometime in the future (Sharpf 1993). This holds

particularly true with the rising complexity of the state. In all European countries, the complexity of the state has increased due to an increasing number of NGOs and above all the building-up of a supra-national layer in the form of the EU administration. Under these circumstances, coordination of the *new paradigm* is sought to be reached by consensus building processes via information and persuasion strategies, such as raising *public awareness* and *mediation*. Planning depends on political consensus; it cannot technocratically replace a lack of political consensus. However, political consensus is not a natural law. Consensus builds up and decays; it can be manipulated; and it can be built up and destroyed by means of information and persuasion strategies (Scharpf 1979).

Where political consensus is found, planning techniques and approaches can be used advantageously. But the key role played is by those mechanisms which enable or facilitate consensus building processes among political actors.

3. NATIONAL FOREST PROGRAMMES

Now it is challenging to find out how the new paradigm of policy planning can be applied to NFPs. For this purpose the experience of international institutions and cooperation agencies can be used as regards Tropical Forestry Action Programmes, National Forestry Action Programmes, Forestry Master Plans, and Forestry Sector Reviews as a means of achieving sustainable forest management. This experience is contained in the Report to the IPF by the "Expert Consultation on Implementing the Forest Principles – Promotion of National Forest and Land-use Programmes" held 6-21 June 1996 in Feldafing, Germany (Federal ministry for…1996) and in the FAO report "Basic Principles and Operational Guidelines for the Formulation, Execution and Revision of National Forestry Programmes" (FAO 1996). Furthermore, there is the chance to learn from the formulation and implementation of National Environment Policy Plans (FAO 1996) which have much in common with NFPs.

National sovereignty

The preparation of an NFP is a national initiative for which each country must assume full leadership and responsibility. This follows from the *sovereign right* of the states to use their forests according to their own environmental policies and development needs.

Goal

The overall goal of an NFP is to promote the sustainable management, conservation and sustainable development of all types of forest resources to meet ecological, economic, social, cultural and spiritual needs at local, regional and national levels in accordance with international commitments, through fostering national and international partnerships for the benefit of present and future generations.

In order to be able to monitor and evaluate achievements towards the overall goal, "the sustainable management, conservation and sustainable development of forests," the goal must be *defined as accurately as possible*, preferably in quantitative terms. Presently, the Helsinki Process is working on guidelines for Europe on sustainable forest management compatible with the six criteria previously decided. This will allow indicators of sustainable forest management at the national and sub-national levels of European countries to be derived. *If the target of sustainable forest management is left rather unspecified and vague, the whole NFP remains a symbolic endeavour.*

Goals always concern previously unsolved problems. The causes of the underlying problems must be revealed by *systematic analysis* of the restrictions responsible for policy failure. Otherwise the proposed actions will lack realism and will probably fail again. It is proposed to systematically *analyse the motivations, goals, positions, and resources of political actors who either comply with, ignore, or fight the desired behavioural changes*. The most appropriate policy mix, to influence the target group's behaviours should then be investigated on this basis (Grande 1995).

Coverage

NFPs refer to forests, forestry and the forestry sector in their broadest meanings.

"Forests" *encompass all components of the forest ecosystem in accordance with the definition of forests in the individual country.*

"Forestry" *or the* "forest sector" *refers to all forest or forest-related activities of human beings. It includes everything to do with the growing, harvesting and wise use of forest products, notably wood and non-wood products (e.g. conservation of flora and fauna found in the forests; protection of soils, landscapes and heritage sites, watersheds; forest-based tourism and national parks) and their main influence factors.*

Enhancing the rationality of policies

The overall goal of "sustainable management, conservation and sustainable development of forests" is complex. "Complexity" can be defined by the number of stakeholders from both the public and private sectors as well as by the number of relationships between them (Grande 1995). Thus, the NFP approach must be *comprehensive, holistic and inter-sectoral*. In particular, this means that forest management has impacts on the well-being of people who derive their living from forests and other people interested in protection against erosion, hunting, recreation, conservation, carbon sequestration, etc. Similarly, forest management is affected by the impact of other policies and practices in environment, conservation, agriculture, transportation and housing, land-use planning, etc. NFPs must consider these inter-sectoral linkages at the local, regional, national and global levels. A joint multidisciplinary effort is required.

When exaggerated inter-dependencies between forestry and other sectors exist, it is essential that stakeholders feel part of the process and are fully committed to it. Agenda 21 and the Forest Principles stress the need to develop a new and *equitable partnership*. Thus an NFP will strive to bring together all relevant stakeholders at the local, regional,

national and international levels. The strength of the partnership will lie in its ability to attract partners. Assuming rational behaviour, each partner will be prepared to undertake specific responsibilities and actions according to his abilities if he can expect potential advantages. The balance of central and decentralised, public and private institutions in the NFP process must be left to the national governments according to their particular interests.

The third principle for enhancing rationality of policy planning is the *participatory approach*. When necessary, all stakeholders should participate in the policy planning process, beginning with policy formulation through to implementation and evaluation. This means that even the goal of sustainable forest management is not predetermined, but subject to the negotiation process within international legally binding commitments such as the Helsinki Process. Through public participation, the divergent views and conflicts of interest of the various stakeholders are openly recognised. Thus, there is the chance to reveal conflicts as merely apparent ones, to establish new alliances and to put forward a process of social learning. Participation may strike a balance between forestry development activities and conservation goals in light of perceived present and future needs. Furthermore, it raises the awareness of the importance of forests for present and future generations. There exist various mechanisms used to promote consultation and participatory decision-making. Each country should decide which mechanism is most appropriate for its situation.

Ensuring long-term orientation

The National Forest Programming approach is a *long-term, iterative process*. The programme or plan is not the end, but rather a milestone in a strategic cycle of policy formulation, implementation, and evaluation. The iterative process is adapted to reflect changes in the environment and the acquisition of new knowledge – even during implementation. The various phases of the process are linked and in many cases overlapping.

The long-term nature of the NFP process raises the question of *institutionalisation*. While the time frames for planning for sustainable forest management go beyond terms of office and legislative periods, programmatic declarations by one government that are discarded by the next cannot ensure the achievement of long-term goals. An international commitment to a global forest convention would make the process independent of changes in national government priorities. However, the crucial point is that the process is sustained by strong political commitment at the national level. Public and private stakeholders should commit themselves to implement the measures mutually agreed upon during the planning period. For example, the Austrian Environment Plan is lacking such a legal basis and the effect is that its impact is very modest.

Improving the coordination of political actors

For long-term problems like forest degradation, caused by air-borne pollution, overpopulation of game, or wrong choice of tree species, *information and persuasion*

strategies – though important – may fail in coordinating various stakeholders. These problems are different from the problems of immediate threats by avalanches, torrents or slides. The difference lies in their unequal visibility and their suitability for the political agenda. Issues of the latter type are relatively easy to put on the agenda as they are selectively perceived by mass media. On the contrary, issues of the first type (such as forest degradation and its remedy sustainable forest development) do not raise immediate awareness. "Such problems require an anticipatory effort that could be expected from highly legitimised and competent institutions (top-down) rather than from broad mass mobilisation (bottom-up)" (Jänicke and Jörgens 1997). To a certain extent, these problems have not previously been solved due to powerful sectors with a strong economic, political and societal backing. Such interests have been able to ignore or fight off public demands for environmental protection (Jänicke and Weidner 1997). Therefore, "a strategy for sustainable development needs an enormous societal effort which won't be feasible with the traditional technocratic top-down pattern of public policy. More than anything, it needs the methodical improvement of its own framework conditions (capacity building). This includes the strengthening of networks of actors and strategic alliances" (Jänicke and Jörgens 1997). *Capacity building* through education, training, research, development of reliable data, and information systems, etc., is one of the main elements of NFP. It is necessary that the national policy and institutional framework is conducive to sustainable forest development. The integration of an NFP into National Development Plans, National Environmental Action Plans, National Strategies for Nature Conservation, etc., by using strategic long-term planning by political and societal actors seems to be promising (FAO 1996). International legally binding instruments and initiatives help bring about this end.

4. CONCLUSIONS

Evidence shows overwhelming support for a global forest convention by most European countries, particularly by the European Union as expressed by the Council in March 1995, the EU's Forestry Strategy, and finally by Commissioner Ritt Bjerregaard in the Club de Bruxelles on 22 May 1997. The development and implementation of national forest programmes is an integrative part of a global forest convention. Because of the support and importance of NFPs, one could imagine that the Pan-European Process on Conservation of Forests in Europe would put the topic of NFPs on its agenda. It could bridge the transition period from now until a global forest convention is passed as a non-legally binding resolution – perhaps at the forthcoming conference in Lisbon.

On the other hand, *there are also some reservations and objections to national forest programmes* as a means of ensuring sustainable management, conservation, and sustainable development of European forests.

It is true that a forest convention would provide equal standards of competition for all timber producing countries of the world, but this could be accomplished in developed countries without national forest programmes. It is argued that national forest programmes have been successful in *forest development assistance* and should be restricted to this purpose. There is no need for national forest programmes in developed

countries, because sustainable forest management has been state-of-the-art there for 200 years. As there are many European countries with long-run experience in national forest programmes – one of the most prominent is Finland – this position can easily be checked against empirical evidence. Besides that, the position of refusing NFPs would not increase the credibility of the developed world in negotiating a global forest convention.

Another critical argument comes from *countries with federalist organisation*, where the responsibility for forests belongs to the provinces. This may be one of several reasons why the USA did not support a convention at IPF-4 and CSD-5. Forest agencies at the provincial level in these countries may be afraid to give up responsibilities to the federal government if they are forced to coordinate and integrate their provincial plans into a federal forest programme. And it is easy to imagine that the forest bureaucracy at the national level finds itself in a similar situation vis-à-vis the EU institutions which are ambitious to expand their responsibilities in forest matters. This multi-layer policy making is no special forest issue. Many policy scientists are dealing with this issue and we can certainly learn from their results.

A further argument against NFPs comes from *powerful interest groups* with strong political and societal backing. Due to their strong influence in the forest policy making system, some of the problems with regard to sustainable management, conservation and sustainable development of forests may be caused by them. Why should they be prepared to share their political strength with other stakeholders representing opposing interests? What can they gain? Many branches of the social sciences are dealing with these non-forest specific topics; they are generic problems of governance in the modern state. Research results promise benefits from: social learning in policy networks, the potential of win-win solutions, and economic advantages for those participating in the planning process, etc.

There are certainly many more arguments and prejudices against national forest programmes which may be true or false. In any case, *it is a challenge to forest policy science to check them and to possibly replace them with empirically based scientific assertions*. That is why the European Forest Institute organised a *scientific conference on the formulation and implementation of national forest programmes in Europe* in May 1998 in Freiburg im Breisgau. In that way, EFI may also play a role in ensuring the sustainable management, conservation, and sustainable development of European forests.

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THE ROLE OF EUROPEAN GOVERNMENTS AND THE EU IN THE DEVELOPMENT OF SUSTAINABLE FOREST MANAGEMENT

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ABSTRACT

This paper presents the view of WWF – the World Wide Fund for Nature – on the actual situation of the Pan-European Process, also known as the Helsinki Process. Recognising the political importance and achievements of the process, the effect on the ground is less successful. In the following areas of the Pan-European Process, progress is needed:

1. A recognition that the collection of data alone, without setting targets, is insufficient for the assessment of national progress towards sustainable forest management.
2. Data collection should be improved (especially on the social and ecological side) in collaboration with the Temperate and Boreal Forest Resource Assessment.
3. Active implementation should be enhanced (allocate funds!) by e.g. establishing a permanent Forest Biodiversity Monitoring System, a Forest Protected Area Network, a Forest Habitats Reconstitution Programme, extension and financial incentives esp. for small forest owners, etc., and by collaborating with other processes like the Pan-European Biodiversity and Landscape Diversity Strategy (PEBLDS)
4. Claims on SFM cannot directly result from the Pan-European Process but require credible certification based on independent third-party assessment and participatory performance standards setting processes; the area of independently and voluntary certified forests should be used as an indicator for the quality of production forests management.

1. INTRODUCTION

The 1990s will be remembered for important world-wide political commitments from governments to protect the world's forests from destruction and biodiversity loss.

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Europe's regional efforts in line with UNCED (Forest Principles, Agenda 21, Conventions on Biodiversity, and Framework Convention on Climate Change) to protect the environment and therefore the forests as one of the most important habitats for biodiversity lead to the adoption of four Resolutions at the 1993 Helsinki Ministerial Conference on the Protection of Forests in Europe (Ministerial conference on… 1993). This was the second Ministerial Conference of this sort, the first having been held in Strasbourg 1990. Two of the Helsinki Resolutions are of particular relevance for sustainable forest management:

Resolution H1: General Guidelines for the Sustainable Management of Forests in Europe;
Resolution H2: General Guidelines for the Conservation of the Biodiversity of European Forests.

After the Conference, the so-called "Helsinki-" or "Pan-European Process" began, as an effort to implement these resolutions. More detailed Criteria and Indicators were prepared to allow countries to track their progress in implementing the resolutions, and some countries like France (CIB 1997) and Finland (Ministry of Agriculture…1997) published rather ambitious national progress reports. The first European Progress Report was published in 1996 (Ministerial conference…1996).

In recent years, European governmental representatives have often cited the Pan-European Process as a model of efficient action towards sustainable development in forests in the rest of the world.

Is this really the case?

The success of any political effort has to be judged against its impacts on the ground rather than on written reports and statements. Considering the situation in Europe, positive results like some changes in national legislation and reduction of sulphur dioxide must be counterbalanced by major threats to forests. Specifically: Atmospheric pollution (esp. nitrogen and ammonium) is increasingly acidifying forest soils, large areas of Mediterranean forests are burned, desertification is increasing, last remnants of European natural forests are logged, several rare forest habitats are threatened by construction, transport or inappropriate management, and many others (Dudley 1992). Moreover, several political commitments are not met (the EU Natura 2000 Network is far from being established).

Furthermore, what is often cited as a proof of the well-being of European forests, that is, the increase in forest area and growing stock, is not something Europe should necessarily be too proud of:

Is it really such a success that the forest area is increased on a continent that has lost already approximately 70% of its original forest cover? Isn't the main driving force for afforestation a change in agricultural policy? Isn't the increased forest growth the result – besides improved management – also of anthropogenic nitrogen input, an artificial fertilisation which could also have negative long-term effects?

From these examples it is clear that considerable increase in capacity and political will is needed to transform written political statements into concrete and effective action.

2. MAJOR WEAKNESSES OF THE PAN-EUROPEAN PROCESS

a) Lack of quantitative or qualitative targets set for what should be achieved in the implementation of SFM in Europe.

Resolution H2 refers to the commitment of signatory states to "establish a coherent ecological network of climax, primary and other special forests aimed at maintaining or re-establishing ecosystems that are representative or threatened". However no progress has been made on defining how much and where forests should be protected to fulfil this commitment. WWF has said that this network should cover a minimum of 10% of each forest type in Europe (WWF/IUCN 1996). All European governments should follow the example of Finland, Greece, Lithuania, Romania and others who already made concrete protected area pledges, e.g. the Greek General Secretary of Forests announced that "...on the basis of the Natura 2000 Network for Special Areas of Conservation, we will proceed in the creation of new forest protected areas, of different types, with a final target -the increase of the current 3-4% to 10% of the total forest cover of our country."

Governments should in the framework of the Pan-European Process put concrete numbers on the criteria they have defined like enhancement of European Forest Cover by x % in 10 years or set target loads of atmospheric pollutants according to critical loads for forest health protection, etc. Each Criterion and Indicator should be accordingly defined with an ambitious but achievable target. WWF acknowledges the difficulties for governments in doing so but otherwise current efforts will remain nothing more than rhetoric.

b) Poor quality of existing monitoring and data collection

A look at the 1996 Progress Report (Ministerial conference…1996) reveals a number of glaring examples. One of them is the very poor data available on endangered forest species: Italy reported 10 tree species and the Slovak republic 2200 species! Here again, neither a commitment to set up species recovery programmes has been made, nor has a harmonised system to monitor biodiversity been set up.

The vast majority of scientists in the sector of forest biodiversity stress the importance of long-term monitoring at different scales as a fundamental basis for political and management decisions. But nearly all those involved in such monitoring have suffered from severe budget cuts in recent years. It is imperative that every subnational, national and regional process is allocated with a specific and sufficient budget.

The European Commission FAIR Programme has under its first two calls financed 16 forestry related projects, all of them relating to production and industry, none of them to biodiversity and conservation (European Commission, DG XII 1996). It is now time to focus our efforts on those areas we know less about: namely the effects of management methods on biodiversity, development of adequate indicators for ecological sustainability, monitoring of forest ecosystems, etc.

One concrete action point could be the establishment of a **European Permanent Forest Biodiversity Monitoring System** through the enhancement of the current EC/UNECE forest health monitoring system (European Commission 1996a) to include the establishment of sufficient numbers of permanent plots where all aspects of forest biodiversity are monitored including flora, fauna (insects and bryophytes/mosses/lichens in tree and soil), soil chemistry, etc.

Better links to the UN ECE/FAO Temperate and Boreal Forest Resource Assessment (TBFRA 2000) and the Pan-European Biodiversity and Landscape Strategy (PEBLDS) are needed rather than duplicating their work (Dudley and Elliot 1996).

c) Use of the Pan-European Process by some to make misleading claims concerning Sustainable Forest Management (SFM)

WWF has always, and always will, challenge any initiative that suggests to the consumer that a simple label of origin with general descriptions of the sustainability requirements is enough to make a sustainable forest management claim. This situation already exists with the EU Eco-Label Regulation for copying paper (European Communities 1996), where only a self-declaration stating that the wood fibre comes from forests managed according to the Helsinki Principles is required.

Another misleading activity is the current development of Field Management Level Unit Guidelines within the Helsinki follow-up process. There is currently confusion about why and for what these Guidelines are being developed and even about the definition of Field Management Unit (ranging from single ownership to a whole country). Why should a forest owner change his management practices according to these Guidelines if there is no legal, financial or other incentive like a certification scheme attached?

The Helsinki process was designed to collect descriptive information on the status of forests at a national and regional level, not to make normative assessments of the quality of forest management in particular areas. This is the task of certification (Elliot 1997). In WWF's view, the Helsinki process cannot lead to forest management unit level certification for the following reasons:

- Certification has to be independent and voluntary in order to keep credibility on a global level, to date government and forest owners claims on sustainability of forest management have not proved to be credible as all governments already claim having one of the most sustainable forest practices in the world;
- despite a mandate set in the Resolutions, the Helsinki process has not set the framework for a participatory process that can set standards for good forest management at the local/regional level;

- the set of Helsinki C&I does not contain performance standards at the national or regional level, so it is impossible to extract from them performance standards at a field level.

The Certification of forest or forest management at the level of forest management units should be left to internationally recognised, voluntary and independent systems using e.g. FSC performance standards and systems standards like ISO or EMAS. The links to the Helsinki process would be set through the legal framework and elements of National Forest Programmes. Principle No. 1 of the FSC Principles requires compliance with international and national laws and rules.

The title of FMUL-Guidelines should accordingly be changed to read something like "Recommendations for independent national, subnational or other initiatives and processes for forest management standards definition".

The misuse of Helsinki C+I as a framework for national, subnational or even European "forest authentication" or "forest registration" systems as favoured by forest owners and some governments, and based on "self-performance setting and self-control" without any independent performance-based and chain of custody control mechanism, is most misleading for consumers of forest products. A much more productive and credible approach would be to help to adapt the existing systems, like the FSC, to the European situation.

An example would be to **create an aid scheme under existing EU structural funds regulations for small forest owners – helping them to establish forest management plans and obtain independent certification of their forest** to counteract possible structural disadvantages.

3. WHAT CAN GOVERNMENTS AND THE EU DO TO MAKE THE PAN-EUROPEAN PROCESS A TRULY SUCCESSFUL EFFORT TOWARDS IMPROVING THE QUALITY OF EUROPE'S FORESTS?

In WWF's perspective there is a clear role for governments in the following areas:

a) To provide the legal framework for forest protection and management, including financial incentives/disincentives and trade regulation

An example: the current Latvian forestry code prescribes management methods like the clear cutting of wet forests as mandatory forest practice, regardless of the current environmental or economic situation.

All national legislation should put equal emphasis on environment, socio-cultural and economic forest values.

b) To guarantee the integration of forest protection and management issues within other policies and implementing existing international commitments (Agenda 21, CBD, EU Habitats Directive)

One of the major forest policy problems is the result of the past reluctance of the forest sector to cooperate with other sectors of society. Facing growing pressure

from public demands on forestry, several public forestry authorities have been seen to react in a defensive way, struggling to maintain their competence rather than trying to resolve the loss of the European forest quality. The refusal to implement the Convention on Biodiversity before creating a new Global Forest Convention has its origin in the fear of environment authorities' overtaking competence. But the reality is that the Pan-European Process Resolutions cannot be implemented by the forest sector on its own. A strong collaboration with environment, industry and social partners is a prerequisite of ensuring a broad acceptance and avoiding double work or even counter-productive actions by the different partners.

c) To carry out national forest assessments revealing the state of the forests in their country.

d) To provide knowledge through research and forest education/training.
   - There is a need to redirect the priorities set in the European and national research programmes.
   - The trend of reduce funds for the whole forest biodiversity research sector has to be reversed.
   - Information exchange and education for forest owners about modern (nature-oriented) forest management methods and objective information about certification is lacking in many countries. It is particularly important to allow small forest owners access to accurate extension.

e) To facilitate, support and advise on the implementation of independent, voluntary certification systems in their country including the elaboration of Criteria, Indicators and Standards for best practice forest management:

   A number of international fora, for instnace the Intergovernmental Panel on Forests, have recognised the role of certification in the promotion of appropriate forest management. Any certification process has to be – in order to stay credible at a supranational level – independent, voluntary and based on third-party performance based evaluation. Without being directly involved and mandating the process, governments and the EU should play a more active role in facilitating the building of consensus amongst stakeholders, and promoting credible initiatives within their country.

f) To use best practice forest management methods for their own public forests and ultimately seek independent certification for them:

   Approx. 40% of the forests of the EU are publicly owned, while 26 % are owned by the states (European Commission 1996b). Public forests are an obvious place where governments can show "on the ground" that they take the effective implementation of the Helsinki Resolutions seriously. But self-assessment is not credible as currently all national or regional reports on the current status of public

forests emphasise on their perfect sustainable state and therefore all public authorities should seek to have their forests certified by independent and globally credible systems based on independent third party certification like the FSC. The Dutch, Polish and the Flemish state forest services are giving an encouraging example in already seeking FSC certification for their forests.

g) To promote the use of certified products e.g. in public construction projects:
More and more actors in the forest sector are calling on the EU and the governments to undertake a major effort to promote the use of wood products – regardless of the fact whether they come from well-managed forests or not (Economic and social…1997; European Parliament 1996). WWF recognises that wood products are – compared with non-renewable materials – potentially environmentally friendly products, and of course the economic well-being of forest owners is an important factor towards sustainable forest management. But if the origins of these products are, for example, the last remnants of old growth forests or other threatened habitats that have been forever destroyed by the logging operation, the environmental balance is less positive. On a global level, a number of countries already is suffering from a catastrophic shortage in their wood supply. This shows us that wood is too valuable a product for it to be processed and used in a wasteful way. Only the use of wood products that have been independently certified as coming from well-managed forests and where chain of custody has been efficiently traced should be promoted by all stakeholders. Public authorities can contribute to this by using certified wood in their own public construction or energy supply.

4. CONCLUSION

WWF has actively participated in the Helsinki (Pan-European) and Montreal processes, the Temperate and Boreal Forest Resource Assessment and the Forest Stewardship Council. We view all of these initiatives as useful, and complementary although they each have different roles.

Concerning the Pan-European process we think that progress is needed in several areas. Specifically:

1. a recognition that the collection of data alone, without setting targets, is insufficient for the assessment of national progress towards sustainable forest management.
2. data collection should be improved (especially on the social and ecological side) in collaboration with the temperate and boreal forest resource assessment.
3. the Pan-European Process should make clear that claims on sustainable forest management cannot directly result from its Resolutions, Criteria, Indicators or other FMUL Guidelines
4. cooperation with environmental ministries and organisations should be enhanced in an collaborative way rather than wasting energy on competence arguments.

5. qualitative indicators should be further developed and upgraded to be treated at the same level as quantitative ones, as in the Montréal process (1997).
6. the process should become a forum for reviewing national forest policies and programmes and assessing national compliance with the Helsinki Resolutions, rather than just giving a benediction to the status quo.
7. the process should consider using the area of independently and voluntarily certified forests as an indicator for the quality of forest management in production forests.

The Third Ministerial Conference on the Protection of Forests in Lisbon 1998 should:

- set clear targets to be achieved by its signatory states until the Fourth Ministerial Conference;
- reinforce and secure the implementation of existing resolutions (including the establishment of a **European Protected Areas Network** and a **Forest Habitats Restoration Programme)** before taking new actions;
- create better linkages between existing international (IPF, CBD, FCCC, PEBLDS, TBFRA 2000) processes.

The Pan-European Process already has lead to some encouraging efforts by some European states to improve the sustainable development of their forests. But much stronger efforts are needed if Europe really wants to become a leading continent in that matter. The framework is set, let's start with effective implementation and adequate action.

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SOME CRITICAL REMARKS ON THE PRESENT SITUATION OF EU FOREST POLICY

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ABSTRACT

In this paper, the consequences of the formal lack of forest competencies of the European Union are analysed. A proposal of common forest policy principles in the EU is developed in order to assure a real common market in forestry, as well as the specific forest policy measures that may be reasonable at the European level in the framework of subsidiarity.

1. ANALYSIS OF THE PRESENT SITUATION

1.1 The lack of a formal competence does not prevent the EU from intervening in forest policy

The lack of any formal competence in forestry does not prevent a growing intervention of the EU in forestry and forest policy. This has a growing effect on the formally national, in the federal States regional, competencies. This occurs at the back door of other policies where the EU disposes of enough legal basis (1) Common Agricultural Policy – CAP; (2) regional policy; (3) environmental policy; foreign policy; etc.). Thus, the EU activities in forestry lack co-ordination and forest objectives (alienation). This process is increasing as forests are becoming a growing subject of social interest. An example are the different General Directions of the Commission in forest matters (at least 9). This has the following consequences:

- the factual lack of State/Region nominal competencies
- the growing difficulties for the lobby work of the forest owners and other forest organisations by the dispersion of counterparts, and the easy excuse that they lack competence and thus, any responsibility towards forestry.

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1.2 The illusion of the marginality of forestry

In the past decades there has been, especially in Southern and Middle Europe, a continuous process of a growing abandonment of the forests. Leaving aside the non-productive functions, the net revenue of the forest owner is normally less than 3% of the wealth generated by his activity. However, if profitability falls below a minimum threshold over a long period, the natural consequence is the abandonment of the forests, something that not only threats sustainability, but also excludes the generation of the remaining more than 95% of the economic activity linked to forestry (forest workers, machinery, transportation, taxes, industry, commerce, etc.).

The analysis limited to the primary production or the profitability of the forest owner, separating productive functions from the other functions (non-market services), is the cause of a structural political undervaluation of the relevance of forests and forestry:

- at an institutional level;
- at a spatial level: intent to separate productive from protective forests forgetting that under European conditions all forests have important protective functions, but are also potentially productive.

It has to be recognised that under the present cost/prices relations many of the European forests remain below the threshold of profitability. That is, in fact, presently the main threat for sustainable management in Europe's forests.

1.3 The insoluble problems of dispersal and inefficient competence distribution

The EU members have replied to this complex situation according to their priorities and possibilities, offering forestry:

- aids to investments and running costs;
- loans; and
- specific taxation

The main disadvantages of this situation are:

a) the possibilities of the States/Regions to establish direct and indirect incentives vary greatly (BIP/km^2, weight of forestry in the economy, profitability of their forests, weight of externalities, etc.); this is the cause of the great differences in forest policies (more than of the natural conditions) that may origin market distortions; and
b) the tendency in all member States (except in Sweden and Finland because of the impossibility to assume this cost by the budget) to compensate the loss of profitability by a progressive extension from investment aids to maintenance aids argued by the market failure of externalities, something that may in fact distort the market of wood.

1.4 The distortions of other related EU policies (CAP, environmental policy, foreign policy, regional policy, etc.)

The CAP designed by de Gaulle as the key spatial balance instrument of the incipient European Common Market is still the main redistributive instrument of the EU (1.5 times all the other EU-funds together: Social, Regional, Cohesion). Its consequence is that densely forested regions (Aquitane, Pyrenees, Alps, Scandinavia) or with perishable productions (Mediterranean) are totally excluded from the main redistributive fund of the EU. Leaving aside an efficiency analysis, it is a highly political question in which the forest sector should become an active defender of the excluded areas. Other negative by-effects are:

a) The incentives to afforestation, financed to reduce the surplus problem, originate great distortions in the election of the afforestation land in countries with important non-covered forest areas or old abandoned marginal land, in which afforestation has objectively a much higher priority than the presently cultivated farm land.
b) The incentives to set aside (land, farmers) intensify the landscape simplification process, loosing the traditional mosaic structure (negative consequences for fire risk, biodiversity, hunting, landscape, etc.).
c) After the failure of the CAP, forestry is misused to solve the problem; in reality forestry is the only economic activity that lacks the set aside alternative.

The CAP disposes previously to the approval of the Natura 2000 network of an operative compensatory instrument (Regulation 2078/1992). Though the restrictions of Natura 2000 will be at least as intensive in forestry as in agriculture, forests are excluded of any EU-compensations and EU-solidarity as their funding corresponds to the CAP and their objective is the reduction of surplus. Thus the EU obliges the member States to a certain protection level of their forests without financing any of the costs. As population density and BIP/km^2 vary substantially in the EU, a strict application of subsidiarity supposes in fact a deep insolidarity towards the affected regions, either their public budgets or the involved forest owners and the development options of this areas.

Finally, the EU foreign policy is increasingly assuming important compromises for European forestry that may limit and condition the formal competencies of the States/Regions in forestry without disposing of the means to assure its implementation. Without entering in the discussion about its convenience, their consequences may suppose an increase of costs that can not be afforded for the affected States/Regions what may cause a rejectable blocked situation. Because of its rich biodiversity, high fire risk and low profitability, Mediterranean countries are the most affected.

1.5 Conclusions

- After the last enlargement, the EU is the world's second largest producer, market and consumer of wood after North America. The balanced situation between offer

and demand, and the relevance of the forest chain for the less populated areas of the EU are reasons enough to define the forest chain as a strategic sector for the EU.

- Forests have become a key item in modern society. This opens a unique opportunity, but also the risk that by inert of overcome policies (fear to change) the occasion is left and other groups determine by the back door other non-specifically called *forest policies* that though will have decisive consequences for forestry.
- Because of the relevance of non-EU forests for the climate and biodiversity, the fact that the EU expenditure for non-EU forests is higher than for EU forests is at least remarkable.
- The difficult profitability situation of forestry in many EU countries, and the coincidence in not giving up forestry are the causes of the appearance of comparable processes to CAP (aids) that may suppose:
  - the loss of the entrepreneur spirit of an activity like forestry which is strongly influenced by the public services;
  - distortions in the wood markets between member countries by the amount of forest aids.
- The increasing complexity of the factual distribution of forestry competencies makes the adaptation and implementation of integral policies to the present conditions and main challenges quite difficult.
- The European Parliament has defended during the last 20 years the necessity of a minimum and reasonable EU competence in forest policy, especially after the recent approval of the Thomas Report (30.1.1997).
- The existing contradiction between the growing forest resources in Europe and a society that expects an increasing number of free services from them in a phase of low (non) profitability of forests leads to an extremely dangerous situation that threatens the future of the resources and requires active forest policies.

2. PRINCIPLES

2.1 Principles

- If a forest is socially profitable, it has to be also profitable for its owner. If private forestry should be preserved in Europe as the characteristic ownership tenure, a solution has to be found for the forests that under the present conditions are below the threshold of profitability, especially in Southern Europe. If an appropriate answer lacks, the alternatives are even worse:
  - abandonment (and destruction by fire)
  - increment of state forests.
- If society demands more than a minimum level of the non-productive functions, forest owners will have to be compensated for this marginal cost (enlarged Wake theory).

- By the challenge of Maastricht, the budgets of the States and Regions do not dispose for the next years of the margin to assume their costs. The risk lies in increasing restrictions based on the social commitment of ownership without compensation (lack of cost elasticity). This is especially critical for less populated regions where budgets cannot afford this cost and where the restrictions have higher impacts in the local economies.
- Market and market simulating instruments are much more efficient and just (the aim is to incentive the offer of positive externalities) than administrative restrictions.
- Though slowly and externally forced (GATT, surplus problem, Maastricht, enlargements of the EU, etc.), CAP develops in a convergent direction with forest policy:
  - progressive renationalization of competencies and financing;
  - progressive reduction of the EU competence in agriculture to a subsidiary competence like in other fields (transport, environment, etc.);
  - progressive turn back of the market for agriculture production;
  - compensation of the positive externalities as a second income block for farmers

Social short-term measures should not confuse the analysis.

2.2 Conclusion

Though a direct implication of the EU in each forest incentive mechanism is not necessary, the differences described in 1.3a may distort the market unity of wood and in any case suppose a clear discrimination between forest owners along the EU. All this promotes a harmonic answer between the policies applied in each country and the subsidiary EU policy.

1st step: to accept multifunctionality of forests and its consequences for forest policy. (Many European forests can not sustain by their own in short and medium term the cost of a sustainable multifunctional management, but they can offer to the society enough externalities to justify the compensation of the differential costs).

2nd step: the compensation of this differential cost can be implemented by:

a) regulated and protected wood market (like in agricultural products);
b) aids to maintenance costs;
c) internalisation of positive externalities.

→ a) has to be rejected because of its inefficiency (see CAP), distortion of the wood market, indirect promotion of substitution of wood, etc.

→ the discussion lies between b) and c)

Nevertheless, long term investments like new afforestations or road construction will always have to be incentived with high direct aids (70-90%).

3. EUROPEAN FOREST POLICY STRATEGY

3.1 Implementation

Whereas institutional questions (C1) and principles (C2) should be approved unanimously, the other chapters, once defined unanimously, could be developed and modified by a qualified majority.

3.2 Institutional questions

There are only two alternatives:

a) To recognise the UE as a subsidiary competence in an increasing number of political fields (transport, environmental, economic, taxation, social, etc.). This kind of competence has nothing to do with a Common Forest Policy (today there is only one political field with a common policy: agriculture) or an enlargement of the CAP to forestry. The specific juridical formula is a pro forma question that should not distract attention from the main problem.
b) To accept the erratic, uncoordinated and alienate policy of the EU towards the European forests forced by an absolute respect to the formal competence of the States/Regions in forest policy. Those who defend this option should not criticise its natural consequences (see 1).

This is probably the last opportunity to achieve a specific forest policy thanks to the present social relevance of forests. If not, forests will be neglected, as it happens in many countries, overcome by other policies of higher socio-economical relevance (agriculture, environmental, etc.).

It may seem a paradox, but in order to assure the maintenance of the main forest policy competencies at the State/Region-level, it is necessary to assure a common and harmonic frame to forestry over the EU. This is nothing else than specifying the implementation of the subsidiary principle in forest policy, where the superior level only assumes those competencies that may be answered more efficiently. Subsidiarity does not suppose an absolute lack of competencies of the superior level.

If we choose a) leaving aside b): At the institutional level, the reasonable implementation of the subsidiary principle would consist of:

- The unification of all the scattered forest units of the Commission into one General Directorate of Forests

Due to the increasing social interest towards forests and the necessity to find political fields for the new Commissioners after each enlargement of the EU, it would be even possible to think about a specific **Commissioner** for Forests (interior as well as foreign). The higher the level of the counterpart, the stronger the effect of the lobby work of the forest sector and the less the risk of dispersion of the competencies and decisions. The consequences of the opposite policy are in everybody's mind.

- a specific Minister Council for Forests
- a specific Forest Commission of the European Parliament (not only a temporary Intergroup)
- a strong and operative Forest Consulting Committee not alienated by other forces (farmers unions, environmental NGOs, etc.).

3.3 Principles of sustainable forest management

The principles of sustainable forest management have been already accepted by the EU in the Interministerial Conference of Helsinki (1993), so that there should be no problem in translating them to a EU juridical document. Sustainable forest management in the EU would be guaranteed by:

- permanent national forest inventories;
- forest legislation (reasonable legal frame);
- implementation of the legislation;
- exercise of the forest policy competence by the States/Regions in order to amend, if necessary, sustainability conditioning processes;
- origin label of European forest products (wood, cork, etc.).

3.4 Harmonisation of the forest functions

The productive function should be, in this case, clearly separete from the non-market services (externalities).

- productive function: regulated by a free world market
- other functions (externalities): demands that pass a legally binding minimum should be compensated by market simulation instruments (internalisation), financed by:
  - public eco-taxes (water, CO_2);
  - private eco-taxes (specific advantaged groups like: tourism, roads maintenance services, electricity suppliers, rubbish services, etc.);
  - public budgets (biodiversity).

Principles

a) an harmonic frame for internalisation through the EU
   - exclusion of indirect promotion of wood production as a compensation for other functions;
   - simulation of the non-existing market for the other functions
   - compensation function by function;
   - necessary relation compensation/offer of services;

- geographic frame for internalisation:
  - water: watershed
  - CO_2: EU

b) exclude absentee phenomena by:
- prescriptive management plan
- objective base for internalisation
- low minimums

c) progressive abolishment of maintenance aids even if financed only by the States Regions.

d) European Forest Fund (50% EU, 50% Member States) sufficiently dimensioned, addressed to:
- afforestation (primarily non-covered forest land):
  - independently of the objective and previous use
  - possibility to limit afforestation in high forested areas
- other investments (roads, restoration of degraded forests: coppices, cork oak)
- reversion of CO_2 tax for growing stand increment
- fires/pollution: prevention and restoration (not via a specific Regulation)
- R & D
- promotion of wood
- compensation of Natura 2000 (Regulation 2078/1992 for forests)
- abolishment of forest measures over the CAP-budget

This Fund would be ruled by the Commission applying the rules of the Minister Council for Forests.

e) respect the specific characteristics of forestry in the taxation harmonisation
- Revenue tax (long forest cycles, saving function/capital binding of forestry, externalities, etc.).
- Wealth and Inheritance (low quotient revenue/capital, high social commitment of ownership).
- VAT (same level for farm and forest products: low VAT).

3.5 Promotion of forest products

One of the most reasonable measures at a higher level is the promotion of use of forest products, specially wood, by:

- R & D
- promotion campaigns

In the case of promotion, the translation and adaptation costs for each country are much less than the savings by scale economies. In I&D, the advantages of a EU-level action are evident. I&D could be financed half by the European Forest Fund and half by a specific tax like in Germany (0.5% of the sellings). R&D would be executed by the DG XII under the priorities fixed by the Minister Council of Forests once consulted the Forest Consulting Committee. The promotion of wood would be implemented through a specific marketing agency ruled by the EU and the representative organisations of the forest sector (forest owners and wood industry) at the EU level.

3.6 Information and harmonisation

Though positive steps are evident, it is necessary to intensify the exchange of actual information, the harmonisation of applied units, to improve the collecting and offer of disperse, low, costly and old information in order to overcome one of the main handicaps of the forest chain in relation with other areas (North America) and substitution materials. In the time of Internet this should be realistic. EFI could assume an important role in this area.

3.7 Foreign forest policy

The increasing foreign competencies of the EU are forcing it to assume compromises in the name of the EU-forest, though lacking of competencies and instruments to assure its implementation. On the other hand, forests are an important object in the foreign forest policy, especially towards the developed countries. In order to avoid negative side-effects due to the lack of knowledge, it seems reasonable to concentrate all the know-how about forests, including the foreign policy, in one unit of the Commission: the proposed General Directorate of Forests. Only by an integrated forest policy the complex present challenges of forests worldwide may be faced by a minimum probability of success without dissipating efforts on fairly testimonial actions.

4. CONCLUDING REMARKS

Despite the huge differences in natural conditions in our small continent, the historical and social common roots give to Europe's forests an overall important common identity hardly to be compared with other continents. Imported tools like eco-certification or isolated nature protection strategies (national parks) do not adapt themselves to European conditions. Neither should Europe try to generalise its strategies worldwide as conditions of ownership, settlement, culture, etc. are extremely different, nor to import strategies from other continents designed to their but not to our specific conditions.

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Table 1. Comparison of the costs of the C.A.P. in the EU (1994)

State	A	B	DK	D	E	F	FIN	GR	IRL	I	L	NL	P	S	UK	UK(12)	UK(15)
Agricultural area (millions ha)	3,464	1,383	2,712	17,308	28,929	30,34	2,522	5,163	4,407	16,743	0,127	1,963	3,990	3,438	15,889	128,957	138,381
Cost FEOGA-Guarantee (millions ECUs)	-	1.170	1.278	5.180	4.408	8.001	-	2.719	1.480	3.461	12	1.916	708	-	2.939	33.271	-
Cost FEOGA-Orientation (millions ECUs)	-	59	43	680	545	620	-	266	178	263	10	32	510	-	130	3336	-
Cost/ha FEOGA-Guarantee (ECUs/ha)	-	846	471	299	152	263	-	527	336	207	94	976	177	-	185	258	-
Cost/ha FEOGA-Orientation (ECUs/ha)	-	43	16	39	19	20	-	51	40	16	79	16	128	-	8	26	-

Source: CCE (1996).

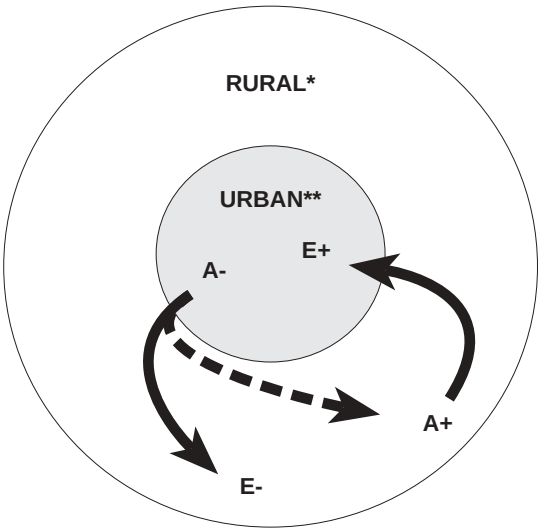
Table 2. Comparison of forest incentives (taxation and aids) over Europe

Tax Concept	GB	IRL	F	B	NL	D	CH	DK	N	S	I	E
Revenue	0	0	1160/ha	680/ha	0	20%	10%	6.870/ha	27%	35%	990/ha 34% (12-62%)	24% (10-56%)
Corporation	0	0	?	?	?	19-53%	?	?	?	?	36%	35%
Inheritage	0	8% 13.000/ha	0	5% 55.000/ha	a) 0 b) 7.5% 61.500/ha	7% x 160DM/ha = 1.000Pts./ha	0	25% 172.000/ha	3.8% 3.863/ha	4% 2.795/ha	0 (0-30%)	4% 4-20.000/ha
Land	0	0	1032/ha	0	0 2.050	234/ha (30-1500)	220/ha (0.01%)	3.664/ha	0	0	16.2% 472	0
Wealth	0	0	a) 0 b)0-1.1%)	0	a) 0 b) 3.280 (0.4%)	0(0.5%)	880/ha (0.04%)	0.1% 687/ha	0.6% (1.0-1.3%) 592/ha	0 (0-3%)	0	0
Forest aid Total (M Pts.)	4.576	2.080	3.767	76	2.706	13.892	4.730	295	7.210	4.932	-	2.500
Private forests (M ha)	1.44	0.3	10.2	0.33	0.14	5.1	0.31	0.34	5.1	17.2	-	8.25
Pts./ha	3.178	6.933	369	229	19.329	2.724	14.968	869	1.414	287	-	303
Change	196	200	24.9	4.16	76.4	85.4	104.0	22.1	19.6	17.6	0.078	1

In Pts. Change: 8.9.1995. M: milions, Millionen, millones. **Source**: Grayson (1996).

Table 3. Estimation of the annual budget of the proposed European Forest Fund (EFF)

Concept	Measure	Cost per unit (ECUs)	Total cost (M ECUs)
Afforestation	600.000 ha	2.000/ha	1.200
Road construction	50.000 km	7.000/km	350
Regeneration of degraded forests	500.000 ha	1.000/ha	500
Forest fire prevention	-	-	300
Pollution	-	-	100
R&D	-	-	150
Promotion of forest products	-	-	50
Habitat 2000/Biodiversity	5.000.000 ha (5%)	30/ha	150
Total	-	-	2.800
UE:	1.400 (50%)		



E+ Positive environmental effects
E- Negative environmental effects
A- Incentives for reduction of negative environmental effects (ecotaxes)
A+ Incentives for non-commercial services (ecotax reduction)
=> Economic compensation
* Rural areas: forest, farm land, heath, high mountain, wet areas, beach, river, lake, sea etc.
** Urban areas: urbanized areas, industrial areas, infrastructure, mining, dumping areas, etc.

Figure 1. Proposed eco-tax reversion model for forestry

SESSION III

ENVIRONMENTAL VALUES AND ECONOMIC ASPECTS IN SECURING SUSTAINABLE FOREST MANAGEMENT

Moderator: Prof. Dr. Birger Solberg

FORESTS FOR THE FUTURE

Ola Ullsten

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1. WHAT IS THE WCFSD?

An independent Commission created by the Interaction Council, which is a group of former Heads of State and distinguished persons, in 1994 and comprised of 25 distinguished political, scientific, environmental and economic policy leaders from both the North and South.

2. MAIN AREAS OF CONCERN

Since its first meeting in mid-1995, the Commission has been concerned with the following issues:

- To listen to the perceptions and evidence of a wide range of different stakeholder groups around the world on the key issues of:
  - how much forest needs to be preserved?
  - by whom and how should the forests be managed?
  - for whose benefit?
- To draw conclusions and develop recommendations for regulated institutional, fiscal policy reforms and political actions that will foster more equitable and environmentally sensitive approaches to sustainable management of forest resources.
- To take a look ahead to the year 2025 to assess how factors such as the doubling of world population, increasing demands for food, energy and water resources, global warming, industrial pollution, soil toxification and biotic impoverishment are likely to impact forests, human welfare and the environment.
- To analyse how scientific research and forest development strategies in the 21st century can contribute to the resolution of these global problems and to the containment of further forest loss and degradation.

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- To develop recommendations that will help to foster improved North/South collaboration in global forest related matters.

3. THE COMMISSION'S MODE OF OPERATION

The Commission is conducting a series of regional hearings involving a wide range stakeholders and experienced resource persons. Of five planned hearings, four have already been completed (in Asia, North America, Latin America and Africa). The fifth final hearing will be held in Russia. So far 1500 stakeholders and resource persons have been directly involved in these regional hearings. In addition, the Commission has financed several independent analytical studies and received written submissions from many local groups, scientific and research institutions and leading conservation agencies.

This process, which has complemented that of the recently completed Intergovernmental Panel on Forests (IPF) has provided an opportunity for the local people to participate more actively in the ongoing global forest policy debate. It has also provided an opportunity for an informed "peer" review of current forest problems, solutions and opportunities.

4. COMMISSION'S CONCLUSIONS

The following should be regarded as "emerging" conclusions, pending completion of the forth-coming Russian hearing and drafting of the Commission's Final Report to be published in mid-1998.

a) The Commission's recommended Plan of Action will address equity, economic and governance failures of the past forest conservation and development policies. It will reflect the message that has emerged very clearly from its regional hearings that in the next century *civil society non-governmental actors (including the business community) will play a dominant role in managing forest resources.*

b) To create *enabling frameworks* for civil society to manage forests in ways that will ensure a more equitable balance between social, economic and environmental goals and to realise the potential of forests to contribute to sustainable development will require *quite radical restructuring and reform of existing national government and global governance consultative mechanisms and political decision making processes*. An area of special concern will be the willingness of national governments to encourage and experiment with a range of locally derived institutional and private sector managed approaches.

c) Enabling civil society at the local level to participate in decision making and in control and management of forest resources is an essential but insufficient step

towards reversing current deterioration of global forests. Also of particular importance is the need for *more sharply focused national and global level action to address those economic distortions and market failures that are major underlying causes of forest degradation, and to reinforce emerging regional and global agreements.*

d) Prime target areas for economic and policy reform include the *elimination of perverse agriculture, transportation and forest subsidies, land use tax and tenure reforms to encourage more intensive use of under-utilised agricultural lands and to reduce population pressure on forests, reform of timber allocation processes to ensure increased rental capture and more equitable benefit sharing, incorporation in timber agreements of certification and independent third party assessment of logging operations, elimination of trade barriers and tariffs, as well as fostering of emerging market mechanisms to pay for ecological services provided by forests that are of global environmental benefit.*

e) In all regions so far visited by the Commission, much evidence has been presented on how *local community based groups, small farmers and private woodland owners are spontaneously assuming responsibility for the management of forests, for farm tree protection as well as planting and restoring degraded lands*[1] *. The potential of these local initiatives to contribute to poverty alleviation, to improved food security and to sustainable agriculture, in addition to the preservation and restoration of the forest cover, have been insufficiently acknowledged, measured and supported.*

f) There remain *substantial obstacles to local participation* in management of public forests. They include *inequitable property and land use rights* and forest laws, *over-centralised and "top down " imposed local management structures; gender imbalances,* the negative impact of *state controlled marketing boards* on the places received by local people for forest products, *constrained access by local small scale wood using enterprises to raw material supply* and *inflexible national government and donor agency financing mechanisms* that fail to reach local groups and rural wood based enterprises.

g) *The "Business Community" will play an increasingly important role in ensuring responsible forest stewardship.* Some of the world's larger transnational timber companies are already responding to civil society driven environmental concerns. They are moving towards the adoption of more environmentally friendly harvesting and management practices and codes of conduct that are beginning to embrace social, economic and environmental criteria. These initiatives need to be supported and encouraged.

h) Conversely, there are *many private sector logging, mining and oil exploration companies* around the world that are *either destroying forests or failing to adopt*

1 Encouraging examples that have been cited in this Conference include the Duru-Haitemba experience in Tanzania, Joint Forest Management Schemes in India and emerging local community/industry collaborative experiences from the South Pacific region.

sustainable forest management practices. Some of these are *invoiced in illegal logging and other corrupt practices.* Current local and international environmental assessment procedures and legal mechanisms for penalising companies that fail to adopt responsible forest stewardship and for tackling corruption need to be greatly strengthened.

i) The Commission is convinced that there are *better ways of planning forest land use that will make it possible to combine the goals of commercial use with the protection of biodiversity and other local and global environmental benefits of forests such as water catchment protection and carbon sequestration.* In the next century, *intensification of management* will become increasingly important for relieving pressure on natural forests and particularly for production of cellulose fibre.

j) *Increased investment and strengthening of scientific research* is needed further to improve the understanding of the implications for human welfare and planetary stability of environmental problems such as global warming, biotic impoverishment and toxification of forest soils

k) *Sustained investment in policy research* is needed to clarify prevailing uncertainties about the effectiveness of alternative institutional approaches to local community and private sector industrial management of forest resources and to improve the understanding of where decentralised approaches will work and where they will not.

l) *Sustained investment is also needed in technology development* that will further increase the efficiency of end use, reduce waste, make it possible to accelerate the adoption of environmentally friendly harvesting and sustainable forest management practices.

How is the Commission proposing to ensure implementation of its action plan recommendations?

Through the influence of its report, an intensive media public awareness raising campaign and a clearly defined follow-up programme of specific regional and global activities. The WCFSD's Commissioners will be seeking opportunities for interaction with influential political leaders aimed at:

- Fostering those spontaneously emerging alliances of civil society and non-government actors that are already making a positive impact on management of local forests around the world[2]. Overriding goals must become firstly ensuring *more equitable representation of all stakeholder groups* in forest policy dialogue and in benefit sharing. Secondly, there should be a reform of current national government regulatory mechanisms to provide a system of *checks and balances for guiding civil society action*. Third, more *flexible financing mechanisms for*

2 Examples include village level alliances of local community and "user" groups in Asia, and Africa and Latin America - of particular interest in Commonwealth developing countries are local initiatives being supported by, for example, the ODI, IUCN, WWF, DFID, CIDA, AIDAB and by the Ford, MacArthur and other Private Foundations.

supporting decentralised locally defined and managed approaches to forest management should be introduced.

- *Mobilising national government political support for policy reforms aimed at removal of obstacles to local people's participation with special reference to protection of indigenous people's rights and the interests of weaker sections of society.* This strategy is of particular importance in those 'forest poor" countries in which management of remnant woodlands and restoration of degraded lands are highly dependent on the local community and small farmer involvement.

- Fostering of an international level *public/private partnership* consensus building mechanisms through such initiatives as *Canada's "Model Forest" Programme and UNDP'S National Capacity Building Programmes.*

- *Fostering spontaneously emerging alliances of forest industrial companies* and National Forest Product Associations such as those being promoted through the activities of, for example, the World Business Council for Sustainable Development and the International Chamber of Commerce.

- Fostering civil society initiated and leading conservation agency supported "Certification Schemes", "Buyers Groups" and NGO "Anti-Corruption" movements that are bringing to bear the concerns and influence of consumers and environmentally concerned citizens,

- Supporting emerging proposals for an *independent "Forest Watch" organisation* that would aim to expose corruption, to raise public awareness of the costs to society and the environment of corrupt practices and to mobilise appropriate legal action.

- *Supporting initiatives aimed at restructuring and strengthening of global governance and financing mechanisms* that will address current power and economic imbalances between the North and South and ensure more equitable representation of non-government actors in continuing global policy dialogue. Of special importance will be fora that open up opportunities for non-government groups to be more systematically involved in the assessment and monitoring of both local and global forest change

- *Support for strengthening of scientific, policy and technological research*

- *Mobilisation of GLOBE*[3] *and other parliamentarians* from those approximately 20 countries of the North and South that account for almost 80 percent of the world's remaining forests[4] in policy dialogue aimed at generating high level political commitment to essential economic and institutional policy reforms.

3 Global legislators Organisation for a Balanced Environment
4 As a starting point for further dialogue on this topic the Commission is building on the World resources Institute "Frontier Forests" initiative

The focus of this dialogue will be on a few key reforms that are of common interest and potential benefit to both the North and South, as summarised earlier in this paper. The desirability of such reforms has already been intensively debated through the IPF Process. In short this is an opportune time for the Commission to be using its influence to secure highest possible political level support for their early implementation. The conclusions and recommendations emerging from this dialogue could usefully contribute to a possible CSD Forest Summit in mid 1999.

PRESERVING BIODIVERSITY IN PRIVATE FORESTS OF FINLAND – A CASE STUDY OF THE ECONOMIC EFFECTS AT THE WOODLOT-LEVEL

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ABSTRACT

Protection of the biological diversity of nature has in recent years become rapidly integrated into the Finnish environmental and forest policies. The new Acts on Natural Conservation, on Forests, and on Financing of Sustainable Forestry emphasise biodiversity considerations as a vital part of sustainable forestry. New forestry recommendations and guidelines are more environmentally oriented than the earlier ones. Evaluations reveal that the new policies have already been widely put into practice. Questions therefore arise as to how these reforms will affect the biodiversity or allowable cut of these forests, or what are their effects on economics of forestry.

In this study, the potential economic effects of forest policy are analysed as in case the policy would be implemented to the full extent. The research is based on a total forest area of 1500 hectares, divided into 34 individual forest woodlots. From the point of view of the private forest owner, the economic effects on timber production are estimated by using the new recommendations and guidelines as a constraint set which binds cutting and management options. Two independent forest management plans are made for each woodlot, using simulation and optimisation models based on linear programming. The first plan is based on the old forest policy, and the second one on the new policy. The differences between these two plans have been interpreted as an indication of the economic effects of preserving biodiversity. This approach is only one viewpoint at the sustainable forestry. The study considers the economic effects of the new Forest Act and new forestry recommendations on the timber production in commercial forests. The study does not consider different values or benefits produced by preserving biodiversity in forests.

Almost four per cent of the area studied is covered by ecologically valuable areas and two per cent of the forest are located along shorelines. In the calculations the ecologically valuable areas are left totally uncut. Shoreline forest areas are given an extended rotation before being regenerated naturally. A certain volume of reserved trees are left on all regeneration cutting areas. The study indicates that these modifications have considerable economic effects. For example, during the first decade of

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management for biodiversity the allowable cut of woodlots decreases, on average, by 17 per cent and forest net income by 15 per cent. However, the variation is large between individual woodlots concerning the area of key biotypes, allowable cut, or forest net income.

1. INTRODUCTION

In Finland, as in many other countries, the goals and the means of implementing environmental and forest policy have recently been reformulated. Timber production is still the cornerstone, but the focus of Finnish forestry has shifted somewhat in the direction of biological diversity, ecological sustainability and environmental protection.

Finland's forest policy goal setting has been steered up mainly by the general principles agreed upon in international conferences held 1992 in Rio de Janeiro and 1993 in Helsinki. Also different organisations of social and environmental interest, as well as industrial clients of forest industry and consumers of products create pressure to reformulate the policy.

Recent inventories (Niemelä and Kostamo 1995, Niemelä and Arnkil 1997) reveal that the revised recommendations and guidelines have already been widely put into practice within the first couple of years. Questions therefore arise as to how the revised policy will affect the biodiversity or allowable cut of these forests, or what their effects on the economics of forestry will be.

In Finland, some studies of the possible effects of renewed forest policy have already been published. These calculations concerning the economic effects have been done at the level of the whole country (Nuutinen and Siitonen 1994, 1995; Nuutinen et al. 1996) or quite a big case study area (Nalli et al. 1996).

However, the economic effects of revised forest policy have not been analysed from the point of view of the private forest owner, the main forest ownership category in Finland. It is to be remembered, that there are some 440 000 woodlots owned by private people in Finland. Private forests account for about two thirds of the forest area and deliver about four fifths of the domestic roundwood used by the Finnish forest industry.

2. FRAMEWORK FOR PRESERVING BIODIVERSITY IN FINLAND

2.1 General layout

In Finland, the Finnish Government made a decision in principle to the effect in year 1994 that retaining the biological diversity of the country's forests form a central element of the tending of commercial forests. At the same year, the Ministry of Agriculture and Forestry and the Ministry of Environment ratified New Environmental Programme for Forestry. This national strategy (New Environmental ...1994) and its continuing follow-up (Metsätalouden ympäristöohjelman... 1995, 1996, 1997) has been the main force steering up the reform of our environmental and forestry policies.

In addition to the New Environmental Programme, there have been several projects focusing on, for example, different aspects of biodiversity management (Biodiversiteettityöryhmän... 1995, Uusiutuvat… 1996) and nature conservation (Pohjois-Suomen vanhojen... 1992, 1994, 1996), amending of main forest and conservation legislation (Metsälakitoimikunnan... 1995, Luonnonsuojelulakitoimikunnan... 1995), criteria and indicators for sustainable forestry on regional level (Pirkanmaan kestävä... 1996a, 1996b, 1996c, 1996d) and in the whole country (Suomen kestävän 1995), as well as developing forests certification (Metsäsertifioinnin... 1997, Ehdotus... 1997).

Several instruments have been adopted to ensure the productional and ecological sustainability of forestry and to maintain biodiversity. Policy instruments vary from legislation and economic control of practical activities to voluntary recommendations. Means include forest planning, public information programmes, research, education and training (Finnish Action...1995, Metsätalouden... 1997), just to mention some of the main measures.

A mixed strategy involving various forms of conservation and revised forest management practices in all commercial forests is being implemented to reach the goal. In the context of this study, the main elements of the framework for preserving biodiversity are the new legislation and revised forest treatment recommendations and guidelines.

2.2. Legislation

The cornerstone of the new framework is the country's recently enacted conservation and forestry legislation, which came into force in the beginning of this year.

The main goal of the **Nature Conservation Act of 1996** is to maintain biological diversity through nature and landscape conservation. Existing or already confirmed conservation areas cover about 3.4 million hectares, which is approximately 10 per cent of the land area of Finland. These nature reserves are located mainly in the northern part of the country. In southern Finland only about one per cent of the land area is strictly conserved. This fact underlines the need for renewed forest management practices in commercial forests.

Certain forest habitat types small in area, e.g. hazelnut groves and black alder mires, are now spared under the new Nature Conservation Act. The Act also protects the known habitats of designated endangered species, altogether almost 500 species. However, it has been estimated earlier that the total area of these specifically protected forest habitats is less than 10 000 hectares.

Most conservation areas are owned by the State. To implement all the confirmed conservation programmes the State has to purchase about 240 000 hectares of private land and change the use-class of about 500 000 hectares of land, already owned by the state.

Separate from the Nature Conservation Act, the **Natura 2000** network is also a rather new element in the framework. The total area covered by the initial proposal is almost 5 million hectares. The land area covers about 3.5 million hectares, approximately 11 per cent of Finland's land area. However, over 90 per cent of the sites included in the proposal are either existing nature conservation areas or have already been included in earlier conservation programmes.

The council of State was due to make the decision on the Natura 2000 network sites in Finland in autumn 1997, whereafter the national proposal was meant to be delivered to the Commission of the European Union. However, the recently concluded hearings on the initial proposal have resulted in heated debate and about 140 000 claims against the proposal. Even demands to completely reform the proposal have been made.

In 1996, the Council of State approved a financing programme for the implementation of nature conservation programmes. The total cost was estimated to be 3.2 billion FIM, or about 300 ECU for every working Finn. This mentioned sum was meant to cover also the compensation paid for new areas proposed for the Natura 2000 network.

The next parts of the framework are the new forest legislation, the Forest Act and the Act on the Financing of Sustainable Forestry, applying to commercially utilised forests.

The purpose of the **Forest Act of 1996** is to promote economically, ecologically and socially sustainable management and utilisation of the forests. Forests should provide a sustainable satisfactory yield while maintaining their biological diversity.

The new Forest Act attaches more importance to the environmental considerations than was the case with the former legislation. Forest shall be managed and utilised in such a manner that the overall prerequisites for the preservation of habitats characteristic of biological diversity of the forests are ensured.

Furthermore, the Act lists 7 habitats of special importance of rare and demanding organisms. If the habitats are in natural state, or resemble a natural state, and are clearly distinguishable from their surroundings, the management and utilisation measures applied shall be carried out in a manner that preserves the special features of these habitats. Examples of these habitats are the immediate surroundings of springs, brooks and small lakes, some herb-rich forests, gullies, steep bluffs and underlying forests. Most endangered Finnish forest species live in different herb-rich forests.

The Forest Act defines the minimum obligations of forest owners in the care of their forests and the minimum restrictions on forest use. If fulfilling the obligations, related to habitats of special importance, shall result in a reduction in forest yield or other financial loss, which are not insignificant, the landowner can make an application to carry out management or utilisation measures in a way that results in minimum losses. The forestry centre can give this permission or grant support from State funds for the loss beyond required by the law.

The compensation from State funds is granted by the stipulations of the **Act on the Financing of Sustainable Forestry of 1996**. Proposal have been made (Metsätalouden ympäristöohjelman... 1997) that the loss required by the law shall exceed, varying in different situations, 3 to 5 per cent before State funds will be granted. However, for example in the year 1997 the total amount of the funds for this purpose is below 10 million FIM, which is less than 0.2 per cent of the forest income of private forests in Finland.

2.3 Revised forest treatment recommendations and guidelines

The main forest treatment recommendations guiding the management of commercial forest were revised at the beginning of the 1990's (Luonnonläheinen... 1994,

Biodiversity in Finnish... 1995, Forestry Environment Guide 1994). Environmental things are playing a central role also in these non-binding recommendations with the timber production. Maintaining biodiversity is essential thing when doing forestry activities. In the timber production the landowner should also notice landscape, recreation and other uses of forests.

Compared to the Forest Act, these recommendations (Meriluoto 1995) mention some other ecologically valuable habitats. Examples of these new key biotopes are bedrock outcrops, cliffs and cliffsides, virgin mires, various transition zones and stands of old-growth forests. Forests along shorelines are mentioned too, partly on the basis of landscape values. Also these ecologically valuable areas should be treated in a manner that preserves their special features. Usually this means exclusion from all forestry activities.

In all forestry measures (Forestry Environment Guide 1994, Luonnonläheinen... 1994, New Environmental... 1994, Biodiversity in Finnish... 1995) the objective is to imitate the natural regeneration cycle. Dynamic species compositions and growing stock structures are maintained by emulating natural forest development of boreal coniferous forests. For example, mixed stands are favoured by allowing and creating them in regeneration, tending and intermediate cuttings. Old trees and decaying trees, which are valuable for biodiversity, are retained on cutting areas. Watercourses are protected when doing cutting and soil preparations.

2.4. Other means to influence the behaviour of forest owners and forestry professionals in practice

The legislation defines the minimum obligations of forest owners in the care of their forests. In principle the other recommendations are voluntary. The purpose is, that implementing of the law should also be on voluntary basis.

It is usually the landowner who decides what will be put into practice. Anyhow, forestry organisations and forest-industry companies have already commenced the training of their field staff on the new forestry directives and recommendations. The education, guidance, training and environmental communication activities for forest owners have also been started to change attitudes and values in forest management.

3. THE CASE STUDY

3.1 Layout of the study

From the point of view of the private forest owner, the economic effects on timber production can be approached by using the new recommendations and guidelines as a constraint set which binds cutting and management options.

In this study, the potential economic effects of the renewed forest legislation and forestry recommendations are analysed in the case where the policy is implemented to its full extent.

Two independent forest management plans are made for each woodlot, using simulation and optimisation models based on linear programming. The first plan is based on the old forest policy, focusing only on timber production. The second one is based on the revised forest legislation and forestry recommendations. The difference between these two plans has been interpreted as an indication of the economic effects of preserving biodiversity.

This study is one part of the larger research project "Economic Effects of Preserving Forest Biodiversity in Finland" (Järveläinen et al. 1997), carried out in 1995-1997 and funded by the Metsämiesten Säätiö Foundation.

3.2 The research area

The empirical study is based on a total forest area of 1500 hectares located in Vilppula, 200 kilometres north of Helsinki. The research area owned by the Finnish Forest Research Institute was chosen to correspond to the average characteristics of non-industrial private forests in southern Finland. This selection was done not on the basis of the amount and characteristics of ecologically important habitats on the area, but on grounds of e.g. site type and age class distribution, mean volume and mean annual growth of the area.

The selected area was divided into 34 individual forest woodlots. The size-structure of the woodlots (Table 1) is similar to that of private forests in southern Finland. However, the proportion of the larger holdings of at least 50 hectares is on purpose slightly bigger than in practice (Ripatti 1996) because these big woodlots play an important role in Finnish forestry.

The data for the calculations was assembled by standard forest stand-based inventory, carried out by The Research Forest Services unit of Finnish Forest Research Institute. In the field work done, all the perceivable sites of special interest have been constructed to separate stands.

Almost four per cent of the area studied is covered by ecologically valuable areas, counterparts of which are mentioned in the Forest Act or in the new recommendations. In addition to this, two per cent of the forest are located along shorelines (Table 2). Also some other ecologically important habitats, for example, capercaillie mating habitats were separated in the field work, but ignored in calculations done.

Table 1. The number and size category of woodlots in the case study.

Size category, hectares	Woodlots, number	Woodlots, %	Average size of woodlot, hectares	Forest area, total	Forest area, %
< 20	8	23.5	13.4	107.7	7.2
20-50	16	47.1	33.5	535.5	35.8
> 50	10	29.4	85.1	850.9	57.0
Total	34	100	43.9	1494.1	100

3.3. Methods and calculations

The inventory produces stand maps and tables of related stand characteristics. In the following only the main features of the TUTGIS planning package of Finnish Forest Research Institute are described (Nalli et al. 1996). For further information see for example Nuutinen (1994) or Siitonen et al. (1996).

In the inventory, the growing stock of the stand is described by mean variables. Separate models are used to derive stem-diameter and height distribution from the inventory data. This is needed for treewise volume and increment functions used in simulation.

In the simulation, the future development of each stand is predicted and a large number of possible treatment schedules are generated for each stand. The simulation also produces information on the results of applying the treatment schedule. The planning horizon is 50 years, which is divided into five 10 year periods. Treatments are simulated for the middle of each period using the MELA simulation package (Siitonen et al. 1996).

One treatment schedule is selected for each stand from the simulated schedules using optimisation methods. Two types of constraints are utilised in the LP problem formulation. The higher level constraints reflect the production goals for the whole forest area. The JLP algorithm in TUTGIS package also allows the setting of domain constraints for any subset of stands (Lappi 1992, Nalli et al. 1996), for example certain types of ecologically special stands.

Two alternative forest management plans were also produced for each woodlot. The higher level constraints reflecting the production goals for the whole woodlot were same in the both forest plans. The goal is to maximise the net income of the first decade on the conditions that the income or the yield of the woodlot do not decrease during the periods to come. This should result in sustainable wood production with the even flow of net incomes and a sufficiently high volume after the planning period. The unit price of wood and unit costs of forest management measures and timber harvesting of the both forest management plans were those in private forest in southern Finland in 1995.

The first plan is traditional forest management plan based on the recommendations used in the beginning of the 1990s. In this plan, the whole forest area is in timber production.

The second forest plan is based on the revised forest legislation and forestry recommendations (New Environmental... 1994, Luonnonläheinen... 1994, Meriluoto 1995, Biodiversity in Finnish... 1995).

There are some rather strong assumptions in this second forest plan. In the calculations all the ecologically valuable areas are excluded from forestry activities. Also some scrubland and waste land areas (0.1 % of the total area) and some rich peatland sites (0.15 % of the total area) of little value to forestry are left totally in peace.

Shoreline forests are given a 50 per cent extended rotation before being regenerated naturally. Site preparation is not allowed on nutrient-poor, sorted mineral soil sites or on herb-rich soils. The natural regeneration and seeding of pine is favoured by allowing the planting of pine only on some medium-rich site types. Forests of mixed stands are favoured in the intermediate cuttings. The use of chemicals is forbidden.

In the second plan, following the upper limits of the recommendations (e.g. Luonnonläheinen... 1994, Biodiversity in Finnish... 1995), 12 cubic meters of economically valuable trees per hectare are reserved on all regeneration cutting areas. The volume and the value of these trees are deducted direct from the allowable cut and the net income of the woodlot.

3.4. Results

The difference between two forest management plans has been interpreted as an indication of the economic effects of preserving biodiversity. Some basic information of the alternative forest management plans and the main results of the case study are presented in Table 2.

Modifications done have considerable economic effects. For example, during the first decade of management for biodiversity the allowable cut of woodlots decreases, on average, by 16.5 per cent. During the next two decades the decrease is slightly smaller. The forest net income of woodlots in the case study decreases a little less than the allowable cut. The decrease is on average 14.6 per cent during the first decade and 11.1 during the first three decades.

The mean volumes of both ecologically valuable areas and shoreline forests are higher than areas left for the timber production already in the beginning of the planning period. Setting the ecologically valuable areas totally aside doubles the mean volume of these forests in three decades. Also the final volume of forests along shorelines is higher, because of the extended rotation of these stands.

However, the variation is large between individual woodlots concerning the area of key biotypes, allowable cut, or forest net income.

4. DISCUSSION

The approach used in this case study is quite narrow in its perspective and only rough estimates are presented. The study focuses on new forestry measures and their effects on timber production. It does not consider the value of biodiversity or the benefits which preserving biological diversity of forests produces. Excluding these aspects may seem like a fatal shortcoming. One the other hand, there are no valid criteria for measuring biodiversity and including it in forest management and decision-making in practice, despite the progress on the subject (e.g. Kangas 1992, 1993; Kangas et al. 1993, Kangas and Kuusipalo 1993, Pukkala and Kangas 1993, Uuttera and Kangas 1995).

From the point of view of ordinary Finnish private forest owner, taking environmental aspects into account to the degree presented in current forest policy is not yet demanded to access the timber market. There are also limited possibilities to gain monetary profit from benefits related to biodiversity or economic compensation for the losses in timber production. However, these benefits and options must be kept in mind and compared to the opportunity cost of preserving biodiversity.

Table 2. Comparison of alternative forest management plans (34 woodlots)

	Traditional		Revised		Difference
Area, ha					
Whole research area	1494		1494		
• timber production	1494		1411		
• ecol. valuable areas	0		56		
• shoreline forests	0		27		
On average at woodlot, total	43.9	100 %	43.9	100 %	
• timber production	43.9	100 %	41.6	94.6 %	
• ecol. valuable areas	0	0 %	1.6	3.6 %	
• shoreline forests	0	0 %	0,8	1.8 %	
The mean volume, m^3/ha					
whole research area					
Beginning of planning period	128.8		128.8		
• timber production	128.8		124.9		
• ecol. valuable areas	–		191.3		
• shoreline forests	–		208.9		
End of 3. 10-yr period	147.1		156.4		
• timber production	147.1		144.4		
• ecol. valuable areas	–		395.0		
• shoreline forests			309.5		
The mean growth, m^3/ha/yr					
whole research area					
First 10-yr period	6.6		6.5		
• timber production	–		6.5		
• ecol. valuable areas	–		7.4		
• shoreline forests	–		7.0		
Third 10-yr period	6.9		6.4		
• timber production	6.9		6.4		
• ecol. valuable areas	–		7.1		
• shoreline forests	–		6.1		
The allowable cut, m^3/ha/yr					
on average at woodlot					
First 10-yr period	5.77		4.82		16.5
on average 1.-3-yr period	6.00		5.18		13.7
The net income, FIM/ha/yr					
on average at woodlot					
First 10-yr period	961		820		14.6
on average 1.-3-yr period	984		875		11.1

There are many specific theoretical and methodological problems in the approach used. How will preserving biodiversity change the timber supply and investment behaviour of private forest owners? What are the forestry measures to be used in different forest management plans of this kind of approach and how to operationalize them for the calculations? What are the effects of revised management practices and how to get new production functions for simulations? And what are the changes of

productivity and unit costs of management and timber harvesting practices, just to mention some of the problems. Themes for further research are presented in greater detail in Järveläinen et al. (1997).

A special problem worth mentioning is the inadequate knowledge of the area and characteristics of different kind of ecologically valuable habitats. It is commonly estimated, that habitats of special importance meant by the Forest Act do not cover more than one or two per cents of the forest area (Niemelä and Arnkil 1997, Tomppo 1997). Extending the estimate to include also the other key biotopes enlarges the total area of these valuable items in some parts of Finland even to about 10 per cents of the forest area (Tomppo 1997). This variation is, at least to some extend, caused by flexible, inadequate and unestablished definitions of concepts used.

Even with all these conditions presented, implementing the forest policy to its full extent seems to be having considerable economic effect. During the first decade of management for biodiversity in the research area, the allowable cut of woodlots decreases on average by 17 per cent and forest net income by 15 per cent. The decrease is mainly due to setting aside all the ecologically valuable areas and extending the rotation in forests along shorelines. The reserved trees account for only about one fifth of the decrease.

There is substantial variation between individual woodlots with regards to the area of key biotypes, allowable cut, or forest net income. The economic effect exceeds the percentages of the restricted areas in almost every case. Restrictions have dramatic effects on some single woodlots especially if the proportion of old forests is small.

Inventories have been made on how the new policy have been put into practice. In the summer 1996 the quality of measures was assessed on over 1000 new wood harvesting areas after the cuttings (Niemelä and Arnkil 1997). The area of detected valuable ecological items of different kind covered approximately 5.4 per cent of the assessed area. About one fifth of that were habitats meant by the Forest Act. In the cuttings, about 4 per cent of the volume was preserved already during the very first years of implementing the new policy.

It should be noted that the results of this case study are not forecasts with probability coefficients. However, the results indicates the size-class of the economic effects, which this choice of national forest policy may have.

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A STEPWISE PROCEDURE FOR COST BENEFIT ANALYSIS (CBA) OF FORESTRY AND SOIL/MOISTURE CONSERVATION INVESTMENTS

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ABSTRACT

A stepwise procedure is proposed for Cost Benefit Analysis (CBA) of forest and soil/moisture conservation investments. Five steps are distinguished. The first two correspond to Financial (FA) and Conventional Economic Analysis (CEA) while the following extend the analysis to off-site (EEA1) and to off-market values (EEA2), particularly those related to the environment. A Socio-Economic Analysis (SEA) is also proposed making reference to redistribution and utilities of those social groups affected by the investments.

The procedure allows for a step forward towards the Total Economic Value (TEV) of resources, products and services. The CBA objective function is also gradually extended to include measure of social welfare gain. Case studies are reported focusing on Mediterranean Watersheds. Concluding remarks stress the advantages of the procedure with particular reference to environmental investments. Shortcomings of conventional CBA should be bypassed, while multipurpose investments should be properly analysed from different points of view.

1. INTRODUCTION: SCOPE AND CONTENTS

Forestry and soil/moisture conservation investments do not have full and explicit market impacts (Soren and Jones 1992). Some important, mainly positive, effects remain unacknowledged – ones that are external to the site of investment and to the market in general. Moreover, costs and benefits of various items may be of different size and weight over the different social groups involved. Project evaluation is therefore difficult, and aggravated by the lack of data – environmental, economic and social impact tables and matrices are far from being easily available. These shortcomings are particularly felt in the Mediterranean context, where information and analysis is most

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needed – forestry and soil/moisture conservation are crucial for overall sustainable economic development (Johansson 1985; Lacirignola and Hamdy 1995).

The scope of this paper is to present an operational stepwise **C**ost **B**enefit **A**nalysis (**CBA**) of forestry and soil/moisture conservation investments able to account for externalities, intangibles and social effects.

The basic distinction between **financial** and **economic** analysis of investments, as codified by several manuals (e.g. Dasgupta and Pearce 1972; Gregersen and Contreras 1979 and 1992; OECD 1988 and 1995; Gregersen et al 1987), represents the starting point of this paper. Unfortunately the definition of **economic** analysis (namely the true **CBA**) remains far from clear both in the literature and even more in empirical applications. Although valuable progress has been made on the standard conceptions of the early 1970s according to which the essence of CBA was 'adjustment' of receipts and expenditure to find out the 'welfare gain' of investments and changes affecting society (Little and Mirrlees 1974; Munasinghe and Warford 1987; Ray 1990; Ward 1991; Pearce and Warford 1993), the state of the art of empirical applications is such that a reasonable codification of 'adjustment' has been achieved only in terms of treatment of taxes, transfers and market distortions, while the 'welfare gain' due to 'off-site' and 'non-market' costs and benefits and to distributional effects remains a vague concept. As stressed by Johansson (1993, p. 21) "the problem in using social welfare when assessing projects is that the social welfare function cannot be measured".

To bypass this impasse, the present paper, using an operational approach, attempts to introduce a codified procedure for including off-site and non-market environmental effects into the CBA, which is then called an 'extended' CBA. In practice 'pieces' of the so-called **T**otal **E**conomic **V**alue (**TEV**) of natural resources are progressively entered into the CBA[1]. The procedure also tries to include 'weighted' distributional effects over existing social groups as well as future generations.

An application referring to a Tunisian **project** of forestry and soil conservation investments including two **watersheds** is discussed next**.** Within each **watershed** several **interventions** are undertaken having specific technical and economic features, as can be the case of afforestation, hydrological works, rangeland management, etc. The **watershed** is therefore the basic **geographical unit** for carrying out the CBA, that is the area where the various **interventions** interact at the level of costs and benefits.

2. THE STEPWISE PROCEDURE

Five levels of cost benefit accounting, including externalities and distributional effects, have been identified, each corresponding to a step forward towards the **TEV** of natural resources as well as a more reliable approximation of the 'true' social costs and benefits, that is, the welfare gain of the investments. The various steps can be outlined as[2]:

1 The TEV is intended, according to environmental economics, as 'a broadening of the concept of value away from the use – centred ideas of conventional utilitarianism towards a multifaceted notion embracing a diversity of value types, namely: direct use value, indirect use value, option and existence values' (Bateman 1994; Pearce and Turner 1990; Randall 1987).

2 The subdivision of economic analysis as proposed in this study is only meant for practical and pedagogical purposes. It is not justified on the ground of economic theory, according to which only three steps should exist: financial analysis, economic analysis in which **all** goods and bads should be shadow priced, and social analysis.

1. Financial Analysis (FA) where monetary flows of expenditures and revenues alone are taken into account. Prices are those observed in the market.
2. Conventional Economic Analysis (CEA) where only the pros and cons with a market price are shadow priced by means of conversion factors to reflect the true value of resources, therefore eliminating market failures (monopolies, etc.) and transfer payments (taxes, etc.)
3. Extended Economic Analysis 1 (EEA1) where off-site market effects are taken into account, namely those external to the intervention areas but internal to the market. Economic valuation techniques used for this purpose are based on indirect market effects, such as changes in productivity down the watershed, damage and so forth.
4. Extended Economic Analysis 2 (EEA2) where effects external to the market (intangibles, public goods, etc. both on-site and off-site) enter the CBA. Non-market values have to be estimated using consumer surplus measures, derived from Methods such as Travel Cost (TCM) and Contingent Valuation (CVM).
5. Socio-Economic Analysis (SEA) where, first, the previous costs and benefits are assigned to the various social groups and, second, weighted according to 'utilities'. Undoubtedly, this is the most critical and controversial step both from the theoretical and practical point of view[3]. Far from representing a specific step (or extension) of CBA, SEA is rather a way of attempting a 'social' analysis of the projects' gains and losses that could be done at each step of the CBA. In this paper, however, SEA has been carried out only at the level of EEA2.

Although it could be argued that all the issues addressed in EEA1, EEA2 and SEA should conceptually be included in the usual economic analysis (the CEA), the stepwise procedure to CBA was designed bearing in mind two key points:

1. the extreme diversity of impacts generated by forestry and soil/moisture conservation investments (on-site and off-site, private and public, first order and further orders[4], whose identification is not always straightforward;
2. the limits of available valuation techniques, which are sometimes difficult to apply and often far from being unanimously accepted.

The procedure proposed here therefore attempts to organise the steps in such a way that analysts and decision-makers can be constantly informed and aware of the types of impact, effects and valuation, and the increasing complexity and controversy arising as they move from financial to economic and social analysis. Relating the scale of analysis to financial/economic consequences of interventions, Table 1 shows interactions giving rise to the various possible steps of the CBA procedure.

In conclusion, the stepwise procedure aims to guide analysts in a progressive and comprehensive approach to project analysis and makes them and decision-makers aware that extending and deepening the analysis also involves increasing margins of

3 According to economic theory, the weights should refer to the marginal utility for each social group, but, in practice, this is impossible to calculate. Weights are generally assigned on the basis of the difference between average household income and individual groups' household income. A large bibliography exists on the issue of distributional weights, for example Musgrave 1969; Weisbrod 1972; Little and Mirrlees 1974; Squire and van der Tak 1975; Irving 1974; Knudsen and Scandizzo 1980; Ray 1990.

4 Assuming, for example, an intervention of landslide stabilisation, one possible first impact is the reduction of dam siltation which in turn (second order impact), will have beneficial effects on yield and irrigation area downstream, and subsequently (third order impacts) on famers' income.

Table 1. CBA steps defined according to investment effects: financial/economic consequences and scale of the analysis

Scale of the analysis	Financial internal to the market	Economic internal to the market	Economic external to the market
on-site	FA	CEA	EEA2
off-site	FA*	EEA1	EEA2
distributional	-	SCE*	SEEA2
		SEEA1*	

* The steps marked with asterisks have not been undertaken in the present paper.

uncertainty as well as theoretical and operational controversies. It is self-evident that the higher the uncertainty, the greater the need to carry out simulations of project impacts, changing values and/or quantities of costs and benefits through a sensitivity analysis. Finally it must be remarked that the proposed framework allows easy computing. User-friendly software has also been developed along with the stepwise procedure[5].

3. APPLICATIONS TO MEDITERRANEAN CASE STUDIES

The stepwise CBA procedure has been applied to a project in Tunisia here called 'Forestry Development and Soil/Moisture Conservation Project' which, to a certain extent, corresponds to the 'Second Forestry Development Project of Tunisia' (World Bank 1993). Reference is made to a series of interventions, some of which have already been completed or are being carried out in various watersheds with financing from national and international sources. The aim of the project is the safeguarding of agricultural productivity, the augmentation of forest production, conservation of soil and water resources and improvement of overall environmental quality. The procedure has been applied to two watersheds: Bou Hertma and Marguellil.

3.1. Interventions in the Bou Hertma and Marguellil watersheds.

The Bou Hertma watershed covers about 33 600 hectares and is located in the North-West of Tunisia, in the Jendouba *Gouvernorat*, close to Algeria, along the Mediterranean sea, in a relatively productive area, with about 600-800 mm rainfall per year. The lower part of the watershed is closed by a dam creating a reservoir of about 117 million m^3. The area irrigated from the reservoir can be considered a part of the watershed – around 5800 ha, equal to 17.3 % of the total area. The agricultural systems within the irrigated area are based on a four-year rotation of cereals, forage, sugar-beet and vegetables. The rest of the watershed is not irrigated and consists of arable land (48.8%) and forests (33.9%).

5 The software FORCES-MOD acronym in French '**FO**rêt **C**onservation **E**aux **S**ols- **MOD**èle; freely available, attached to the stepwise procedure has proved on several occasions to be a useful support tool in training sessions on CBA involving natural resources, both in developing and developed countries (BIRD-ITALECO, 1995)

Table 2. Bou Hertma watershed: interventions and relative quantities

Interventions	works execution years	quantities involved	investment cost (TD)	total cost (TD)
Pine plantations	3	434 ha	2317 ha	1,005,578
Plantations for soil protection	3	190 ha	1368 ha	259,920
Cork oak regeneration	3	837 ha	242 ha	202,554
Pasture land improvement	2	1017 ha	2039 ha	2,073,663
Range improvement	2	110 ha	1299 ha	142,890
Maquis management	2	685 ha	353 ha	241,805
Landslides stabilisation	2	280 ha	550 ha	154,000
Pine thinning	3	939 ha	160 ha	150,240
Forest roads	3	44 km^2	15 000 km^2	660,000
Non-wood forest products	3	2461 ha	–	–
Total				4,890,650

As shown in Table 2, the project includes ten interventions, mainly concerned with forestry and rangeland improvements, and securing positive effects on soil and moisture conservation from reduced erosion and consequent siltation of the reservoir. Interventions are mainly completed in 2-3 years. The area on which the interventions are carried out covers ha 4532, about 13,5% of the total surface of the watershed. The investment amounts to around 26.5 million Tunisian Dinars (1 TD = 1 US$)

The Marguellil watershed covers about 154 000 ha and is located in the semiarid zone of central Tunisia in the Kairouan and Siliana *Gouvernorates*. Rainfall is about 300-400 mm per year, and wheat is the only crop that can be grown without irrigation. The interventions outlined in Table 3 are mainly concerned with soil/moisture conservation. The lower part of the watershed is closed by a dam creating a reservoir of about 78 millions of m^3. As in the case of Bou Hertma the irrigated area is considered part of the watershed. Sedimentation of the reservoirs is one of the most relevant problems. Processes of erosion, similarly to many other parts of Tunisia and of the

Table 3. Marguellil watershed: interventions and relative quantities

Interventions	works execution years	quantities involved	investment cost (TD per year)	total cost (TD)
Terracing	10	7500 ha	373 ha	2,797,500
Cordons	10	4000 ha	500 ha	2,000,000
Couvettes	10	3000 ha	140 ha	420,000
Fruit trees plantations	10	2960 ha	780 ha	2,308,800
Forage trees plantations	10	6000 ha	790 ha	4,020,000
Range improvement	10	10 000 ha	196 ha	6,700,000
Protective plantations	10	6000 ha	670 ha	4,020,000
Small reservoirs	4	4 units	150 000 unit	600,000
Landslide stabilisation	10	172 000 m^3	18 m^3	3,096,000
River management	10	70 000 ha	63 m^3	4,410,000
Total				30,372,300

Mediterranean Basin, are clearly evident, affecting 75% of the watershed agricultural land which must therefore be carefully protected. The intervention area covers 40 000 ha of soil at high risk of erosion, and represents about 25% of the total watershed area.

4. ORGANISATION OF THE ANALYSIS

Preliminary to the CBA, the environmental impacts of all interventions were identified, including physical quantification and monetary valuation of the various effects. In particular:

1. **identification** of each intervention's impacts was done in co-operation with experts from various disciplines. On-site and off-site effects together with the market and non-market effects were specified. The result is a check-list of impacts which is important for their quantification, monetary valuation and assignment to the various steps of the CBA;
2. **quantification** of the impacts was undertaken within the limits imposed by the lack of data, technical knowledge and methodologies for measuring environmental effects. Rather significant in this context was the procedure for erosion quantification reported in the Appendix. When data and methodologies were missing, information was derived from the literature and/or case studies referring to other areas/countries with similar conditions, preferably Mediterranean;
3. **monetary valuation** of the impacts previously identified and quantified was undertaken with even greater difficulty, especially where non-market values were concerned. Again reference to similar instances was largely used, as far as possible from Mediterranean case studies.

Identification, quantification and monetary valuation of the various effects is outlined in Table 4, where this process is related to the analyst/decision-maker's objective function, and therefore to the CBA step. It can be observed how progressing from FA, to extended CBA, and even more with SEA, the objective function gradually comes to include an extended view of the social welfare gain, including various externalities, both off-site and off-market ones.

The steps of the CBA procedure are now reported highlighting its stepwise nature. In order to avoid double counting and/or omission of certain costs and benefits the usual '**with-without project'** approach has been applied. Benefits and costs are computed on the basis of the difference between the situation with and without the project (Gittinger 1982). A time horizon of 30 years was adopted, taking account of the residual value of the various works at the end of the project's life. Whenever necessary, account was taken of the renewals occurring within the project's 30-year life-span. A standard discount rate of 10% has been assumed. This choice is of course rather questionable (Solow 1986; Norgaard 1992; Ward 1990; Kula 1986). However, it reflects political decisions taken at the level of government and financing bodies[6].

6 The discount rate of 10%, is rather high, in particular bearing in mind that goods and services produced by the investments are 'real' values, independently of inflationary processes. However, the rate is linked to the cost of money in the market, and as such was indicated as the reference rate by the financing bodies (World Bank 1993). It is obvious that this choice remains debatable as shown by the vast literature on the subject.

Table 4. The stepwise CBA procedure

CBA steps	Effects taken into consideration	Valuation criteria	Objective function
FA	• agricultural and forest products (wood and non-wood)	market prices of inputs and outputs	Net financial revenue
CEA	• agricultural and forest products (wood and non-wood)	conversion factors to adjust market prices	Adjusted economic net revenue
EEA 1	• erosion • water availability (reduced siltation) • flooding	Modified Universal Soil Loss Equation (MUSLE) implemented through a Geographical Information System (GIS) to forecast erosion, flooding and consequent agricultural production levels	Extended adjusted net revenue (including off-site effects)
	• improved rural access due to forest roads*	lower costs of access to market and social services	
	• development of hunting *	sale of shooting permits	
	• damage from flooding **	damage to agriculture, infrastructure and buildings	
EEA 2	• tourism & outdoor recreation *	number of visits*(average unit value – international bibliography)	Extended adjusted net
	• climate stabilisation *	carbon fixation*(average unit value – international bibliography)	welfare gain (including non-market effects, both on-site and off-site)
	• water table recharge**	water supply for irrigation and hence greater agricultural production	
SEA	• distribution	social groups: natives living in the intervention area (weight 1.5), farmers in the watershed (weight 1.15) and urban population (weight 1.0)	Extended adjusted net welfare gain (including utilities redistribution)

* effects taken into account only for the Bou Hertma watershed
** effects taken into account only for the Marguellil watershed

4.1 Financial Analysis (FA)

The first step (FA) takes into account the various agricultural and forest products that have an explicit market: costs and revenues are therefore valued in terms of market price of inputs and outputs. Reference is made to Official Statistics (RT-MA 1992) and the results of Farm Survey (RT-MA 1993). Data as derived by various sources was discussed with central Ministry of Agriculture (MA) and local experts. The investment costs derive from the World Bank (1993) 'Second Forestry Development Project of Tunisia', and were verified with experts. The objective function is a plain monetary profit, or better, net financial revenue, of those groups directly affected by the various interventions.

4.2 Conventional Economic Analysis (CEA)

The second step (CEA) considers the same items of FA with prices modified, whenever necessary, using conversion factors, to express the true social values of inputs and outputs of the various interventions. Transfer payments and market distortions should therefore be eliminated. The conversion factors employed in the analysis were obtained from Tunisian Government indicators (RT-MA 1982) and by the financing agencies (World Bank 1993). Only in a few cases were *ad hoc* factors developed. Up to this stage the CBA remains conventional: therefore the objective function is merely an adjusted private net revenue of those groups directly affected by the interventions (Table 4).

4.3 Extended Economic Analysis 1 (EEA1)

EEA1 takes into consideration effects off-site though internal to the market (OCDE, 1995). These include reduced erosion of the watershed and siltation containment. Water provided by the reservoir are therefore maintained for a longer period. Benefits (irrigation, water civil uses, etc.) external to the watershed are added.

The procedure used to quantify erosion is reported in the Appendix-data refer to the Bou Hertma case. The most traditional hydrological indicators are employed, now easily calculable through Geographic Information Systems (GIS), given availability of basic data.

Another off-site market effect (accounted only for Marguellil watershed) is the reduced risk of flooding agricultural and urban areas. Benefits are estimated on the basis of flooding frequency and the related amount of damage to agriculture, infrastructure and buildings according to evidence from various records.

Concerning Bou Hertma, forest-roads network improvement has positive impacts on both timber production (already accounted for in FA) and better access to market and social services for people living in the forest and bordering areas. Reduced transport cost for local people and goods is the valuation criterion.

Development of hunting, possibly due to improved habitats, is also considered in the Bou Hertma watershed and bordering areas. The off-site nature of this benefit is stressed by the fact that those buying shooting permits mainly use the facilities of the

tourism industry well-established along the nearby Mediterranean coast. Benefits are quantified on the basis of the additional sale of shooting permits. Those already traded within the intervention areas were already accounted for at FA and CEA levels.

4.4 Extended Economic Analysis 2 (EEA2)

Three non-market values are accounted for, and integrated into the analysis:

1. forest visitors' (locals and foreigners) recreational benefits;
2. carbon dioxide sequestration;
3. watertable recharge.

Calculation of these effects also requires non-market valuation techniques (Bateman 1993 and 1994; OCDE 1995; Munasinghe 1992), such as TCM and CVM. Visitors' benefits are estimated on the basis of consumer surplus, according to the results of the neighbouring Mediterranean countries' valuations where these valuation techniques have been employed in recent years, mainly in Italy and Spain (Dubgaard et al 1994).

Carbon dioxide sequestration is assessed referring to the average value of carbon fixation derived from international literature (Sedjo and Solomons 1989; Price 1990; Anderson 1991, Feinstein 1996)[7].

Finally, recharge of the watertable is valued with reference to existing local studies on the effect of dams and small reservoirs (Khanfir 1992; Lajili 1992; Abib 1992 , and Bouzid 1992).

4.5 Social Economic Analysis (SEA)

As already stressed, SEA is carried out only at the level of EEA2, but it could be undertaken at all the previous steps, at least from CEA onwards. The following information is needed:

1. the social groups involved in the project;
2. the distribution of costs and benefits among the groups; and
3. the weight to assign to each group according to their socio-economic status.

The first two items are easily available, being related to the population structure and distribution of costs and benefits. By contrast, assigning the weights involves political decisions, implying value judgements, which are not strictly part of the analyst's tasks. This critical issue has been tentatively solved by referring to the income of each individual social group, the poverty line and the national average income. In practice:

1. all natives in the area directly covered by the interventions (including small farmers shepherds and the landless) with income around the poverty line, and largely below the national average, have been assigned a weight 1.5;

7 As Feinstein (1996) points out, the values reported in the literature range from US$ 5 to US$ 125. In this study we assumed a prudential value of US$ 20.

2. farmers in the watershed with income around the national average, however afflicted by serious lack of services, have been assigned a weight 1.15;
3. the urban population has been assigned a weight 1, being well over the national average.

Of course this is a very debatable approach, albeit useful for a first valuation. Redistributional impacts due to the different utilities accruing to the various social groups can be estimated. The procedure therefore attempts to answer the crucial issue of how to consider poverty and the environment (Mink 1993) in a context of economic development.

5. MAIN RESULTS OF THE ANALYSIS

At each step of analysis the Net Present Value (NPV) and the Internal Rate of Return (IRR) are calculated. Figures 1 and 2, and Table 5 show how passing from financial (FA) to economic (CEA, EEA1 and 2) and social CBA (SEA), the IRR indicators for the whole project increase from 9.2% to 21.4%. FA and CEA show results comparable to those of similar investments in other Mediterranean countries. A previous CEA (World Bank 1993) on this kind of investment in Tunisia is substantially confirmed with IRR ranging from 10 to 15%. Extended 1 (EEA1) analysis improves the IRR to 17.2%, while Extended 2 (EEA2) gives an IRR over 19%. Taking account of welfare per income groups – that is, real utilities – SEA produces a 23% IRR. The NPV also shows similar levels.

Table 5. Main results of CBA applications

	Watersheds	NPV (i=0,10)	IRR
FA	B.V. Bou Hertma	1 186 039	12.68%
	B.V. Marguellil	- 1 435 617	9.19%
	Project	-249 578	9.89%
CEA	B.V. Bou Hertma	4 623 708	19.91%
	B.V. Marguellil	5 784 849	13.91%
	Project	10 408 557	15.40%
EEA 1	B.V. Bou Hertma	6 126 297	23.08%
	B.V. Marguellil	7 746 723	15.22%
	Project	13 873 020	17.21%
EEA 2	B.V. Bou Hertma	6 231 660	23.33%
	B.V. Marguellil	10 534 898	17.57%
	Project	16 776 558	19.13%
SEA (at step EEA2)	B.V. Bou Hertma	9 325 018	28.04%
	B.V. Marguellil	22 474 503	21.55%
	Project	31 799 521	23.06%

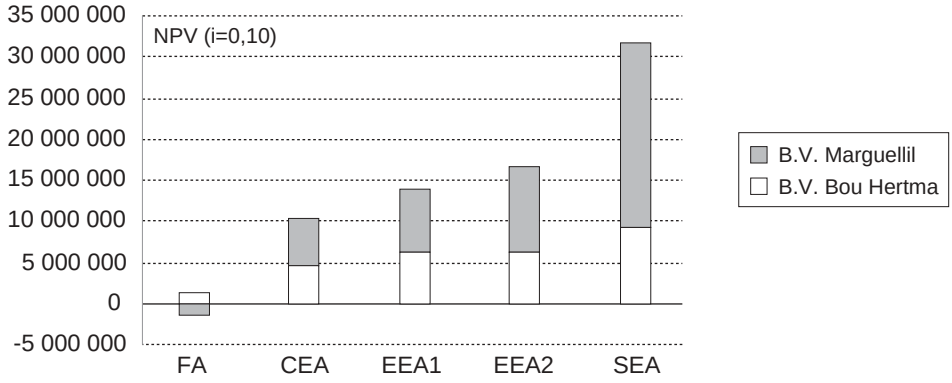


Figure 1. Net Present Value (NPV)

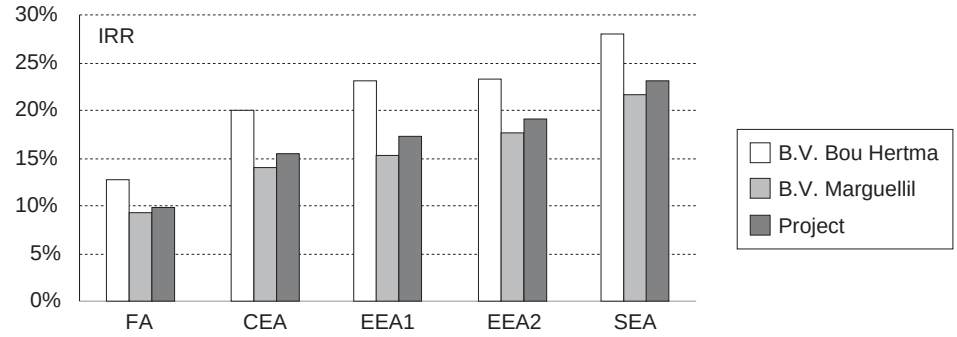


Figure 2. Internal Rate of Return (IRR)

It can be observed that consideration of values that are less closely linked to the market, requiring consumer surplus measures (typically EEA2 including recreational benefits) does not dramatically affect the overall results of the project. These remain rather considerable, whenever market and indirect market effects (like floods and siltation prevention) are considered. Also social analysis (SEA) does not particularly affect the result. Non-market and social issues increase the result by about 4%, from 19 to 23% IRR. One can therefore argue, rather soundly, that accounting for off-site, non-market and social costs and benefits (EEA1, EEA2 and SEA) certainly shows the additional welfare gain. However, in this case the result merely confirms the project's overall profitability, already demonstrated by conventional CBA (CEA).

One further point is that considering the two watersheds as a whole hides the higher profitability of the Bou Hertma forest investments, ranging from 13% in the FA to 28% in the more extended social analysis (SEA). This watershed is, however, much smaller in terms of area and investment and hence has less influence on the project as a whole.

5.1 Sensitivity analysis

The benefit and cost items considered in the more advanced steps of CBA, and therefore the extended conception of welfare gain, may cast doubts over the results. The credibility gap is also increased due to difficulties in calculating the true welfare gain.

The CBA results have therefore been tested employing sensitivity analysis. Table 6 shows the effects of variations of the most relevant variables considered in the analysis. One can see that variations as high as 10-20% do not significantly affect the project's general profitability. Significant variations of the most important interventions, like pine plantation or siltation rate, certainly show effects on the NPV of the project; however, the IRR is not modified by more than 3% with a 50% variation in the value of cost and benefits of individual interventions. Only a joint variation of different variables, for instance an increase in siltation rate, with a parallel increase in water costs and a decrease in crop productivity, could substantially influence the NPV and also the IRR of the project.

Table 6 also shows how changing the weight assigned to social group 1 (those living around the forest) can notably affect the NPV, while variations in social group 2's weight do not affect the result, particularly in the Marguellil case study. This is due to the fact that social group 2 is not directly affected by the interventions, as the most relevant part of the revenues goes to the landless, small farmers shepherds and indigenous populations.

6. CONCLUDING REMARKS

Various remarks, if not conclusions, may be drawn from the application of the above stepwise CBA procedure to forestry and soil/moisture conservation investments. Comments concerns both results and the underlying methodology. However, being an empirical work the two aspects tend to overlap.

First of all it can be said that the procedure implies a progressive transparent extension of the objective function, which shifts from net revenue to net social welfare gain (Table 4). In practice the various objectives of the investment, expressed in monetary terms, have been progressively summed. The objective function therefore comes to include, step by step, an enlarged conception of the welfare gain. This operation seems to be acceptable, at least for the two case studies, because the overall project's objectives (economic, social and environmental) are to a large extent compatible, and not competitive, and therefore may be added (Bowes and Krutilla 1989). The various components of the objective function do not engender conflicts, or negative interactions, as could be the case, for instance, with an enlargement of the irrigated area displacing pastures and alternative uses of water resources, negatively affecting the environment and reducing income and employment in the traditional pastoral economy[8]. From this point of view it can be stated that forest and soil/moisture

8 From this point of view forestry and soil/moisture conservation investments seem rather well suited to the procedure. It was not, however, the case of past colonisation works aimed to improve agricultural productivity, by transforming pastures into arable land, orchards and vineyards. Also environmental and recreational benefits do not affect existing forest and agricultural productivity or environment quality.

Table 6. Results of sensitivity analysis

Bou Hertma watershed		Variables	variation	NPV	IRR
NPV (FA)	1 186 039	revenues intervention 1	±20%	±485 656	+1.02%
IRR (FA)	12.68%	(pine plantations)	±50%	±1 214 139	+2.45%
		revenues intervention 2	±20%	±35 053	+0.06%
		(protective plantations)	±50%	±93 038	+0.14%
		revenues intervention 4	±20%	±248 665	+0.56%
		(forage plantations)	±50%	±621 662	+1.38%
NPV (EEA I)	6 126 297	siltation rate	±10%	±1 193 748	-3.07%
IRR (EEA 1)	23.08%		±20%	±1 327 626	-3.40%
		income increase due to	±20%	±243 998	+0.55%
		new roads	±50%	±609 995	+1.39%
NPV (EEA 2)	6 231 660	shadow price of	±10%	±7 790	+0.02%
		1 Carbon ton	±20%	±19 475	+0.05%
		willingness to pay for	±20%	±13 283	+0.04%
		1 visit to new forests	±50%	±33 207	+0.09%
NPV (SEA)	9 325 018	weight of social group 1	±20%	±1 196 589	+1.52%
IRR (SEA)	28.04%		±50%	±2 991 472	+3.63%
		weight of social group 2	±20%	±383 543	-0.58%
			±50%	±958 859	-1.30%

Marguellil case study		variables	variation	NPV	IRR
NPV (FA)	-1 435 617	revenue intervention 11	±20%	±1 925 895	+1.10%
IRR (FA)	9.19%	(terracing)	±50%	±4 814 738	+2.89%
		revenues intervention 12	±20%	±1 227 139	+0.69%
		(“cordons”)	±50%	±3 067 848	+1.78%
		revenues intervention 14	±20%	±2 145 290	+1.19%
		(fruit plantations)	±50%	±5 363 225	+2.82%
NPV (EEA 1)	2 746 723	siltation rate	±10%	±4 413 691	-0.36%
IRR (EEA 1)	15.22%		±20%	±3 827 381	-0.72%
		flood damages	±20%	±5 220 053	+0.18%
			±50%	±5 550 132	+0.44%
NPV (EEA 2)	10 534 898	water table recharge	±10%	±469 057	-0.30%
IRR (EEA 2)	17.57%		±20%	±938 095	-0.60%
		recreation and	±20%	±812 152	+0.74%
		environmental quality	±50%	±2 030 381	+1.92%
NPV (SEA)	22 474 503	weight of social group 1	±20%	±5 321 471	+0.93%
IRR (SEA)	21.55%		±50%	±13 303 679	+1.96%
		weight of social group 2	±20%	±44	-0.28%
			±50%	±164	-0.68%

conservation investments are well suited to the proposed CBA procedure. Incidentally they do not imply the availability of future environmental resources.[9]

In any case the objective function has been obtained comparing benefits and costs progressively 'adjusted' and 'extended' in order to express the 'true' social welfare gain, bearing in mind of course the limits of the concept. This has implied accounting of benefits and costs that until EEA1 step are valued with reference to market prices and therefore remain on a rather sound ground. However, even step EEA2, introducing values calculated on the basis of consumer surplus, mainly refers to use-values, such as recreation, which are rather close, or referable, to market values.

The welfare gain is therefore quite strictly related to the real world situation, that is, market prices and use values. Option and existence values are used rather carefully, and, in practice, to a very limited extent. Another aspect contributing to the soundness of the analysis is the project's local nature: it employs local resources, without affecting prices and wages in the national economy. Incidentally this fact greatly contributes to the robustness of the analysis: general equilibrium models, required by major projects, are not needed.

Again benefits mainly accrue to a local rural population afflicted by poverty. Of course redistribution has been taken into account, improving the results. The weight assigned to those living in/around the forests appears is, however, well justified by their living conditions. Reference to real purchasing power and to the poverty line would have required even higher weights to value their costs and benefits.

The CBA application seems, however, to respect the Pareto optimality criterion in its strictest meaning – nobody losing, somebody gaining welfare. This consideration sounds rather realistic considering that forestry and soil/moisture conservation investments in the Mediterranean, after all, advantage not only all those living around intervention areas but also the urban population including the European northern part of the Mediterranean Basin.

On a more general line the stepwise procedure should answer current criticisms of CBA: vagueness of the welfare concept, and therefore, the poor definition of the objective function, the use of monetary measures, the lack of a Multi Criteria view, and the general poor consideration of redistribution effects. These criticisms have pushed towards the development of Environmental Impact Analysis (EIA) and the underlying Multi Criteria Analysis (MCA) where objectives and impacts are expressed in terms of the most suitable measures: physical, biological, social and also monetary. It is not the purpose here to examine the advantages and disadvantages of the two methods. However, it must be noted that CBA and MCA (Romero and Rehman 1987) though apparently very distant, and frequently considered as mutually exclusive, share a common operative scope as noted by other authors (Romero 1994) and may be complementary in use. The stepwise CBA allows for this complementarity in so much as, similarly to MCA, it relies on a system of objectives and relative weights given, in practice, by the various steps of the analysis and by the weights attached to the social groups. Moreover, the framework developed in this study leaves to the analyst the decision of proceeding with the CBA approach up to the point (step) where he considers that monetary valuation of the pros and cons of the project is more reliable than other techniques. The analyst may stop the CBA at the Conventional or Extended 1 analysis

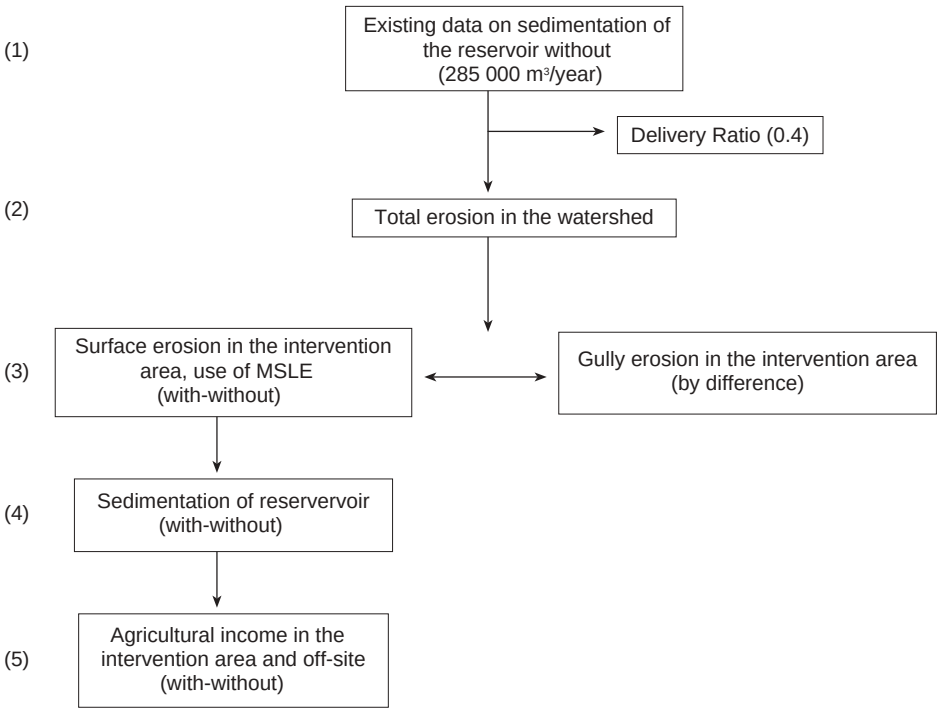
9 This could apply to projects including plantations of exotic species or new irrigation works.

level if he considers that monetary techniques for valuing environmental or social costs and benefits are less reliable or less cost-effective than MCA approach.

Despite these developments the claim that the true social welfare cannot be measured is still justified (Johansson 1993), and this explains a certain scepticism that has always haunted CBA and cast legitimate doubt over the validity of many CBA applications. Also most recent CBA developments applied to environmental changes seem to fail to give a full description of CBA, and how it should move from financial to economic analysis (Marggraf 1995). It must be accepted, however, as stressed by Brosio (1988, p. 233) that CBA is applied welfare economics trying to give "empirical solutions to problems of high theoretical complexity". Pragmatism can therefore be part of the rules of the game as far as CBA boundaries are clear and intelligible. From this point of view it seems possible to justify the proposed stepwise procedure.

APPENDIX: PROCEDURE EMPLOYED TO VALUE EROSION

The procedure includes the following phases outlined by the diagram. Quantities refer to Bou Hertma watershed.



1. definition of annual sedimentation as actually measured in the reservoir by MEH (1987); it amounts to 285 000 m^3, transformed into 456 000 tons by the 1.6 coefficient (Gregersen et al. 1987);
2. valuation of total erosion 1 140 000 tons; corresponding to the reservoir sedimentation through the delivery ratio 0.4 (Brooks et al. 1982);
3. separation of erosion into two main components: surface and gully. Surface erosion is calculated using the Modified Soil Loss Equation (MSLE) as developed by the USDA Forest service (USDA 1980). The MSLE allows estimation of soil losses based on a series of watershed parameters. Camus et al. (1994) and RT-MA (1986) have provided important input to the MSLE. In particular the average soil loss is expressed as it follows:

   A = R * K * LS * VM (where:)

   A = annual soil loss
   R = rain erosive factor

K = soil erosive factor
LS = topographic factor-slope
VM = protection factor linked to the existing vegetation cover

R and K have been estimated on the basis of existing bibliography (Brooks et al 1982) while LS refers to the watershed average slope. VM has been imputed on the basis of the land use within the watershed

The gully erosion is calculated by difference, that is the total erosion minus the surface one.

Erosion that can be prevented concerns the investment area (4532 ha) and can be calculated with reference to the average watershed erosion rate. Of course this is a very conservative estimate because erosion should be higher in the intervention areas where problems are more serious;

1. Valuation of reservoir's siltation in the 'with-without' situations is referred to the intervention area (4532 ha), and on this base it is derived water availability;
2. Valuation of agricultural production and income in the 'with-without' situations is made according to water availability. Of course production and income within the intervention areas enter FA and. CEA, while off-site effects enter EEA1.

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POSSIBLE INTERNATIONAL PROJECTS ON THE PROBLEM "FOREST AND GLOBAL WARMING" IN FOREST ECOSYSTEMS OF THE MARI EL REPUBLIC

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ABSTRACT

The Department of forest mensuration and inventory at the Mari State Technical University carries out studies on the phytomass of forest ecosystems in the Republic Mari El. As a result, the forest ecosystems with optimum carbon sequestration indices have been identified.

Collaboration in the joint research programmes with the European scientific centres on the investigation of carbon depositing by forest ecosystems is believed to of importance and great interest. Such cooperation would contribute to and assist in the establishment of a database of carbon stock in the forest ecosystems of the Republic Mari El. These data can be integrated into the international database on carbon and applied while modelling processes of the global climate change.

1. INTRODUCTION

The carbon contents in the forest ecosystems have been of special interest to the scientific community for the past 20 years. CO_2 contents have been allowed to increase in the atmosphere, resulting in the global warming, which according to a pessimistic prognosis, in its turn might result in the polar ice melting and flooding over low lands (Houghton and Woodwell 1989), as well as in droughts and frequent forest fires.

As for the size of carbon production and the duration of its sequestration, the forest ecosystems of the planet are considered to be the most reliable system of preventing the greenhouse effect. Forest ecosystems contain over 75% of carbon (Olson et al. 1983), accumulated in on-surface vegetation. It is well known that by using methods aimed at improving the forest growth, e.g. the optimisation of age and species structure of forest ecosystems, and additional reforestation, there is an opportunity of "pumping" a certain amount of CO_2 from the atmosphere into phytomass. Also, as the third millennium

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approaches, new ecologically oriented methods of forest ecosystems utilisation should be adopted. That, undoubtedly, would require reconsideration of the policy of forest utilisation and forest growing due to the development of new tendencies in forest management. In addition, at the latest conferences held by the UN, the forests have been given much more attention than before.

Russia's forests occupy up to 30% of boreal forests of the planet (Murray 1993). Together with Canada and the USA Russia is one of the main sequestrated carbon holders becoming the object of the world community attention.

The boreal forests of higher latitudes are formed by a small number of tree species, which distinguishes them from the forest ecosystems of the tropical and subtropical zones, and are characterised by a slowed-down biological cycle. The amount of annual fall of plant residues in such ecosystems exceeds the amount of decomposition. Thus, the boreal forests accumulate carbon not only in the wooden biomass but also in the detritus, dead beaten stock (mortmass), humus and peat.

This brings forth a pressing demand to study this problem by using Russia as an example. Also close cooperation and collaboration with those European countries which have succeeded in this field is needed. In particular, this type of studies is expected to become of considerable theoretical and practical interest on the territory of the Mari El Republic.

2. NATURAL AND FOREST-GROWING CONDITIONS OF THE REGION

2.1 Territory

The Republic of Mari El is located in the eastern part of the Russian plain, extending in the latitudinal direction. Its top length from west to east is 275 km, and from north to south 150 km. The total area of the republic is 23 200 thousand km^2.

The territory of the Mari El Republic is a part of the Eastern-European plain. In general, the surface of the land consists of hilly plains, with height variations from 45 to 275 m above sea level, and quite gradual transitions from the lower to higher parts.

The highest parts are located in the south-east. It is there that the surface descending towards the Volga river valley can be seen, with central lowland extending along the river in the form of a wide band with a great number of lakes, marshes and rivers. Above the Volga-river valley, a high right bank elevates in the form of a steep ledge with deep ravines and gullies.

General landscape differentiation is enhanced by 200 rivers, with a total length of 10 700 km, 700 lakes with an area of 2752 ha, and 208 700 ha of peatland. A high amount of karst – 43% of the area, and vast forest cover – 52% of the total area, are considered to be additional factors in making the landscape structure more complicated.

The republic is located at the distance of approximately a thousand kilometres from the southern, western and northern seas and oceans. Yet air masses from the Atlantic and North oceans influence the climate of the region greatly.

2.2 Climate

The climate of the Mari El Republic is considered to be moderately continental with relatively stable weather in the winter and the summer. The weather changes considerably in the spring and the autumn.

The mean annual temperature varies from +2.2 ˚C in the north-eastern regions (New-Torial), up to +3.1 ˚C in the south-west (Kosmodemiansk). The mean annual temperature in the lower atmospheric strata has changed distinctly in the past 66 years (1930-1996) towards warming (the coefficient of linear trend being 0.95 ˚C / 100 years) (Fig.1). In recent years the winter months have been warmer than usual.

The average amount of precipitation is 450-500 mm, including 200-250 mm during the vegetation period. On the whole, the republic is located in the zone of unstable moistening, years and seasons with sufficient and sometimes even with excess moistening are substituted with dry ones.

Progress in the forest ecosystems’ growth and productivity depends also on the duration of the vegetation period. Its beginning and end are roughly determined by the mean daily temperature of air +10 ˚C, and soil +5 ˚C, accordingly, the sum of active temperatures (+5 ˚C or +10 ˚C), or during the time when the plants have green leaves. The mean daily temperature of air is higher than +10 ˚C during a period of 150 days a year.

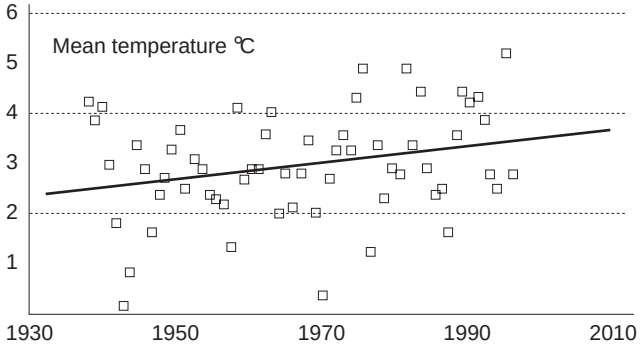

Figure 1. Increasing of mean temperature

2.3 Soil and vegetation

The Mari El Republic is located on the border of the forest and forest-steppe zones and is characterised by a noticeable landscape variety. The river Volga serves as a natural border of natural conditions: climate, relief, as well as soil and vegetation cover. The republic is divided into two parts by the Volga river: the larger part, the left-bank side with subzones of coniferous and mixed forests, and the smaller part, the right-bank side located in the zone of broad-leaved forests.

On the left bank-side, there are mainly sandy and sandy loam soils, and in its eastern part there are loam, turf-carbonate, brown-gray and turf-ashen-gray forest soils. On the right-bank side there are predominantly gray and dark-brown forest loam soils.

The composition of the vegetation cover of the republic is determined by the natural conditions of the territory. The main part of the forest is concentrated in the west, on the Mari lowland, where the forest cover occupies more than 80% of the territory. In general, pine forests predominate. In the south-eastern part of the left bank, the forests are considerably more diverse in contents. The mixed coniferous-broad-leaved forests grow there. In respect to the richness and wealth of plant species this part of the republic is the most interesting one.

The right-bank side is the region of spreading broad-leaved forests – upland oak groves. In accordance with the factors of forming certain types of forest, Chistiakov and Denisov single out 6 forest-growing regions in the republic (Fig.2):

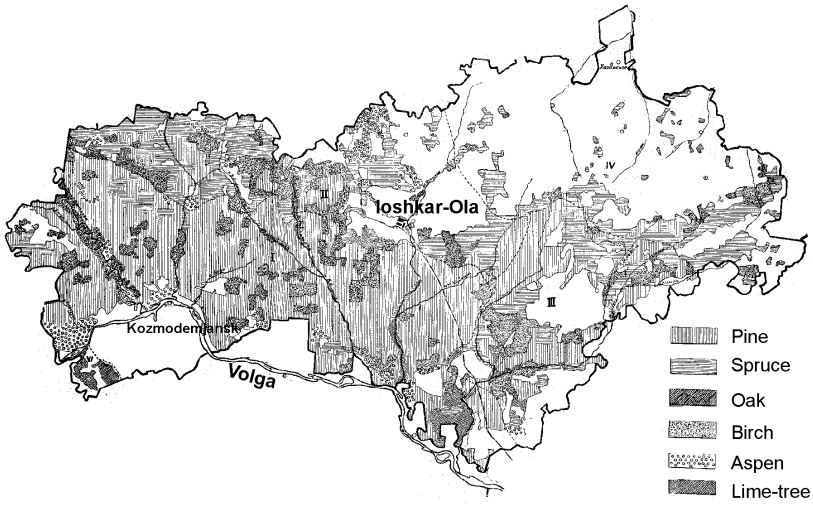

Figure 2. Mari El Republic

1. the region of pine forests of the Zavolzhskaya sandy lowland;
2. the region of spruce-broad-leaved forests of the Orshansko-Kokshaginskaya hilly plain;
3. the region of coniferous-broad-leaved forests of the southern part of the Mariysko-Viatskiy uval;
4. the region of spruce-fir forests of the higher part of the Mariysko- Viatskiy uval;
5. the region of deciduous forests of the flood lands;
6. the region of deciduous forests of the upland right-bank side.

The natural conditions of the republic of Mari El enable intensive forest economy and management and are considered to be favourable for growing forest ecosystems with higher biological productivity and ecological stability.

2.4 The characteristics of the forest fund of the Mari El Republic

The total area of the forest sector in Mari El is 1210 thousand hectares, and the area covered with forest is 1095 thousand hectares. The total wood stock reaches 170 mill. m^3, 40 mill. m^3 of which in mature and decline forest ecosystems.

The total average increment is 3.4 mill. m^3, and the average forested area constitutes 52.7% (Lesnoi Fond 1995).

Most forests belong to the state, except the ones belonging to the collective farms, making up 2% of the total forest fund. At present, there are no private forests in the Mari El Republic.

2.5 The main forest-forming species

On the right-bank side the main forest-forming species are pine (*Pinus sylvestris*), birch (*Betula pendula* and *pubescens*), fir (*Picea abies* and *abovata*), and aspen (*Populus tremula*). Oak (*Quercus robur*) is less widely spread. Figure 3 shows the distribution of the main species.

The natural complexes of the forest is considered to be created by pine stands which occupy 38 % of the total forest area, which constitutes 418.6 thousand hectare. The second place is occupied by birch-tree ecosystems represented mainly by young and middle-aged stands appearing on the vast areas of slashes and clearing.

The next species is spruce occupying vast territories on the north-west and in the northern regions of the republic. The greatest share is taken by both mature and young aspen stands. Lime, alder, spruce and oak forest ecosystems are considerably less spread.

In respect to the annual carbon sequestration it is possible to specify the following principal species: pine, birch, larch, spruce, and aspen. The most promising, in respect to accumulation duration period for the conditions of the republic, is pine.

Among pine species this very type is considered to occupy the largest area and to accumulate the highest amount of biomass. Being frost-resistant and drought-resistant,

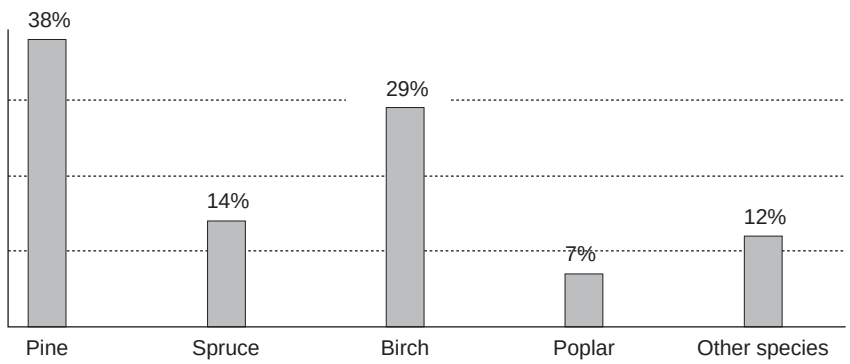

Figure 3. Distribution of main species in the Republic Mari El

hardy to soil-ground conditions it grows on the plains and in the mountains forming isle stands in the forest-steppe and steppe zones. Ability to grow in different climatic and soil-ground conditions contributed much to the formation of pure pine stands, as well as mixed stands with spruce and birch, which are very diverse in composition, forest stand and productivity, and are grouped in certain types of forests. Pine growing on the drainage soils possesses greater stability to wind. On the territories close to the pine forests the amount of precipitation and the air humidity within the vegetation period is higher than in the open steppe, which enables one to obtain crops of agricultural cultures even in dry years.

Unlike the species which are distinct in respect to their high increment of wood stand and short life period (predominantly of the softwood species), pine stands out due to its stable growth, and because its wood is durable and rot-resistant.

While growing pine stands of the 2 site class with stand-density equals to 0.8, it can be expected that the size of the current increment of wood at 10 years age would reach 2.6 m^3/ha, at 30 years age 6.7, at 50 years age 7.6 and at the age of 70 it would be 6.8 m^3/ha (Kurbanov 1994).

3. THE STATE OF PROBLEM "FOREST AND GLOBAL WARMING"

The latest international publications and studies on the subject "Forest and Carbon" can be divided into the following categories.

- Evaluation of the carbon stock and its annual sequestration in the biomass of the forests. (Karjalainen 1996, Kauppi et al. 1992; Alekseyev and Birdsey 1994, Isaev et al. 1993, Isaev et. al. 1995)
- The prognosis of the dynamic changes at different climatic scenarios due to increasing CO_2 concentration in the atmosphere (Dixon 1994, Melillo 1993, Cannell 1995, Zavelskaya 1993, Kondrasheva 1993).
- Determination of the anthropogenic emission of CO_2 and an opportunity of its compensation in the photosynthesis process and carbon sequestration by vegetation (Dudek 1990, Schroeder 1991, Utkin 1995).
- Global carbon cycles in the natural ecosystems (Dixon 1991, Tarko 1994, Kobak 1988).
- Biological carbon emission in the form of CO_2 into the atmosphere caused by forest fires and forest utilization (Fosberg 1996, Furyayev 1996).

The first unit is of most applied significance in the aforesaid problem. After determining the regularities and the dynamics of organic carbon sequestration by the phytomass of the forest ecosystems, one could smoothen the consequences of the coming global climatic changes by creating optimum carbon sequestration forest ecosystems applying science-based methods and approaches.

Currently the following methodological approaches are used to evaluate the organic carbon stocks in Russia. Most researchers are using various subject maps combined

with the database to be differentiated into phytomass fractions of all the vegetation layers of the forest ecosystems (Bazilevich 1993).

Other researchers apply materials of the state inventory of the Russian forest fund considering total areas and stocks of the wood of the main forest-forming species while determining the average stock of the forest stands in respect to age groups. Then, because the conversion coefficients are the expressions of the relationship between the volume stock of the stemwood and the mass of the tree fractions (wood, bark, branches, roots and leaves), calculations of the total phytomass stocks per unit area are made. Determination of the carbon is effected through absolutely dry mass as well as through conversion coefficients proposed by Kobak.

The second way of determining carbon stocks is widely recognised since the calculation is made not only by area (square) but also by volume wood stock. Materials of the sample plots in the second variant serve for determining conversion coefficients, allowing to transfer from the wood stocks to the carbon stocks of the forest ecosystems.

The drawbacks of this method are as follows: When making calculations, the average value of the average vegetation stock within age groups is used, causing certain errors in determining the total carbon stock.

If the values of the conversion coefficients for different species were available, it would be possible to compare and match them with the database of the forest ecosystems. Thus, several methods of determining the phytomass with different levels of approximation to reality could be singled out:

a) The first method is based on the calculation of the average value of the conversion coefficient for a species. By multiplying the said coefficient and trunk wood stock obtained during forest assessment, one can determine the value of phytomass of the forest ecosystem under investigation (Armentano 1980, Berdsey 1992, Kolchugina and Vinson 1993).

b) The second method includes the calculation of the average statistical conversion coefficient to be differentiated in accordance with the species and age groups (Makarevskiy 1991, Isayev et al. 1993, Alexeyev and Berdsey 1994). The value of the phytomass is obtained by means of weighing the average statistical conversion coefficient according to species, forest-covered areas and stemwood stocks in accordance with the distribution of the latter in respect of age groups.

c) The third method is considered to offer a more accurate evaluation and estimation of the total phytomass in comparison with the previous ones, since the conversion coefficient is weighed considering specific square and stem wood stocks distributed according to two determining factors simultaneously – in respect of age and site (Penner 1997).

d) At the fourth level of approximation a sample bank of forest organization data classified according to the four determining factors of the forest ecosystem – average age, height, diameter and forest-stand (Usoltsev 1995) is used. The said method is believed to possess a high level of accuracy and can be applied for the addition of traditional tables of yield and growth..

Apart from the conversion coefficients, regression functions equations are widely used in determining the phytomass. It should be noted that depending on the level of the calculation there are two ways of applying this function:

First, while determining the phytomass of the fractions of the forest ecosystem, phytomass dependence on GH is applied (G is basal area , m^2/ha, H is average height of the forest ecosystem, m) or G_{el} (Kurbanov 1994) is elementary stock, where phytomass stock in absolutely dry condition per 1 m^2 of the basal area of the tree stand). In this case regression equations look like conversion coefficients.

The second way relates to allometry at the level of separate tree taxation. For the tree fractions phytomass approximation, the following taxation indices are considered: tree diameter at breast height, m (D); tree height, m (H); length and diameter of crown, m (L_{cr} and D_{cr}). In recent years, synergism D^2H has enjoyed wide popularity among the researchers as a factor taking cross-section square and height into account. The introduction of such an index would result in levelling irregularity of model trees sampling from the plants of different types of forest growing conditions. The indices of the crown – L_{cr} and D_{cr} – are also considered to be of great practical interest. In particular, they are used while applying distance methods of evaluation of forest ecosystems bioproductivity.

The accuracy of the allometric equations approximation is determined according to the determination coefficient (R^2) and Fisher's F-criteria. The merits and advantages of this method of allometry, compared with the other existing ones, are in the simplicity of its application and the higher accuracy due to the tree-listed taxation.

The productivity of photosynthesis can be determined in respect of chlorophyll index, which is calculated through the ratio of the assimilated carbon to chlorophyll contents per leaf square and the surface covered with this vegetation. High linear correlation has been found between the chlorophyll index of the forest ecosystem and annual sequestration of the atmospheric carbon (Mokronosov 1994).

One of the advantages of such approach might be the possibility of applying distance methods, and one of the drawbacks the impossibility of representative data extrapolation on the forest ecosystems diverse in respect to species composition and mixture character.

4. POSSIBLE DIRECTIONS AND TRENDS

In Russia there are many large research centres engaged in forest studies and investigation. But the economical problems in the country, and the lack of financial support make it impossible to implement and realise any serious investigations.

Evaluation and estimation of organic carbon stocks in the forest ecosystems of Russia have been carried out by a number of large research centres using different methodologies However, quite often the results of these researches contradict each other.

These divergence, in our opinion, are due to the fact that the calculations of the global carbon balance are generally carried out through data extrapolation of a limited number of samples for the phytomass estimation on a rather vast territory. In addition,

these estimations do not take into account the fractional phytomass composition of the forest ecosystems, litterfall, current increment, deadfall, dead standing wood as well as the difference in respect of site, forest types, forest-stand etc.

Therefore, for obtaining true and correct data of the carbon balance of the forest ecosystems of Russia it is required that research should be carried out at the regional level with accurate data of particular and specific experimental works taking into account all the above mentioned factors with respect to separate forestry enterprises. This kind of research would contribute much to the development of ecologically substantiated and proved strategy of nature utilisation at the level of a economical region.

The Department of forest mensuration and inventory of the Mari State Technical University carries out research on the phytomass on all the vegetation levels of the forest ecosystems in the Mari El Republic. Thanks to this research, forest ecosystems with maximum carbon sequestration have been found.

In this respect, it might be of great interest to participate in joint projects with the European scientists dealing with the same problem. Such collaboration would contribute to the creation of a database on the carbon stocks in the forest ecosystems of Mari El. These data might be integrated into the world database on carbon and applied while modelling processes of global climate changes.

Determination of the carbon stock for the territory of the republic is considered to be one of the primary objectives in the nearest future. Other objectives include creating carbon sequestration sustainable forest plantations. It is planned to establish a network of such managed ecosystems on the territory of the republic as well as beyond its borders.

A good example of international cooperation might be the first pilot project regarding the establishment of carbon sequestration forest ecosystems implemented within the framework of agreements between the Universities of Oregon (OSU), the department on climatic changes of the Agency on environmental protection, Saratov forest management, Federal service of the forest economy of the Russian Federation, and International Institute of Forest. The project is aimed at estimating biological, operative and institutional possibilities and opportunities of creating and monitoring carbon sequestration plantations in Russia as the carbon stock.

The agreement includes the following: planting forest crops and looking after them; preservation of the plantations established, their regeneration in case of damage or tree death; field evaluation of the biomass accumulated, and the amount of carbon deposited; limitation for the wood utilisation after plantation reaches the cutting age; parity division of the carbon credit, and transfer of the rights for the credit obtained. Within the framework and scope of the project the following activities are carried out: the development of the methods and models of deposited carbon amount evaluation; field works regarding data collecting for these models; and necessary calculations regarding the dynamics of phytomass accumulation and carbon sequestration.

The calculations made on one of the plantations showed that the amount of the annually sequestrated carbon created by the pine managed ecosystems is expected to constitute 1.8 t/ha per one cutting cycle on average, and the total carbon stock for the period rated (100 years) is 108 t/ha.

According to the authors of the project, an essential condition of further expanding the international cooperation and collaboration in the field of creating carbon sequestration forest ecosystems is solving the following questions:

- substantiation of baseline while estimating the amount of the carbon sequestrated;
- development of the methods of monitoring for the state of plantations established and the amount of carbon absorbed by them;
- verification of the results of forest-growing (carbon benefit);
- insurance of investments for the establishment of carbon deposited ranges;
- improvement of the mechanism of carbon credit transferring from the country-producer to the country-receiver.

The primary experience of works done, and the results obtained by now are considered to justify the vitality of such projects and the presence of real alternative for developed countries in solving the problem of compensation of industrial carbon emission into atmosphere and the fulfilment of obligations stipulated and provided for by the frame convention on global climatic changes.

Such projects with a much more thorough scientific approach could be carried out in the Republic of Mari El, which itself represents the most favourable place and conditions for establishing a network of carbon sequestration forest ecosystems. The great scientific potential of the Forestry Faculty of the Mari State Technical University, the presence of forest tree nurseries of federal importance, and the comparatively high level of conducting forest management could contribute much to the above project.

The third way of cooperation is considered to be the conservation of separate forest ecosystems of the Mari El Republic performing biosphere-stabilising functions. It concerns not only the carbon sequestration by phytomass but also the matter of preserving biodiversity of forest ecosystems. These kinds of forest could be called for virgin forests, or economically unacceptable forests (lack of transportation ways, low mechantability, etc.). The greatest problems in the international cooperation in this matter are considered to be the determination of the biodiversity range of different types of the forest ecosystems, the development of estimation criteria of the optimum biodiversity and stability of the forest ecosystems to be conserved, and arrangements for making and keeping them.

The fourth direction should be the fire protection, since its quantity has increased in recent years. In 1996, in the conditions of dry windy weather there were 285 fires in the forests of the Republic of Mari El, the total area being 519.4 hectare. As a rule, large forest fires occur from the end of August to the beginning of September, when cranberry bogs dry out because of precipitation absence. The main cause of forest fires is the human factor. In 1996, only two fires out of 285 occurred due to lightning discharge, 29 were due to the mistakes made by wood cutters during forest logging, and the remaining were caused by people's carelessness.

At the same time, it is expected that increasing fires in boreal forests, caused by the climatic changes, would increase the carbon contents in the atmosphere, and according to the principle of feedback, would cause additional global warming. There are all grounds for supposing that all the factors listed in combination with the expected

change of climate might lead in the nearest future to great fires in boreal forests accompanied by global ecological consequences.

5. SOURCES OF FINANCING

However, during many years, because of the political borders between the West and the East, studies of the problem "Forest and Global Warming" in the Republic of Mari El as well as many other researches have been in the depression state. In recent years, because of the political and economical transformations in the Russian Federation, the situation has slightly changed. The Russian government does not yet finance science and research. The general financing of universities, research centres and academies is so insufficient that they are unable to pay even minimum salaries to the personnel.

At the beginning of the 1990s, the commission of the European Union adopted special programs of the scientific-technical cooperation of the European Union with the countries of Central and Eastern Europe and New Independent States (NIS) of the former Soviet Union in different directions of science and technique. Among these programs one should single out TEMPUS/TACIS, INTAS, INCO-COPERNICUS and others. The aims and objects of these programs are the facilitation and contribution of securing the scientific-technical potential of these countries by means of stimulating joint science-research developments and projects, active contacts between the scientists and researchers, technologies exchange, and strengthening connections between the universities and industry.

As a rule, the joint projects there should be participated by at least two independent partners from different country-members of the European Community and, at least one partner from the countries of the Central Europe or NIS. The cooperation with the European colleagues in such programs is considered to open new opportunities for the Russian scientists and to contribute much to the integration of the Russian research centres into the European scientific society.

The main directions in the frame of the latest projects are as follows: environmental protection, stable development and forests preservation. This stresses the importance of the matters and problems discussed in this paper and shows opportunities and possibilities of their real implementation.

We invite all scientists concerned to cooperate.

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SESSION IV

WHAT IS THE ROLE OF CRITERIA AND INDICATORS IN BALANCING ECOLOGICAL AND SOCIO-ECONOMIC ASPECTS OF SUSTAINABLE FOREST MANAGEMENT?

Moderator: Prof. Dr. Hans Eßman

CRITERIA AND INDICATORS AS TOOLS FOR SUSTAINABLE FOREST MANAGEMENT

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ABSTRACT

A number of countries and international organisations are participating actively in international and regional initiatives aimed at defining and implementing national level and sub-national level criteria and indicators for sustainable forest management. This co-operation has enabled countries to benefit from the experience of others and at the same time to bring new dimensions and ideas into the international processes.

At international level C&I provide an appropriate, flexible framework to develop a harmonised set for performance reporting and later on, for agreeing on a possible international standard on sustainable forest management. The linkage between the criteria and indicators appropriate at the national level and those applicable to the sub-national and operational level will vary from country to country.

Criteria and indicators should be formulated through a transparent process involving all interested parties, especially forest owners and local communities, and also including forest dwellers, indigenous people and other major groups. It has been generally accepted that criteria and indicators should be practical, scientifically based and cost-effective, they should reflect, inter alia, the prevailing economic, social and ecological circumstances.

Criteria and indicators may also play an important role in clarifying relevant forest policy issues such as forest certification and labelling of forest products. Threshold or target levels are already established to some indicators through the existing management rules and regulations. Their further development should be encouraged. Development of C&I is part of the national forest policy process and the linkage to preparation and monitoring of National Forest Programmes is particularly close.

Within the last few years, considerable political efforts have been made towards safeguarding the quality and quantity of forests, and fulfilling the needs of society by further developing and implementing sustainable forest management globally and in Europe. In this paper I examine the future policy options mainly in the light of two prevalent processes, proposals for action of the IPF and the Helsinki Process.

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1. INTERGOVERNMENTAL ACTION ON CRITERIA AND INDICATORS

The development of criteria and indicators that characterise sustainable forest management (SFM) has been one of the main achievements in the progress towards SFM in the 1990's. Criteria and indicators (C&I) provide a conceptual framework for policy formulation and evaluation and have been found to be useful tools for assessing trends in forest conditions and for reporting on the state of forests.

Already some efforts have been taken to reach a common international understanding of key concepts, definitions and terms used in formulating and developing criteria and indicators for SFM, as well as methodologies for data collection. These approaches must be compatible with those used in other related fields, such as forest inventories, forest resources assessments and environmental assessments.

One objective is to further clarify the linkages between the C&I appropriate at the national level and those applicable to the sub-national and forest management unit/ operational level. In this respect the Helsinki Process has already made some progress. The proposed Pan-European Forest Management Unit Level Guidelines are already discussed. They should be directly derived from the Resolutions H1 and H2 of the Second Ministerial Conference on the Protection of Forests in Europe, and thus logically structured under each of the Helsinki Process criteria. The FMULG-approach builds a clear linkage between all levels, forming a continuation from the political commitments at the international level, down to the forest level.

A number of countries have been participating actively in international and regional initiatives aimed at defining and implementing national-level C&I. Regions, sub-regions and countries with forest related interests, but especially those with distinctive ecological and geographical characteristics as well as countries with low forest cover could benefit from this co-operation.

It is essential that comparability and compatibility between various international and regional processes will be further studied and enhanced. There also must be consistency in the methodology employed in global forest assessments. In order to reach this we should maximise the exchange of information, experience and technical knowledge at the global level.

The Intergovernmental Panel on Forests made several proposals for action, which have been already approved for implementation by the UN Commission on Sustainable Development in April 1997. The Intergovernmental Panel:

a) Encouraged countries to proceed to prepare, through a participatory approach, national-level criteria and indicators for sustainable forest management, and, taking cognisance of specific country conditions and on the basis of internationally and regionally agreed initiatives, to initiate, and where appropriate, to implement them while recognising that further scientific and technical examination, including field testing, will itself provide valuable experience and assist in further refinement and development;
b) Urged countries to promote, as appropriate, the use of internationally, regionally, sub-regionally and nationally agreed criteria and indicators as a framework for promoting best forest practices and in facilitating sustainable forest management; to encourage the formulation and implementation of criteria and indicators on a cross-sectoral basis and with the full participation of all interested parties; to include them

in national forest programmes; to establish and, where appropriate, clarify links between criteria and indicators employed at the national level and at the sub-national or at the forest management unit/operational levels; and to promote their compatibility at all levels;

c) Encouraged countries not yet participating in any of the ongoing international and regional initiatives on criteria and indicators to become involved as soon as possible, thereby gaining benefit from the experience of the existing processes as well as contributing new insights; and urged donor countries, and multilateral and international organisations to provide adequate technical and financial assistance to developing countries and economies in transition to enable them to be involved and to participate in the further development, field testing and implementation of criteria and indicators at the national, sub-national and forest management unit/ operational levels;

d) Urged countries and international organisations, in particular FAO, UNEP and other participants in international and regional initiatives to undertake efforts to achieve a common international understanding on concepts, essential terms and definitions used in formulating and developing criteria and indicators for sustainable forest management and to promote their adoption; on indicators for forests in similar ecological zones; on the mutual recognition among sets of criteria and indicators as tools for assessing trends in forest management and conditions at the national level; and on transparent methods for measurement of indicators and for the collection, assembly, storage and dissemination of data;

e) Recommended that FAO and participants in regional and international initiatives draw on commonalities between criteria and indicators developed in the latter and on the Forest Principles, and recommended that criteria and indicators be used by FAO and other relevant organisations in order to improve consistency on reporting on forest assessment and sustainable forest management;

f) Requested that the Conference of the Parties to the Convention on Biological Diversity take note of the work of the various existing initiatives on criteria and indicators to ensure that the work done by the Convention on Biological Diversity on developing and implementing biodiversity indicators would be consistent with and complementary to them.

2. FROM CONCEPTS TO PRAGMATIC POLICY TOOLS

2.1 Definition of criteria and indicators

In general terms, a criterion is an element that is considered important for sustainable forest management and by which the progress towards sustainability can be judged. The Pan-European criteria have been designed to cover all major components of SFM and thus reflect our goals and aspirations related to forests. Indicators are the tools by which criteria are measured. They can be quantitative, qualitative or descriptive. When periodically measured and monitored, they can show the direction and extent of change.

Descriptive indicators are needed to provide information on existence of forest policy instruments, and the extent to which they support and enhance the achievement of set targets. The core set of indicators should be carefully selected in order to reduce the number of measurements and parameters needed. Aggregated information could simplify the communication process between all interested parties. Appropriately selected set of indicators can also serve as an "early warning" system, helping to identify gaps and threats.

All international processes of the development of criteria and indicators for SFM have the common aim to define sustainable forest management and monitor progress towards it. Content wise, the criteria are very similar in all initiatives but the structure of the (criterion) sets varies. Although more differences occur at the indicator level it is possible to identify a number of conceptually identical indicators. Differences reflect specific economic, ecological and social conditions of the countries and regions concerned.

2.2 ITTO initiative

In the ITTO initiative, the development of criteria and indicators for sustainable tropical forest management was based on the signals from the tropical timber markets. National and forest management unit level criteria and indicators were adopted in May 1992 by the ITTO's Council. It encouraged ITTO producer countries to adapt criteria and indicators to national conditions and to apply them in the field. The ITTO criteria and indicators were intentionally kept simple and oriented to forest management practises. The indicators were conceived as a sort of a "checklist", aimed at providing guidance and assistance for planning which would ensure sustainable forest management. In many ITTO producer countries efforts towards disseminating the criteria and indicators including the examination data collection challenges and, in some cases, the pilot scale demonstration of sustainable forest management by the help of the criteria and indicators, e.g. in the established demonstration areas, is under way. ITTO has also established a special Working Group for revision of the ITTO criteria and indicators.

2.2 Helsinki Process

The Helsinki Process is a continuous political process. The pan-European criteria and indicators were adopted in June 1994 as part of the follow-up process of the Second Ministerial Conference on the Protection of Forests which was held in Helsinki in 1993. Their aim was to show, on the basis of repeated measurement of and reporting on indicators, to what extent the current development of forests and forest management fulfil the aims of sustainable forest management as described in the general guidelines, Resolutions H1 and H2, signed in the Helsinki Ministerial Conference. The set of national level criteria and indicators completes the explicit definition of sustainable forest management as described in Resolution H1. The pan-European set of criteria and indicators for sustainable forest management has been considered operational for the time being. However, as a result of data collection for indicators, the European

countries have emphasised the need to further develop the information collection methods as well as terms, definitions and classifications. The work on common criteria continues at forest management unit level pursuing a pan-European list of guidelines for a "defined forest area"

2.3 Montreal Process

The Montreal Process (the Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests) has been driven by the desire of like-minded countries, and does not convey political obligations. The progress made under the initiative, however, demonstrates commitment by the participating countries to practice sustainable forest management and to work together. The set of criteria and indicators for the conservation and sustainable management of temperate and boreal forests outside of Europe were developed within a series of expert meetings and endorsed, together with a statement know as the "Santiago Declaration" in February 1995. Montreal Process criteria and indicators provide an implicit definition of sustainable forest management and a common framework for describing, assessing and evaluating a country's progress toward it at the national level. The member countries of the Montreal Process are collecting data for indicators and examining data availability. They have identified the need to improve data collection and reporting capacities and methods emphasising further definitions, monitoring and research systems.

2.4 Tarapoto Proposal

The Tarapoto Proposal is based upon a long history of political co-operation in the framework of the Amazon Cooperation Treaty (ACT). Criteria and indicators developed in an Regional Workshop to Define Criteria and Indicators of Sustainability of the Amazon Forest are to be further revised and adopted by the ACT countries before their implementation. National workshops will be organised to disseminate the proposed criteria and indicators. The Tarapoto initiative aims at developing criteria and indicators that would combine environmental sustainability factors with the optimal economic use of the Amazon forests and overall social development. The role of criteria and indicators is to define a pattern by which the sustainability of the Amazonian forest can be adequately evaluated. The Tarapoto proposal concerns three levels: national, management unit level and services at global level.

2.5 FAO/UNEP initiatives

The UNEP/FAO Dry-Zone Africa initiative responds to the need to expand the criteria and indicators activities. FAO and UNEP organised an expert meeting which proposed a set of criteria and indicators to be used at the national level in the CILSS, SADC and IGADD regions. The results of the meeting were endorsed by the African Wildlife and

Forestry Commission. The proposed criteria and indicators are to be further discussed and improved in the countries concerned.

FAO and UNEP are, in collaboration with other international organisations concerned, in a process of organising similar type of expert meetings in different parts of the world, e.g. for the Mediterranean climate in North African and Near East countries, and for Central America.

2.6 Implementation of Criteria and Indicators in national forest policies

The next logical step is to implement these internationally or regionally developed C&I in national forest policies. Criteria and indicators certainly can play an important role in defining the objectives for national forest programmes or similar planning tools, and in evaluating the effectiveness of their implementation.

Although the actual implementation of criteria and indicators may take rather a long period, their development process has resulted in a number of parallel benefits. These include:

- A better understanding of what sustainability management means;
- The internationalisation and vitalisation of discussion;
- A movement towards consensus building and mutual confidence, and increased number of countries and organisations becoming involved in common sustainable forest management discussions;
- The stimulation of collaboration between all interested parties;
- Progressive refinement of objectives;
- A movement towards better land use and forest policies and forest management practices;
- The identification of deficiencies in information, research, policies, legislation, capacity and incentives;
- The assessment of resources needed to attain sustainable management; and
- An increased possibility to clarify issues related to trade and environmental policies including certification.

The development of criteria and indicators is based on consensus building between different interested parties and it has reinforced the common interest to collaborate between the countries to reach the common goal of sustainable forest management. Information has been shared, in a constructive manner, within and between the initiatives. The efforts made in the initiatives have benefited from countries' active participation in international fora, and from the participation of countries involved in different processes, international organisations and NGOs to each others initiatives.

Achievements within different initiatives have also been recognised outside the forest sector. To advance mutual benefit, it would be important to reinforce collaboration between these initiatives and the work on other environmental and sustainable development indicators, in particular those developed under the umbrella of Chapter 40 of Agenda 21.

3. THE MINISTERIAL CONFERENCES ON THE PROTECTION OF FORESTS IN EUROPE

3.1 From Rio to Helsinki

During the 1980's, concern about the deterioration of forests throughout Europe led to an increasing awareness of the environmental, economic, cultural and social values of forests. The need for a concerted effort at a political level to protect and sustainably manage the forests of Europe led to the First Ministerial Conference on the Protection of Forests in Europe held in Strasbourg in 1990. The Second Ministerial Conference was held in Helsinki in 1993.

The General Declaration of the Helsinki Conference asserts very clearly the commitment of the European States and the European Community to stimulate and promote the implementation of the UNCED decisions in the European context: the Rio Declaration, Agenda 21, (in particular chapter 11 on forests), the "Forest Principles", the forest elements of the Convention on Biological Diversity, and the Framework Convention on Climate Change. The Helsinki Resolutions constitute a joint response by the European countries to many of the forest decisions of UNCED.

The four Helsinki Resolutions (H1-H4) are:

- H1 'General Guidelines for the Sustainable Management of Forests in Europe'
- H2 'General Guidelines for the Conservation of the Biodiversity of European Forests'
- H3 'Forestry Cooperation with Countries with Economies in Transition'
- H4 'Strategies for a Process of Long-Term Adaptation of Forests in Europe to Climate Change'

The Resolutions H1 and H2 are implemented in an integral manner, since the Signatory States have recognised that the conservation and appropriate enhancement of biodiversity (H2) is an essential element of sustainable forest management (H1). The sustainable management of forests was defined in Resolution H1 as follows:

"Sustainable management means the stewardship and use of forests and forest lands in such a way, and at a rate that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems".

The need to develop pan-European C&I became essential in order to assess progress made in the implementation of the agreed guidelines. The core set consists of six criteria and 27 most suitable quantitative indicators.

The six pan-European criteria are:

- I Maintenance and appropriate enhancement of forest resources and their contribution to global carbon cycles;
- II Maintenance of forest ecosystem health and vitality;
- III Maintenance and encouragement of productive functions of forests (wood and non-wood);

IV Maintenance, conservation and appropriate enhancement of biological diversity in forest ecosystems;
V Maintenance and appropriate enhancement of protective functions in forest management (notably soil and water); and
VI Maintenance of other socio-economic functions and conditions.

The direction of change within each criterion is shown by periodically measured indicators. The pan-European list includes 27 quantitative indicators and 101 examples of descriptive indicators. The descriptive indicators cover four principal policy areas: legal/regulatory framework, institutional framework, financial instruments / economic policy framework and informational means. They should inform about existence of forest policy instruments and conditions and to what extent these forest policy instruments support and enhance the achievement of SFM. The national level criteria and indicators do not specify requirements for good forest practices, nor do they determine standards or threshold levels. Evidence of the progress towards sustainable forest management at the national level is provided by the regular measurement of indicators and reporting.

3.2 Collection of data by using the indicators

As part of the Helsinki Process, availability and reliability of data was carefully studied. Data from different countries was not fully comparable as the completeness, consistency, quality and the reference years vary between the countries. Often also comparability of the data was fairly poor, as information was aggregated and restructured in national statistics. The data collected by ECE/EU ICP Forests and by FAO/ECE on forest fires were found quite reliable and comparable. The gravest problems in data collection procedures seem to be related to indicators on health and vitality, indicators on protective functions, and especially indicators on biodiversity.

Both, the ECE Timber Committee and the FAO European Forestry Commission have already attached highest priority to the support of the Helsinki Process in their work plans. This priority has already been translated into concrete actions. As ECE/FAO is very experienced in collecting, compiling and interpreting international forestry statistics, it is also most natural that ECE/FAO will carry out the data collection on quantitative indicators of the Helsinki Process. However, some special studies will be needed to obtain information on those indicators for which data are not collected through existing procedures. A separate assignment could be done for these studies with relevant organisations and research institutes, e.g. ECE/FAO, IUFRO or European Forest Institute.

3.3 The applicability of Helsinki C&I

As part of the Follow-up activities, a questionnaire survey on criteria and quantitative indicators was conducted in late 1994. The objective of the exercise was to test the applicability of measures for the quantitative indicators as well as obtain a view of the

present status of sustainable forestry in the Signatory States. Data on quantitative indicators were provided by 31 countries. The results have been presented in a Progress Report in August 1996.

The exercise shows that quantitative indicators are useful in describing the status of forests. However, data on other aspect than forest resources are lacking in many countries. The pan-European C&I give a good framework for countries to further develop national criteria and indicators. Many countries have started a national exercise and some countries have already published information on the state of their forests by using national C&I.

In general, data on forest resources were available in most countries, although based on different definitions, classifications and time intervals. The data provided show the known trend that forest area and total volume of the growing stock have been increasing in Europe for a long time. Also, the total growth of forests has been increasing, and the balance between growth and removals has been positive, and has been increasing in Europe.

Data on non-wood forest products were most commonly available for game, berries and mushrooms. The value or the quantity of game has increased or at least remained the same for the last 10 years in most of the 18 countries which provided data on this indicator.

The criterion concerning maintenance of forest ecosystem health and vitality received the fewest responses. Forest damages (defoliation, insects and diseases, fires, storms) can fluctuate very much from year to year. Consequently, conclusions on the trend should be based on observations over several years. According to the ICP Forests defoliation surveys a steady increase in defoliation has been observed in several regions in central and eastern Europe and parts of the Mediterranean region.

Areas of natural forests and protected forests have remained the same or increased slightly in most countries. The other aspects of the biodiversity are difficult to assess due to lack of long term data.

The study showed that there is a strong need to broaden the scope of data collections e.g. national forest inventories should be adapted to monitor the whole forest ecosystem, and to integrate environmental aspects and socio-economic data into forest statistics. Further development is needed in the definition of terms and in the harmonisation of classifications, if data from different countries are to be comparable. Research needs are greatest for measuring and monitoring biodiversity. In the future it should also be considered how indicators describing forest policy instruments could be used for the assessment of SFM.

3.4 The analysis needs to be improved

It has to be emphasised that these results represent the first effort to use quantitative indicator data for describing the state of the sustainable forest management in the Signatory States of the Helsinki Resolutions H1 and H2. As information was not yet available for all quantitative indicators, caution has to be taken when observing developments in individual countries.

Based on the experience with the questionnaire, it appears that, with some improvements in the questions and definitions of terms and classifications and the data collection methods, the questionnaire is an appropriate means of monitoring the quantitative indicators of sustainable forest management.

However, it is recognised that the current list of indicators needs to be continually revised and new indicators added as new scientific information and technical expertise become available. Particular emphasis should be put on the further development of indicators under the criterion 4 “Maintenance, conservation and appropriate enhancement of biological diversity in forest ecosystems” and under the criterion 6 “Maintenance of other socio-economic functions and conditions”.

3.6 Further development of Criteria and Indicators in Europe

Although the development of criteria and indicators within the international initiatives has advanced rapidly, the work of their implementation has started only recently and experiences from their use as a policy instrument are rather limited. The approach to and the pace of adapting the regionally and internationally agreed upon criteria and indicators to the national conditions and implementing them in national policies varies considerably from one country to another. This is partly as a result of country-specific ecological, economic and social characteristics and is particularly due to differing forestry-related administrational and institutional systems in different countries.

Most countries that have adopted criteria and indicators for sustainable forest management are working with the challenges of data availability and reporting capacity. Further development of the information and assessment systems that provide data for the indicators is essential in all countries. As criteria and indicators cover the multiplicity of forest benefits, the data collection for indicators requires co-ordination between forest and other related information systems. More data on biological diversity and social issues and, in particular, non-timber related forest values, services and products is urgently needed. In general, it is important that the information system be strengthened so that it would be capable of providing essential information at the right time and in the right form to all users.

As an evaluation instrument, criteria and indicators serve as a synthesiser of the increasing amount of information from different sources and, thus simplifying the transfer of information. On the other hand, criteria and indicators focus on what information about forests and forest management is needed and direct resources toward the acquisition of this information as a national priority. This is particularly important when considering the necessity of prioritising resource use as regards to research, and institutional and administrational capacities.

Criteria and indicators have the potential to assist in the development of sub-national forest strategies, programmes, plans and projects. Appropriate criteria and indicators, drawn from the national set, may be used, for example, to help strategic planning in an administrative unit at a sub-national level. Also, it would be important that the work on national and sub-national level criteria and indicators for sustainable forest management be reflected in the development of certification.

The issue of criteria and indicators is multi-sectoral. Among other things, the CSD has launched a programme aiming at developing indicators for sustainable development, and UNEP and other organisations and countries are developing environmental indicators for other sectors.

4. INTERNATIONAL COMPARABILITY AND COMPATIBILITY OF CRITERIA AND INDICATORS

There are many different ways in which criteria and indicators for sustainable forest management could be made more comparable and compatible. In particular, the following elements of convergence may be identified:

- common criteria,
- similar or identical indicators,
- harmonisation of guidelines,
- agreement on similar standards,
- mutual recognition of criteria and indicators between different groups of countries,
- agreement on definitions and classifications,
- common protocols for the collection, aggregation and storage of data, and
- agreement on reporting methodologies.

There would seem to be little disagreement about the desirability of many of these as elements of convergence if they would be possible to realise and if, indeed, convergence itself is considered to be desirable.

Convergence of international processes would bring many advantages. These include: to guide the collection and dissemination of information on the state of world's forests and forest management; to give accounts of progress to international organisations; to help the development and follow-up of international guidelines and/or legal arrangements; to act as an international reference for policy-makers in the formulation of national policies; to clarify of issues related to international trade in products from sustainably managed forests; to provide information upon which international co-operation and financing of sustainable forest management might be based; and to increase mutual confidence.

From the discussions which have taken place so far, it seems possible that a core set of criteria could be agreed upon. Still, there appear to be considerable difficulties in the harmonisation of indicators. Additionally, however desirable it might be, it seems unlikely that a core set of global indicators as such, would be practicable at the national level or that the few that could be agreed upon would give a full indication of sustainable forest management. On the other hand, the set of globally agreed indicators, even if not comprehensive enough to measure all aspects of the criteria, could be valuable for international purposes. This set could form the core of indicators, and then be complemented by regionally and/or nationally developed indicators.

An examination of the benefits of convergence tends to lead to the conclusion that there would be considerable advantages, especially with regards to the collection and

collation of evidence of international trends, to move towards some degree of harmonisation of indicators, providing that these indicators were genuinely universal and had the same significance in different contexts.

All possible sources of misinterpretation and misunderstanding must be avoided, in order to gain the possible advantages of convergence. Problems could arise, for example, as a result of: trying to use indicators which were unsuitable for the country concerned; using a suitable indicator but assuming that the standards or limits of tolerance should necessarily be the same in different countries; or using a suitable indicator, but measuring it in different ways which were not comparable. It would, therefore, be helpful to provide a full explanation, in the form of guidelines and standards, of the significance of each indicator to the attainment of sustainable forest management. It is perhaps for this reason that it may be easier to reach compatibility in descriptive indicators than it will be in those which are strictly quantitative.

Comparable data is an essential prerequisite for the process towards increased compatibility of criteria and indicators. Increased comparability would mean harmonisation of definitions and classifications, and compatible approaches to data collection and monitoring of indicators.

There are various possible options to advance international comparability and compatibility, since it is evident that convergence of criteria and/or indicators is desirable. ISCI Seminar in 1996 provided a forum for all countries and international organisations to discus future policy options on C&I and to produce recommendations for IPF. It was also a good opportunity identify future research needs on C&I.

It is important to continue the dialogue towards global consensus. Maybe, building on the spirit of openness and transparency of the ISCI Seminar, we could try to find the items that are not controversial. It might, for example, be possible to achieve agreement on five or six criteria that are, apparently universally, considered important. When is comes to indicators, a start might be made with those biological and physical indicators that provide a universally applicable measure of forest quality and about which there is little controversy.

OPERATIONALISING INTERNATIONAL FORESTRY CO-OPERATION: SELECTED EUROPEAN AND GLOBAL LEVEL IMPLICATIONS

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ABSTRACT

Since the late 1980s, increased attention has been given by governments to international forest co-operation. While better consensus has been achieved, particularly since UNCED, about what countries should do to achieve sustainable forest management, little consideration has been given to the need of making international forest co-operation more operational. This paper analyses this question with a special emphasis on international co-operation regarding the level of the forest management unit (FMU). It starts with discussing whether existing international co-operation mechanisms based on national level criteria and indicators (C&Is) should be complemented with an international co-operation relating to the FMU level. This is followed by a presentation of International Registration of Forests (or IRF) – a possible mechanism operating at the FMU level developed by the author (Kiekens 1996). The applicability of forest registration in Europe is discussed, along with possible linkages with the Helsinki process. The applicability of the instrument in other regions of the world is also analysed, along with its potential role within the international forest regime and the proposed global forest convention. The paper argues that forest registration has a number of advantages over performance-based certification. While not arguing that international co-operation regarding the FMU level is necessary, it concludes that IRF deserves serious consideration, would it be decided to pursue such an international forest co-operation.

1. NATIONAL-LEVEL V. FMU-LEVEL RELATED INTERNATIONAL CO-OPERATION

Since Rio, sustainable forest management has become a global issue. Sustainable forest management at the global level requires such management to take place in every country holding forests. Countries are, in principle, committed to implement sustainable management, provided that the others do the same. Sustainable forest management is a

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problem that is shared by countries and which needs to be solved by each of them, in conformity with the subsidiarity principle. In order to continue its efforts towards sustainable forest management, it is legitimate for each country to expect information regarding implementation in other countries. Such information needs to be organised in a mutually understandable manner, which is probably the essence of criteria and indicators (C&Is) initiatives such as under the Helsinki process.

In theory, the international community could progress towards global sustainable forest management by implementing such management at the national level and providing monitoring reports, according to internationally agreed national level C&Is. This does not require international cooperation pertaining to the FMU level. However, it is not sure that such approach to international forest co-operation can still hold. In Europe, the past years have witnessed pressing calls by environmental NGOs for FMU level certification to take place, as an "independent" proof of sustainable forest management. More recently, the development of FMU-level sustainable management guidelines has been initiated under the Helsinki process. Implementation of C&Is at the FMU level is presented by some as a future challenge (Maini 1996). Also to be highlighted is that in other areas than forestry, "site-level" co-operation is sometimes implemented, e.g. under the World Heritage and Ramsar conventions. As far as forests are concerned, it is important to analyse whether such FMU-level related international co-operation is really relevant. And if it is relevant, it is also important to properly select, among available options, the type of FMU related international co-operation to be adopted. From an instrumental viewpoint, several options can be distinguished:

a) To "do nothing" regarding FMU level, so that governments concentrate on national level issues;
b) to promote the voluntary pan-European FMU-level guidelines;
c) to promote the development of forest certification and possibly product certification/labelling;
d) to implement international registration of forests, through the development of national registers.

There are clearly several options to operate an international co-operation regarding the FMU-level. These options are not mutually exclusive. The "do nothing" option is worth noting; European governments could decide on that route, particularly to avoid subtracting resources from national-level international co-operation activities. Promoting the use of the voluntary pan-European FMU-level guidelines, currently in development (Ministerial Conference on the Protection of Forests in Europe 1997), is another option. This would require limited international efforts, as wide-scale implementation of the guidelines will depend on their promotion at the national level. For governments, certification may also appear to be, in first analysis, close to a "do nothing" option, but the many problems associated with this system (see below), combined with factual elements such as the importance of state owned forests, could well prove the contrary. A fourth alternative would be for countries to implement international registration of forests, as reviewed in this paper.

This list does not pretend to be comprehensive and possible other routes should be investigated. A comparative analysis of available options is needed to allow an informed

choice regarding the most suitable approach to adopt for international co-operation pertaining to the FMU-level.

2. FOREST REGISTRATION: A POSSIBLE TOOL OF INTERNATIONAL CO-OPERATION RELATING TO THE FMU-LEVEL

International registration of forests involves the establishment, by each participatory country, of a national register of FMUs under sustainable management. The establishment of a national register would rely as much as possible on existing controls implemented at the national level against sustainable forest management regulations that attract wide consensus. In contrast with FSC (NGO led) and ISO (industry-led) certification, registration would be led by governments, but implemented with a strong input of all national level stakeholders, particularly the scientific community. There would be several categories: e.g. natural forests, plantations, etc. The national registers would be mutually recognised by participatory countries. An international register would easily be compiled through merging databases / GIS outputs from the participatory countries. The requirements for international registration are the following.

- First, the country must have a national land use plan defining permanent forests. This requirement is an obvious pre-requisite for sustainable forest management, although some degree of flexibility is always foreseen by national legislation, e.g. for allowing the construction of roads or of other infrastructures.
- The second requirement is for the country to have a national policy, or a set of sub-national policies (e.g. at the provincial level), ensuring sustainable forest management. This shows that IRF is complementary to the modalities of international co-operation regarding national-level forest policies, particularly through C&I processes.
- A third requirement, consistent with the second, is that each FMU – a flexible concept to be defined at the national level – is subject to clearly defined sustainable management regulations. These regulations would usually be expected to be translated into a long term management plan.
- A fourth requirement is for the forest management regulations to be duly implemented. Proof of implementation would be primarily be provided by existing control systems implemented by the forest administration. In each participatory country, however, a mechanism would be established to verify the adequacy of the official forest management controls.

From an institutional viewpoint, a government funded registration unit would be constituted, for example at the level of the forest administration. Flexibility would be left in terms of the institutional setting to have in each country. The idea here is to make maximum use of existing bodies, to avoid unnecessary duplication. An example could be a) a scientific and technical advisory committee, and b) a consultative group with a large spectrum of stakeholders, including environmental NGOs, forest owners and industry.

A salient feature of forest registration is that implementation of national level regulations, designed in a way to ensure sustainable management, is sufficient to obtain registration. There is no need of specific forest management standards above the legislation, as with performance standards based certification. In other words, there is no introduction of a duality in the national forest policy – with some forests managed according the legislation, and others according to more stringent rules. Forest registration avoids the certification double standards. Under a registration scheme, continual improvement of forest management is expected to occur on all forests, as the performance requirements to be met to secure registration would evolve with the periodically revised national regulatory requirements.

3. APPLICABILITY OF FOREST REGISTRATION IN EUROPE AND LINKAGES WITH THE HELSINKI PROCESS

While no feasibility study of registration has been carried out in the European context, the proposal is supported by the Forest Industry Council of Great Britain, including its member forest owners body – the Timber Growers Association. According to Williams (1997a), the system would be particularly applicable in Great Britain. There is a National Forestry Policy aiming at the sustainable management of existing woods and forests and the steady expansion of forests. A National Forestry Programme was developed following UNCED. New planting, management and felling controls are operated on the basis of compliance with environmental guidelines. These guidelines were developed in consultation with environment and forestry interests, and are supported by the National Forestry Research Programme. They cover the interaction of forest management and biodiversity, water resources, landscape and social benefits. A new UK standard aims at providing a new matrix of landscape and ecological standards which each forest must seek to achieve. Monitoring of the controls implemented by the Forestry Commission has been introduced to measure their effectiveness. According to Williams (1997b), all ingredients are thus present for a national register of forests to be constituted. Subject to confirmation through appropriate studies, it would appear that IRF would also be feasible in other European countries.

Before turning to the linkages between registration and national level forest policy, it is worth formulating some comments on the linkages between C&Is and national forest policy. As conceived within processes such as those of Helsinki and Montreal, C&Is aim primarily at enabling the monitoring of forest management at the national level. For example, the Santiago declaration states that the Montreal Process aims at defining "a common framework for describing, assessing and evaluating a country's progress towards sustainability at the national level." (Montreal Process Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests 1995). A similar approach is adopted in the Helsinki process (see e.g. Patosaari 1996).

Recent surveys conducted at the level of the Helsinki and Montreal processes suggest that issues of data availability and comparability require substantial work (Ministerial Conference on the Protection of Forests in Europe 1996, Montreal Process 1997). Also,

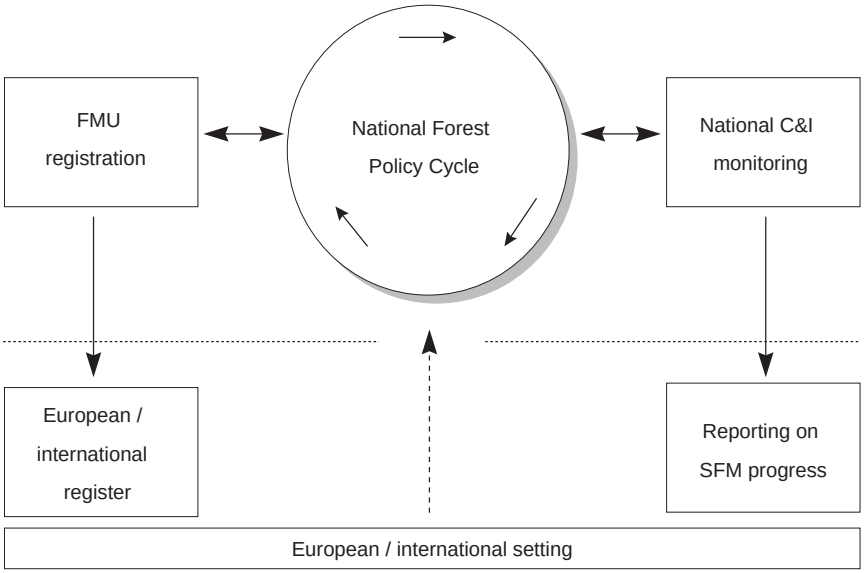

Figure 1. The linkages between national forest policy, reporting according to internationally agreed C&Is and forest registration.

it appears that only relatively low reporting frequencies would enable to detect meaningful trends for most indicators. Hence, linkages between reporting according to internationally agreed C&Is and national forest policy may be weak, unless due attention is paid to ensuring adequate feedback into forest policy. In this respect, a two step procedure, by which national reports would first be subject to a national-level consultative process involving a wide spectrum of stakeholders, would strengthen feedback into national forest policy (Kiekens 1997c).

Several linkages can be expected between forest registration and national forest policy. Forest registration is dependent on continuous improvement of forest management laws and regulations. The process combines performance standards (as defined by forest laws and regulations) and continuous improvement (thanks to the periodic revision of the forest laws and regulations). Hence, the dynamism of national forest policy is expected to translate over time into tighter registration requirements. Conversely, forest registration is expected to be useful to forest policy by providing a proof of sustainable forest management in registered areas, and also helping to solve problems at the level of FMUs for which registration has not yet been granted.

The chart above summarises the linkages between national forest policy, reporting according to internationally agreed C&Is and forest registration. Under these international mechanisms, national forest policy remains central to achieve sustainable forest management. Both mechanisms can operate either on a regional basis (e.g. under processes such as those of Helsinki and Montreal) or on a global basis, e.g. under a global forest convention (see below). Most feed back into national forest policy would originate from the reporting and registration work, as conducted at the national level. Feedback would also originate from the international level, e.g. through workshops

where national level experiences can be analysed and compared. Outputs provided to the international community would be for informational purposes. Like with reporting according to internationally agreed C&Is, forest registration does not require a supranational monitoring authority.

4. APPLICABILITY OF FOREST REGISTRATION WORLD-WIDE: A POSSIBLE ELEMENT OF THE INTERNATIONAL FOREST REGIME

Regarding developing countries, forest registration is also expected to be feasible, although some measure of flexibility would be required. As forest laws and management regulations are not always sufficiently developed, the idea is to introduce a stage of *provisional registration* which would enable countries to participate to the scheme while still working on aspects such as sustainable forest management regulations and long term forest management plans (Kiekens 1996). Feasibility of forest registration has been analysed in the context of a study co-ordinated by the author on forest management in West and Central Africa (Kiekens et al 1995). Consultations with a wide array of stakeholders, including local environmental groups and industry, indicated significant support for the proposal, although no follow-up occurred at the time. African countries where forest laws and management regulations are well suited to implement forest registration include Cameroon, Gabon, Congo Brazzaville, Central African Republic, Côte d'Ivoire and Ghana (Kiekens et al 1995; Siisi Wilson 1997). Subject to appropriate feasibility studies, IRF should in principle pose no problem of implementation in other tropical regions.

As analysed above, forest registration appears to be a suitable option to be considered within regional processes such as those of Helsinki and Montreal. Thanks to its decentralised character, registration could also be applied at the global level, possibly under a global forest convention. Similar mechanisms are already present in existing treaties, particularly the Ramsar and World Heritage Conventions. IRF would provide for an operational means of international forest cooperation, acting as a complement to national level reporting according to internationally agreed C&Is (Kiekens and Byron 1997). Through implementation either on a regional or global basis, forest registration appears to have the potential for becoming an important element of the international forest regime, as defined by Glück (1996).

Another important dimension for strengthening the international regime regarding forests pertains to official development assistance to forest management and conservation. In many developing countries, problems to phase in sustainable forest management remain staggering and require adequate financial and technical assistance (Kiekens and Byron 1997). Actions requiring development assistance in many countries include the building of national capacities, the protection of permanent forests from agricultural encroachment and the design and enforcement of appropriate forest management regulations. Strong linkages could be operated between forest registration and official development assistance to forests. Forest registration could in this respect be particularly helpful in better targeting and thus improving the effectiveness and efficiency of development aid to forest management and conservation (Kiekens 1995c).

5. ADVANTAGES OF FOREST REGISTRATION OVER PERFORMANCE CERTIFICATION

Registration of forests possesses a number of advantages over certification as a tool to promote sustainable forest management. The analysis below centres mainly on Europe. I have analysed elsewhere the problems posed by certification for the promotion of sustainable forest management in the tropics (Kiekens 1995a, 1995b) as well as regarding international forestry cooperation and the proposed global forest convention (Kiekens 1997a). The analysis below is mostly restricted to a comparison of forest registration with performance based certification, while continuous improvement certification is addressed at the end of the section. Advantages of registration over performance based certification include the following:

1. Forest registration avoids a dual regulatory system for forests. It avoids both duality in forestry management requirements (legal v. certification) and unnecessary and uneconomical duplications of controls. The relevance and cost-effectiveness of the dual system associated with performance based certification (e.g. under the Forest Stewardship Council) remains to be demonstrated. There are staggering problems with the development of national certification performance standards and their subsequent implementation. The problems encountered in Finland and Sweden, where the definition of national certification standards is allegedly most advanced, sheds doubt about the realism of developing such voluntary standards in every country. This is going to be long, costly, and will anyway result into an undesirable duality in forest policy. Regarding implementation, duality is also expected to emerge, both within and among countries. Adoption of voluntary certification can only be expected in countries with high environmental awareness and/or dependence on environmentally sensitive export markets (see e.g. Kiekens 1995b).
2. Forest registration avoids a loss of control over forest policy, inherent to performance based certification schemes. Indeed, under such certification schemes, trade-offs between economic and ecological objectives are partly left to the market and the voluntary behaviour of forest owners and industries. Some forests, of low ecological value, could for example be certified and managed with particular caution while, at the same time, more ecologically rich forests would be managed without certification. Under voluntary performance based certification, there are thus risks of distortions regarding the achievement of suitable balances between economic and ecological demands. Under forest registration, these problems are clearly avoided, as the policy trade-offs are made in the framework of the continuously revised forest management laws and regulations.
3. Forest owners and companies embracing registration are not to be penalised from a financial viewpoint, which clearly contrasts with certification. Forest registration would be financed under national budgets. In contrast to certification, there would not be any unfair penalty on those implementing sustainable forest management. The discrimination of certification schemes against small-scale forest ownership would also be avoided. The support for forest registration expressed by the Timber Growers Association in Great Britain tends to confirm the potential interest of forest owners in Europe in the proposal (Crichton Maitland 1997). Under a registration

scheme, control costs would be minimised, by avoiding unnecessary duplication. Also, there would be no payment by the forest owner requesting registration – a relationship that exists with certification and that compromises the independence of those awarding the certificates.

4. In contrast with the main performance based certification initiative – the Forest Stewardship Council – forest registration offers a stable, well-balanced and accountable institutional setting. The government-led approach ensures institutional stability, including continuous financing. Blunders such as the recent "de-certification" of the Walloon public forests in Belgium would be avoided under a registration scheme. All stakeholders would be duly represented at the national level. This pertains particularly to the scientific community, which is often reluctant to intervene into the thorny certification issue. Forest registration would not be at the mercy of a particular interest group. Institutional linkages with other forest policy instruments, particularly reporting according to internationally agreed C&Is, would be optimised. As a decentralised mechanism, registration would be accountable at the national level, ultimately to democratically elected national parliaments.
5. Although forest registration would offer a sound basis for product certification/ labelling (including under the European eco-label scheme), it avoids the problems inherent to chain of custody verification. Chain of custody verification is a costly and problem-prone activity that has very little to do with sustainable forest management. Problems with chain of custody verification include the multiplicity of suppliers to many industries, costs of tracking and segregation of logs and intermediate products, the issue of conversion forests (mostly in tropical countries), the technical feasibility and costs associated with certification/labelling for many products; the uncertainties regarding the actual market demand and willingness by consumers to pay, and the future of buyers groups and their legality regarding WTO and EU competition laws (Kiekens 1997b). Forest registration involves a more direct approach centred on the demonstration of sustainable forest management at the FMU level, which can in turn be communicated through various means by forest owners and industry.
6. Finally, forest registration avoids the international trade related difficulties associated with certification/labelling of forest products. Given the fragmented nature of forest ownership in Europe, there is a risk not only of discrimination against small scale forest ownership but also of a competitive *dis*advantage to the European forest sector. Recent developments indicate that this risk may become a reality. In Canada, for example, about 20 million ha, or a timber cut of 25-30 million m^3 per year, is in the process of obtaining certification under the standard developed by the Canadian Standards Association. The relative easiness with which eucalyptus producers in Southeast Asia and Latin America can obtain certification should also be a cause of concern to the European forest sector (Kiekens 1997b). The suggestion by Elliott (1996) that certification would enable the European pulp and paper industry to play the "environmental competitiveness" card and protect itself from Asian and South American competitors is in this respect somewhat dubious.

This analysis clearly suggests that there are great dangers and difficulties associated with performance-based forest certification and product certification/labelling. Forest

registration endeavours to avoid most of these difficulties. There is however a positive relationship to underline between registration and continuous improvement certification. Forest registration would be compatible with such continuous improvement certification, particularly under ISO-14001. This type of certification requires proper and improved environmental management by forest organisations (Shirley 1996, ISO 1997). ISO-14001 can be seen in this perspective as a tool for forest organisations to adapt to evolving forest management laws and regulations. Therefore, ISO-14001 appears not only to be compatible with forest registration but also to be a possible tool that could help forest organisations to meet registration requirements.

6. CONCLUDING REMARKS

This paper has highlighted the need to make international forest co-operation more operational. There is particularly a need to develop stronger linkages between national forest policy and reporting according to internationally agreed C&Is, as under the Helsinki process. Regional initiatives offer great opportunities, but also the risk of limited feedback into national forest policy.

The question whether there should be an international forest co-operation relating to the FMU level has been analysed. While there doesn't seem to be any strong theoretical justification for such FMU related co-operation, recent developments, particularly the push by environmental groups for forest certification, require this issue to be urgently addressed by governments. There are clearly several possible options for operating an international co-operation regarding the FMU-level. A comparative analysis of the different options is needed to allow an informed choice regarding the most suitable approach to be adopted, both within the Helsinki process and at the global level.

The option presented in this paper – international registration of forests – is decentralised and offers strong linkages with national forest policy and the Helsinki process. As such, it could be an important element for further building the international forest regime. It looks also promising as a possible instrument under the proposed global forest convention. While compatible with continual improvement certification, the paper shows that registration has key forest policy advantages over performance based certification. A lot has been learned from certification initiatives, and forest registration avoids most of the problems posed by certification to forest, industrial, competition and international trade policies. Forest registration clearly deserves more attention as a possible instrument for pan-European and global level forest co-operation.

Further work is required on many of the areas covered in this paper. This includes the linkages between national forest policy and monitoring and reporting through the existing C&I processes; the issue of the most suitable option to be selected regarding the FMU level co-operation, particularly in the context of the Helsinki process; the use to be made of the pan-European forest FMU level guidelines; the practical applicability of forest registration at the European level; and the dangers of the certification option for forest policy and forest sector competitiveness in Europe.

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CHALLENGES FACING SWISS FOREST POLICY FORMULATION: INTEGRATING NEW DEMANDS INTO TRADITIONAL SYSTEMS

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ABSTRACT

Using a model of the planning process, the author gives an overview of how the Swiss Forest Agency, as the highest forestry authority in Switzerland, is trying to adapt to new demands towards forests: An opening of the forest sector has to take place, allowing other institutions, interest groups and the society at large to participate in forest policy formulation at all levels and at every step of the process. For this purpose, new basic information is needed, new institutions have to be created and new implementation programmes have to be launched. This paper provides information on these new instruments.

In a second part, the author discusses the possible use of criteria and indicators within the process.

1. INTRODUCTION

Demands upon forests have changed considerably during the last years: a hundred years ago, the main aim was to preserve the rapidly dwindling forest area as a protective shield against natural dangers. Linked to this was the concept of sustainable wood production, meaning that not more wood could be cut than grew.

Later on, qualitative aspects of the forest were taken into consideration. People have realised that it isn't sufficient just to have a protected forest area, but that the composition and structure of forests is an important element for nature preservation, for the landscape and for the diversity of species.

Now, recreation and of the role of forests as an element of a country's history and culture has become a major theme.

Things have been getting more and more complex, as new demands are added to old ones, each step leading to new information needs, new policies and new means of implementation.

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EFI Proceedings No. 22, 1998

The Swiss forestry administration is being challenged as it never has before. How to combine old values with new demands? How to find a balance between these often conflicting interests? What changes are needed in the forest policies and methods to permit an wide, transparent approach, leading to solutions that satisfy all needs and demands?

This paper is an attempt to show how the Swiss Forest Agency is trying to react to the changed conditions. Many of the elements of environmental management can be used to show what steps have been taken up till now, and where gaps remain. Four steps of the policy formulation process were differentiated: Providing basic information, Aims and programme, Implementation and Controlling.

2. THE FOUR STEPS OF THE PROCESS

2.1 Providing basic information

For the policy formulation process, some sort of basic information is necessary. In Switzerland, it is interesting to follow the different steps in the perception of forests by society by what data were gathered:

In the origins of the Swiss forestry, the data required concerned the forest area, the growing stock and information on wood production and the wood market. This information was covered by the Forest and Wood Economy Survey, that exists since 1885.

This became insufficient, data on the quality of forests was needed. For this reason, the first National Forest Inventory was conducted from 1982 to 1986, providing information on the structure, composition and state of Swiss forests. When the health of forests became an important issue, yet more information was needed: Defoliation and later indications on the effects of environmental changes on the ecosystem were started to be assessed. These were grouped under the name “Swiss forest monitoring network”.

But still gaps are found. For example, the total forest area with a special water protection function, the area in forest reserves or the quantity of non-wood goods produced by forests were unknown. These gaps will have to be filled in one way or another.

What has been considered as the greatest gap lately is the lack of information on all socio-economical and sociological aspects of forests and forestry. For example: What needs does the population have towards forests? What kind of forest it would like to have? For this reason, the Swiss Forest Agency has launched a large-scale project with the name “Forest and Society”. This is a completely new approach, as methods otherwise known in sociology are made use of.

“Forest and Society” is an opinion poll in the form of telephone interviews, conducted at four-year intervals, aimed at identifying the needs of society towards forests in the course of time.

Test runs have now taken place, a first survey covering the whole of Switzerland will take place at the end of 1997. The first results from the test runs are very promising,

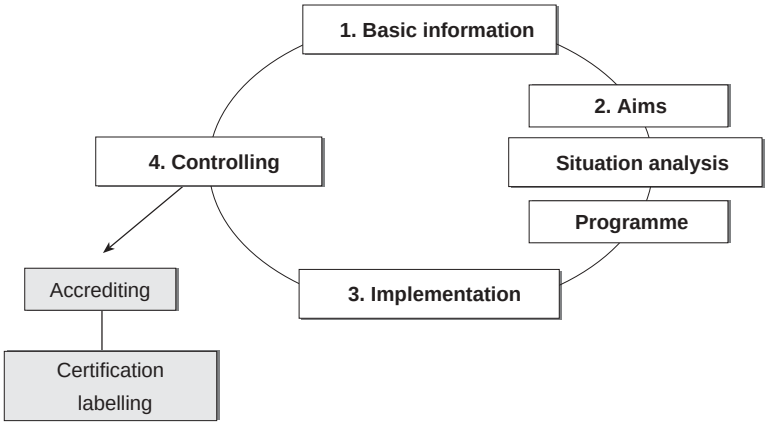

Figure 1. Model of the planning process

since they already give indications of how certain programmes and campaigns have been received by the population, and where further efforts need to be undertaken.

The results of this study will allow the Swiss Forest Agency to better take account of what the population's needs and demands are, so that they can be respected in the formulation of policies.

2.2 Aims and programme

Again based on the ideas of environment management, three phases of policy formulation can be differentiated:

- The definition of aims: To what purposes must our forests serve? How should they look like? Perhaps this may lead to a sort of "Swiss forests – Vision 2010".
- An analysis of the situation: Based on the basic information provided, an analysis of the actual situation in respect to the aims formulated is made.
- The formulation of a programme: Based on the aims and the results of the analysis, a programme can be elaborated with main topics to be addressed and according measures.

The Swiss Forest Agency has its own aims and goals, based on the aims named in the federal Law on Forests and the results of international activities. However, these have not as yet been discussed in a broader circle at national level. A concept is now being elaborated. It will certainly include a participative approach, including all major interest groups at national level. This is the means of ensuring a sound basis on which the implementation phase can build.

The necessary institutions already exist. Here again, the opening of forest policy formulation processes can be seen: Whereas at first, the only contacts in this respect

were between the Swiss Forest Agency and the cantonal forest authorities, with the Conference of heads of cantonal forest services and the cantonal directors of forestry (being the cantonal "forestry ministers", a political mandate).

Then, to coordinate action and to exchange views on forest policy within the forest branch, the *Round-Table on Forest Policy* was set up. Here, representatives of federal and cantonal administration, but also research and forest owners are assembled. It is an important element, as it permits a sensibilisation of the regional administrations for national and international problems, but also allows the Swiss Forest Agency to get a "feel" of what problems exist at the basis.

The *Forum Forest* was created as a follow-up to the UNCED in Rio. Its purpose was to facilitate the implementation of the Rio principles in Switzerland. It groups representatives of various administrative branches such as forestry, nature and landscape protection, economy and development cooperation, but also representatives of research and of a number of non-governmental organisations such as forest owner associations and environment groups. This Forum acts as a link between international and national forest policy, and should be a place where views can be exchanged and opinions voiced.

Another interesting institution is the *Study Group on Forests*. It is composed of an ever-growing number of national representatives from all kinds of uses and demands upon forests. This ranges from sports associations to environmental groups and forest owners. Within the Study Group, they have the possibility of discussing concrete conflicts arising from the various uses made of forests.

These last two institutions should prove very valuable in the future for forest policy formulation.

As a first step towards the formulation of national forest policy, the Swiss Forest Agency plans an *Audit* of its policies and methods. Based on national documents, a group of experts will be charged to make a comparison with international standards and commitments.

2.3 Implementation

Two principles of environment management need to be referred to here:

- Those responsible for the actual implementation should be given a high degree of autonomy and responsibility.
- Instruments based on civil law allow a faster reaction to changing conditions and should be preferred to legal instruments wherever possible.

Several projects of the Swiss Forest Agency are trying to integrate these two principles:

EFFOR is a project aimed at completely reorganising the system for the allocation of subsidies. Up till now, subsidies were allocated by project: If measures were planned that had a claim for a certain coverage by subsidies, this project had to be approved by the Swiss Forest Agency. Subsidies were paid by project based on the total costs.

With EFFOR, this should change completely: A contract is made between the cantons and the Confederation. This contract contains the performances of the cantons and an according programme. Based on this, global sums are paid. The autonomy of the cantons is enlarged, and greater efficiency in the use of the sums attributed should be achieved.

In a first pilot phase, the Swiss Forest Agency is working on contracts with a limited number of cantons to gain experiences in the use of this new instrument. EFFOR means a big change in mentality and way of working, and will surely still take some time to become fully operational.

PROFOR is a programme aimed a adapting the forestry professions to modern standards. In its first stage, professional training was improved so that it reached the same standards as comparable training courses. This has already helped greatly in making forest professions more attractive and training courses more transparent.

Now, a second stage has started: the permeability between similar professions needs to be improved to open up a greater scope to people working in forestry. They should have more possibilities of continuous training that does not limit them to the forest alone, but would also allow them to change to related professions.

Last but not least, the project *VAFOR* is an attempt to find new sources of income for forest enterprises by making use of the "user pays principle". Within this project, forest owners and enterprises are advised and are trained to look for possibilities where additional expense is caused by a clearly defined group of "forest users". This isn't easy in a country like Switzerland, were many possible sources of income are blocked by existing regulations, such as the free access of the public to all forests!

2.4 Controlling

A number of elements of controlling already exist or are being adopted in Switzerland. Some of these elements are:

- EFFOR will have its own controlling system, so that an evaluation of subsidisation policies will be possible. To this effect, indicators have been developed. These still need a lot of work though until they are operational.
- The results of consecutive polls within "Forest and Society" will permit a certain evaluation of policies, in that the effect of programmes and campaigns should be visible in some way or other.
- The Criteria and Indicators as agreed at the follow-up meetings of the Helsinki Conference for the Protection of Forests in Europe are a good base for evaluating progress towards sustainable forest management. To be of full use for Switzerland however, further national indicators would be needed.

A comprehensive controlling system at national level does not exist as yet, and remains one of the big challenges to be faced in the near future.

3. CERTIFICATION

Again based on the concepts of environment management, certification or labelling are outside the system in itself. It is "merely" an accrediting of the efforts undertaken within it.

However, it remains one of the main points of the discussion and even contention between various interest groups in Switzerland, and there is great activity in this field. The possible use of various certification and labelling schemes has been or is being evaluated at different levels of management. Until recently, no such scheme has actually been made operational in Switzerland.

4. THE POSSIBLE USE OF CRITERIA AND INDICATORS

According to definition, the criteria are "aspects that are considered important" or a "set of conditions", by which success or failure towards sustainable forest management are measured, whereas the indicators are measures that show the direction of change. (Background Document of the ISCI Seminar, Helsinki 1996)

One can go even further and say that criteria can be formulated in the sense of aims, and that the indicators are key elements that have to be considered and that provide a measure of whether the aims have been reached or not.

In this sense, there are several possible uses for criteria and indicators within the policy formulation process in Switzerland:

In gathering basic information, the criteria and indicators as developed within the pan-European process (Helsinki-process) have permitted us to identify gaps in our information at national level.

Now these gaps may already indicate certain aspects that need to be specially addressed when formulating new policies and programmes. An example: Though the importance of forests for water protection is known, the area of forest fulfilling a special role in this respect was unknown. Now perhaps this is an issue that should be put to question, so that the necessity for action can be discussed.

Another possible use of the concept of criteria and indicators would be to review the data needs carefully, trying to identify the key elements that have to be measured: At the moment, more data is always demanded and gathered, leading to an enormous amount of information that is often only made bad use of. Defining indicators, in other words key measures that allow a maximum of information on one or several topics could mean a reduction of the data gathered, and their more efficient use.

In aim and programme formulation, as with the subsequent controlling of implementation, criteria and indicators can also be of use. For that, however, the criteria need to be made more concrete and target values or standards need to be fixed.

Without these, no concrete evaluation of the success of programmes and their implementation can be made.

The use of criteria and indicators for certification is bound by the same conditions: The accrediting of a certificate or label can only be decided when according standards were fixed beforehand.

5. CONCLUSIONS

At the moment, all the instruments within the policy formulation cycle in Switzerland are not yet complete and fully operational in view of the new demands facing it. Over time, different needs and demands have become apparent, leading to new or changed systems within certain sectors, without leading to a complete renewal of the system.

This however, is the reality of things: Changes in perception and in the way of thinking are gradual processes, leading to gradual changes. The challenges of the future will be able to react to these changes, not by completely renewing policies and tools, but by adapting them to the new conditions, and integrating them into the existing system. A lot of flexibility will be needed to react more quickly to changes; and to allow an early recognition of arising problems.

Criteria and indicators are a tool that can be used in various phases of the process. They can help recognise problems and measure changes, they can be a help in formulating aims. But they are not an aim in themselves, they have to be adapted to the conditions of each country or region, and integrated into the already existing instruments.

CRITERIA FOR SUSTAINABLE FOREST MANAGEMENT AND STUDIES IN TURKISH FORESTRY

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ABSTRACT

Sustainability in forest management is a complex concept, which in certain respects involves conflicting considerations. In order to make the concept of sustainable forest management operational, it is necessary to define this concept through a series of criteria, which may be described individually, and to which secondary objectives and measures may be formulated in such a way that they are balanced against each other. Such criteria are bound to be of a very general character as local conditions vary significantly even within individual countries.

The purpose of each individual criterion must be described so that the objectives and measures can be adapted to the local conditions in the best possible way. The criteria do not obligate individual forest owners. It is up to the responsible authorities to adjust legislation, planning and other means in order to ensure that they are consistent with the criteria.

1. INTRODUCTION

A criterion is fulfilled when such legislation and/or incentives have been established, which may fulfil the national objectives in relation to the criterion. A continuos assessment of the development, which will be made in collaboration with industrial organisations, non-governmental organisations and relevant international organisations, must determine whether the objectives and measures are adequate. It can be said that the general policy of Turkish forestry and the list of the highest priorities are in order. However, it is obvious that its purpose, targets and supplies have not adjusted fast enough to the changes in national and global scales.

Equally important to these subjects are the long-term applications, which are hindered by a lack of previous experience: feedback is of crucial importance to sustainable forest management, yet this is in general not taken sufficiently into account.

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The most important factor which hinders sustainability in connection with Turkish forestry is rural poverty. Although a general directorate of village relations has been founded and more activities have been undertaken to eliminate rural poverty, this has not been a priority in all Turkish forestry activities, either.

The following 5 main groups with their criteria for sustainable forest management at a national level have been selected.

2. UTILISATION OF FORESTS

2.1 Forest area and ownership

Forest areas should, as far as possible, be kept as such. Particularly, natural forest areas and other areas which have been under forest cover for a long time should be protected, as far as possible, against conversion to other use. Industrialised countries with limited forest resources have a particular responsibility not only to establish new forests, but also to conserve the already existing forests, especially the old ones.

Clear, stable land tenure conditions for forests should be established. The ownership of the land and multiple forest products should not be separated. Division of forests and forest properties into too small units should be avoided. Regulations regarding sustainable management should include all forests irrespective of origin and ownership.

2.2 Sustainable use of multiple forest products

Forest management is, as far as possible, aimed at supporting the multiple functions of forests on all lands. Quantitatively, as well as qualitatively, forests have to accommodate the need for products now and in the future (e.g., timber for houses and furniture, wood for paper and energy, decorative greenery, game, berries, fungi and recreational activities).

The natural processes of the forest ecosystem, which protect the forest soils and regeneration potential, and conserve biological diversity, must not be permanently harmed through the exploitation of forests. Provision of suitable seed and plant material should be ensured.

2.3 The importance of forests in relation to economy and employment

As far as possible, forests have to form the basis for income through sales of forest products and through employment in rural areas. A managerial framework for sound forest economics should be ensured. Sound forest economics are an important prerequisite for private people to carry out sustainable forest management. Regulations must be established to safeguard the working environment and working conditions for the forest workers.

2.4 The recreational functions of forests

Forests are very important for people's recreational use and, as far as possible, special consideration must be given to recreational use in forest management. With due regard to private ownership rights and the multiple-use management of forests, the general public should, as far as possible, be ensured access to forests.

Recreational activities should be carried out in such a way that they do not lead to unwanted changes in nature. Certain forests are used intensively by the public. Where this is the case, particular attention should be paid to such circumstances in forest management.

2.5 The landscape functions of forests

Forests and especially the forest fringes, constitute a substantial landscape element which should be conserved and protected. In forest management, and especially in afforestation, particular attention should be paid to the preservation of significant geological, geomorphological, historical or aesthetic elements in the landscape.

2.6 The cultural values of forests

Many forests contain ancient monuments and other historical values, which should be registered, protected and especially provided for in the forest management.

Individual trees, stones and sites that are of cultural, historical, mythical or religious value, as well as the myths attached to these, should be preserved as far as possible. The natural value of certain forest types is dependent on certain, old-fashioned silvicultural systems, e.g., coppices, forest grazing and selective cutting. Where this is the case, the old silvicultural systems should be maintained and, if necessary, reintroduced where feasible.

3. PROTECTION OF FORESTS

3.1 Forest soils and the ecological cycle of forests

Forest management must be adapted in order to maintain or improve the fertility of forest soils. Permanent loss of nutrients and the destruction and erosion of soils must be avoided. Protection forests should be established and looked after with a view to the prevention of windfellings, soil erosion and sand drift.

The natural cycles in the forest ecosystem should be conserved and supported. The favourable local influence of forests on atmospheric humidity, temperature and wind velocity should be maintained and efforts should be made to conserve a permanent vegetative cover.

3.2 Protection of biological diversity in forest ecosystems

The conservation of biological diversity comprises the conservation of genetic resources, conservation of species and conservation of structures and functions of the ecosystems. Generally, consideration must be given to the conservation of biological diversity in plantations as well as in forests of natural origin. Special consideration must be taken in ecologically sensitive areas, in areas with natural forests, and in old forests.

Efforts should be made to create greater variation in forests and plantations that have little biological diversity. Networks of protected forests and travel corridors should be established. Where forests are the habitat of rare or endangered species, special consideration must be given to this in the management. Particularly valuable forests and biotopes in forests should be registered. Forest management should strive to utilise and emulate the natural processes in the forest ecosystem, including the use of natural regeneration.

3.3 The influence of forests on ground water, streams and lakes

Forest management must be adapted in order not to cause permanent damage to the surrounding environment. Many forest lands constitute important ground water resources with pure ground water. Forest management must pay special regard to sensitive ground water resources, streams and lakes for example, by hindering precipitation run off and thereby increasing seepage to the ground water. The use of fertilisers which can not be fully absorbed by the forest, and the use of pesticides should be reduced to a minimum.

3.4 The health and vitality of the forests

The emission of pollutants causing acid rain, the emission of greenhouse gases and the deposit of nitrogen should be reduced for the sake of the health and vitality of the forests. Damage to forests by forest fires, insects and other pests must be prevented. The adaptability and resistance of the forests should be increased by choosing site-adapted tree species and provenances, and through the development of varied forest structures and cultivation systems.

3.5 The contribution of forests to the ecological cycles

The importance of forests for photosynthesis, the CO_2 cycle, and water balance should be acknowledged. All countries should aim at conserving and increasing the possibilities of forests to function as sinks and reservoirs for carbon. In cases where forests are important to migratory birds or other migrating animal species, special regard should be given to this in the forest management.

4. DEVELOPMENT OF THE FORESTRY SECTOR

4.1 Planning

Long term national policies and regulations for land use must be prepared. National, regional and local plans for forests must be prepared as appropriate. Forest management plans at ownership level should be promoted.

4.2 Processing of forest products

Production of high quality timber should be promoted where possible. Processing of forest products should be organised in order to avoid a waste of resources. Recycling and/or burning of wood and wood products should be promoted in order to minimise problems in connection with waste and energy. Product development and information should be initiated to promote the use of products from forests under sustainable management rather than products from non-renewable resources.

5. INSTITUTIONAL FRAMEWORK AND CAPACITY

5.1 Coherent policies, institutional frameworks and public participation

Governments and local authorities must prepare long-term, stable and coherent policies for the development of the forest sector. Realistic objectives and deadlines must be determined and measures established, including legislation, in order to promote sustainable forest management. Objectives and measures must be adjusted periodically and when circumstances change or new knowledge is acquired.

Forest policy should be integrated with a development policy, policies in relation to other sectors and with other relevant policies, with a view to promote sustainable management of the forests. When formulating policies and plans for forests, interest organisations and the public must be involved. Institutional frameworks must be established to provide and promote advisory services and supervision in relation to forest owners and foresters in order to ensure the implementation of objectives and measures for a sustainable development of the forests.

5.2 Information and statistics

Statistics concerning the development of the forests, including indicators for the most important multiple functions of the forests must be prepared and published regularly. Foresters, forest owners and the general public must be informed about matters concerning the forests and sustainable forest management.

5.3 Education and research

Research must be carried out and methods developed to promote sustainable development in the forest sector. Foresters must be educated and receive in-service training to promote the understanding and implementation of sustainable forest management.

Educational, research and development institutions should cooperate nationally and internationally in order to promote sustainable forest management.

6. INTERNATIONAL CO-OPERATION

6.1. Participation in international co-operation regarding forests

All countries should actively participate in international co-operation to achieve sustainable forest management on the global level, including co-operation concerning the exchange of information, expertise, research results, etc. Industrialised countries have a special obligation to support developing countries with economies in transition, to achieve protection and sustainable utilisation of forests and to prevent deforestation, erosion, and desertification.

6.2 Forest products trade

The world trade of timber and wood products from non-endangered species should be open and unrestricted. The aim is to develop systems that promote local processing and favour the production, utilisation and marketing of products from sustainably managed forests.

7. CONSIDERATIONS IN TURKISH FORESTRY

The policies of general directorates which are called afforestation, forestry and national parks do not place enough importance on forestry or focus on eliminating rural poverty and there is not sufficient co-operation between the general directorates and the villages.

However, there are other factors which effect sustainability and forestry activities in Turkey. For instance, pastures are not managed intensively and according to regulations and not enough importance is given to game fields, biological varieties, intensive forestry, plantations of fast growing species or public relations, nor are there any specific policies or priorities related to forestry activities. It can be said that there are no detailed and sophisticated documents to be implemented into the policies and strategies of Turkish forestry.

The implementation of sustainable forestry in Turkey faces obstacles on both national and international scales. However, the most important obstacles which affect each other, to a great extent, in Turkey can be explained as follows:

a) Weakness of political and social will
b) Increasing number of population and urbanisation
c) Rural poverty and out-of-balance returns
d) The supply-demand relation of forest products is out of balance
e) Mistakes in policies and applications in sectors closely related to forestry
f) Insufficient resources and underdeveloped economy
g) The forestry sector resources have not been used sensibly
h) Insufficient level of education, knowledge and experience

It is important that all these obstacles can be seen as correlating rather than as a reason-result relationship. In spite of all these envisaged basic obstacles to sustainable forestry in a national scale, it is necessary to first eliminate the following obstacles that forestry sector is facing:

a) Insufficient supply of raw material wood
b) Rural poverty
c) Political and social awareness of the importance to conserve and improve forests
d) Deficiencies in forestry education and insufficient knowledge about the sphere of forestry
e) Mismanagement of the present departments
f) Deficiencies in research and insufficient access to available information
g) Finance problems and insensible use the resources allocated to forestry

As stated briefly before, the main targets related to sustainable forestry in Turkey are:

a) Acceleration of the development
b) Prevention of unemployment
c) Decrease in differences in wealth between geographical locations and prevention of social stratification
d) Possibilities to carry out structural changes when necessary
e) Monitoring and following the changes in foreign currency
f) Sustainable development

With this in mind, the forestry sector must carry out the matters below:

1. To increase production of the biomass and services
2. To support complex rural development in the country
3. To protect forest resources

Strategy means a set of the most suitable actions selected from alternative sets of action in order to arrive at some target within the framework of the available structure, constrained resources, targets to be arrived with emphasis on these**.**

Especially within forestry it is mandatory that all strategies which will come into existence display multiple dimensions. In addition, the criteria of productivity and effectiveness must be given priority; also rationalism and objectivity must come into the main norms. After consistency has been obtained and the priorities have been defined at the upper level, the element, the means and the tactics which are necessary for implementing the basic actions must be found out.

The forestry sector, when compared with many other sectors in Turkey, ensures employment to a significant measure. This is because in this sector some basic activities, which are labour-intensive, such as production, maintenance, afforestation and improvement of pastures, play an important role. Our forested areas and forestry activities are located in our rural regions where unemployment is most concentrated. Whether to ensure an increase in employment and income, or as a result of stimulating new industrial branches starting their activities, the forestry sector assists in the previously mentioned rural regions in the prevention of unemployment, to reduce, even if only partially, the inequality among regions and to prevent migration to large cities from these regions.

One of the most important tasks of forestry policy is to implement actions to prevent various risks related to the soil and the growing stock, and to establish a permanent forest management department. There is a great deal of variation related to these practises between different countries and within Turkey, also. It can be said that forestry is one of the most important sectors in Turkey in terms of creating employment and sustainable development in rural areas and amongst populations which are, in general, poorly educated. In many regions it is, in fact, the only sector which can decrease poverty in rural areas.

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GLOBAL, REGIONAL AND NATIONAL FOREST POLICY – REMARKS FROM THE EUROPEAN PERSPECTIVE

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ABSTRACT

The main topics in forest discussion after Rio have been the economic, political, demographic, and social trends which are shaping the forest management and influencing forest policy on the global, regional and national level. Outcomes from IPF and other international discussions (WCFSD – World Commission on Forest and Sustainable Development) are presented in this paper. The special position of Europe in the world forestry is discussed. "More wood in the weaker forests" as a feature of the European forestry is proposed. From the perspective of national forest policy (Poland), the National Programme for Expansion of Forest Cover is summarised. Analyses of some existing international legal regulations related to the forest and the proposal for the Regional European Convention on Forests are described.

1. INTRODUCTION

Since Rio '92 – The UN Conference on Environment and Development (UNCED – "Earth Summit") one can observe the international activity focused on the world's forests. It drew the attention of international organisations, national governments, non-governmental organisations, private sector and individuals to the necessity of encouraging global, regional and national consensus on the key issues related to forests. New organisations and institutions have been established after Rio to follow up the UNCED recommendations on forests. This paper will focus on two of them: first, The Intergovernmental Panel on Forests (IPF) established by UN CSD, and second, the independent, non-governmental World Commission on Forests and Sustainable Development (WCFSD).

The main topics of forest discussion after Rio were, and still are, the economic, political, demographic and social trends which are shaping the management of forests and influencing forest policy on different levels.

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Demographic changes – both the growing size and increasing urbanisation of the world population – have had, and will continue to have, major impacts on the forest cover and its condition, the demand for wood and non-wood forest products, and the ability of forests to fulfil essential environmental functions. Political and economic trends shaping the forestry sector include: trade liberalisation and globalisation of the world economy, overall economic growth, poverty and widening gaps between rich and poor in many countries and between countries, decentralisation and privatisation.

Between 1990 and 1995, there was an estimated net loss of 56.3 million ha of forests world-wide, representing a decrease of 65.1 million ha in developing countries which was partly offset by an increase of 8.8 million ha in developed countries (SOFO 1997). The new estimates indicate that the annual loss of natural forests in developing countries between 1980 and 1990 was lower than the estimate made earlier by FAO Forest Resources Assessment 1990: 15.5 million ha vs. 16.3 million ha, and the annual loss of natural forest was lower in 1990-1995 than in 1980-1990 – 13.7 million ha vs. 15.5 million ha. Although deforestation continues to be significant in developing countries, the rate of loss of natural forests during the last period appears to have been slower than previously estimated.

2. REMARKS ON IPF

The Panel was mandated to consider 5 main issues:

1. Implementation of UNCED decisions related to the forest.
2. International co-operation in financial assistance and technology transfer.
3. Scientific research, forest assessment and development of C&I of SFM.
4. Trade and environment in relation to the forest products and services.
5. International organisations, multilateral institutions including appropriate legal mechanisms.

After having each programme element assessed, the Panel formulated “Conclusions” and recommended “Proposals for action”.

2.1 (I. A) Progress through national forest and land-use programmes

As the main “proposals for action” related to the “European perspective”, the Panel:

- encouraged countries to develop C&I for SFM and integrate them to the overall of the national forest programmes;
- urged countries to develop multidisciplinary research programmes;
- urged countries to elaborate systems, including private and community forest management systems, for planning, implementing, motoring and evaluating national forest programmes that identify and involve a broad participation of the

local people, forest dwellers, forest owners, and local communities in decision-making process;
- stressed the need for international co-operation in the adequate provision of ODA as well as possible new and additional funding from GEF; this is specially important for countries with economies in transition – more equal share of GEF finance, including Europe, is needed.

2.2 (B) Underlying causes of deforestation and forest degradation

As proposals for action for this item, the Panel recommended:

- to prepare in-depth studies of the underlying causes of deforestation and forest degradation;
- to analyse comprehensively the historical perspective of the causes of deforestation and forest degradation in the world;
- the Panel urged developed countries as well as UNDP and other multilateral and international organisations to assist developing countries and countries with economies in transition in their activity in the "field of underlying causes of forest degradation";
- the Panel invited interested parties to the preparation of the programme of work for forest biological diversity of the CBD;

2.3 (C) Traditional Forest-related Knowledge

This item was focused on the developing countries, but Europe should also recognise its own problems related to the local people in Europe.

There are people in Europe who depend on forest and forest work – the foresters and their families, people working in the forest and for the wood industry, employees of pulp and paper plants and others. These local people have their rights for employment and social security.

From the European perspective we should consider the social aspect of Sustainable Forest Management (SFM).

2.4. (D) Fragile ecosystems affected by desertification and drought

It could be considered that this item is related to the arid, semi-arid and dry sub-humid regions. But during the past decade, two regions in Europe have been insufficiently supplied with precipitation: the Mediterranean region and Central Eastern-Europe. Some pathological processes like oak decline or defoliation are attributed to the drought and steppe-like processes. These phenomena are insufficiently recognised, or even perhaps neglected, although they could be considered as an effect of climate change, or at least instability of weather.

2.5 (E) Impact of airborne pollution on forests

This phenomenon was recognised not only in Europe. The Panel rightly stated that a preventive approach is needed, taking into account economic factors including production and consumption patterns. The Panel emphasised the importance of the Convention on Long-Range Transboundary Air Pollution and the application of the critical loads approach under this convention.

The Panel emphasised the need to continue monitoring and evaluating the impact of airborne pollution on forest health.

2.6 (F) Countries with low forest cover

Firstly, the definition of "country with low forest cover" used by the Panel does not have a strong scientific base – it was based on the global forest resources assessment made by FAO. For developed countries, low forest cover means 20% of the minimum tree crown cover, and 10% respectively for developing countries. This seems to be unacceptable for Europe. The definition should take into consideration social, cultural, economic, and historical development, and should be related with other sector of national economy.

Countries with low forest cover are – in my opinion – those where the lack of forests is damaging to ecological processes and national economy. This working definition is valid independently of the geographical and climatic variations, environmental, social and economic perspective, or ownership and land tenure structure. From this perspective Poland, for instance, is a country with insufficient forest cover, and thus with a "low forest cover".

2.7 International co-operation and financial assistance and technology transfer

This subject area covered 4 items essential for management, conservation, and sustainable development of forest, particularly in developing countries and countries with economies in transition.

2.7.1 Financial assistance

It was stated once more – as it was already stated many times before the Panel – that financial assistance is needed. But the fundamental question remains: Where is the money coming from? Who will decide on its distribution? Who will receive it? How much? I cannot say that IPF achieved much progress in this issue: It just repeated after paragraph 10 of "Forest Principals" that "new and additional financial resources should be provided".

It should be noted that some progress has been made in the implementation of various measures oriented to the mitigation of the external debts of developing countries such as dept-for-nature swaps related to the forest.

This measure related to the forestry is, unfortunately, not common in Europe in relation between members of EU and countries with economies in transition. The Third Resolution from Helsinki Conference (H3) covers this kind of co-operation but the effectiveness of this "ecoconvertion mechanism" for the forestry is very limited. Currently, only one country-member of EU – France – is participating in the ecoconvertion mechanism. The budget money converted from external debts into environmental related investments are not addressed to the forest but to the other ecological-like purposes. In this situation it would be very useful if the creditor countries would indicate the forestry, at least partially, as a goal of ecoconvertion.

2.7.2 Technology transfer

IPF recognised once more that technology transfer between North and South should be given on the forestry areas like nursery and reforestation technology, sound logging technology, implementation of national forest strategies, GIS tools for the mapping, and others.

But what is needed firstly in the transfer technology is, in my opinion, a sound technology not in forestry but in other sectors like the energy sector or recycling technology, sound technology or technology to avoid the waste of raw material.

The transfer of forest technology between North and South includes a kind of ambiguity. Recently I had opportunity to observe the effect of technology transfer to tropical countries like Indonesia, Costa Rica, Cameroon. I saw, in the middle of the rain forest, European intensive forest technology provided by European experts, in the form of intensive nursery production of seedlings in plastic boxes, with genetically unified seeds; I saw the monospecifique plantations in the middle of the jungle, and intensive preparation of soil before planting.

I am not sure that these are the most appropriate forest-related technologies, nor the most effective methods of transfer of intensive European technologies into developing countries. We must remember that this kind of forest technology changed the European natural forests into very vulnerable monocultures or man-made forests.

2.8 Scientific research, forest assessment and development of Criteria and Indicators (C&I) of Sustainable Forest Management (SFM)

The Panel noted the widespread international interest in and the support for the development and implementation of C&I for SFM. It drew attention to the dynamic nature of that process and emphasised that the current momentum of action had to be sustained.

The Panel urged countries to clarify links between C&I employed at the national, subnational as well as at the forest management unit / operational levels.

The Panel encouraged countries to field testing and implementation of C&I at these three levels.

Helsinki Follow-up process was discussed in Geneva (22-23 of May 1997) during the Second Expert Meeting. The Guidelines of SFM were recommended, containing C&I at the management unit level.

2.9 Trade and environment

Proposals for action are focused on the market access and market transparency and, of course, on the certification and labelling.

The Panel stressed that the certification of forest management and labelling of forest products should be put into perspective and that Governments play a critical role in promoting SFM. However, because certification has been so far developed as a voluntary private initiative and market-driven process, the role of Governments and forest policy makers requires further clarification. It could be a subject of next Pan-European Conference on the Protection of Forests to be held in Lisbon in 1998.

2.10 International organisations, including appropriate legal mechanisms

The most animated discussion was on this subject.

The existing international legally binding instruments that refer to forests were assessed. There are many such regulations: International Convention to Combat Desertification, The Convention on Biological Diversity, Framework Convention on Global Climate Change and of course some non-legally binding instruments like Chapter 11 as well as Chapters 12, 13, 14 and 15 of Agenda 21 and of course "Forest Principles" adopted at UNCED. However, the Panel noted that they do not deal comprehensively with all issues relating to forest, including SFM. It was stated that there is no global instrument that deals in a comprehensive and holistic way with all types of forests. The Panel examined a number of options for action and proposed:

1. to continue the intergovernmental policy dialogue within existing forums.
2. to continue the intergovernmental policy dialogue on forests through the establishment of an ad hoc open-ended intergovernmental forum under the auspices of the CSD with two possibilities:
   - to make the already existing arrangement and mechanisms more useful
   - to build the necessary consensus by negotiating possible elements of a legally binding instrument, and reporting to the CSD in 1999.
3. to establish, as soon as possible, Intergovernmental Negotiating Committee on a legally binding instrument with a focused and time-limited mandate.

European Union clearly declared to be in favour of the last option, as did Poland.

3. REMARKS ON WCFSD

Immediately after the "Earth Summit", a special Organising Committee, following the recommendations of the Inter Action Council, which is a body comprising former Heads of State, was set up to promote the establishment of an independent global Commission to address the problem of the deteriorating status of the world's forests.

Key issues that provided the impetus for the establishment of WCFSD include:

- conflicting perspectives on sustainable forest management and development of instruments (criteria and indicators, certification) for measuring sustainability;
- threats to tropical, boreal and temperate forests;
- the need to ensure local participation in forest policy dialogue and forest management;
- linkages between forest products, trade and environmental degradation;
- development of improved financing mechanisms for forestry;
- strengthening of institutional support mechanisms with special reference to the various regional agreements and forest conventions than have been developed in response to the consensus reached at UNCED on "Forest Principles".

The Commission has established three Working Panels that focus respectively on:

1. Sustainable Equitable Use and Management of Forests
2. Trade and Environment
3. Finance, International Agreements and International Institutions

After the fourth Regional Public Hearings conducted to date (Asia-Pacific – Indonesia, North-America – Canada, Latin America – Costa Rica and Central Africa – Cameroon) some global questions emerged:

- How much forest do we need? What kind, where and what for?
- How much forest should be preserved?
- How and by whom should forest be managed?
- For whose benefit?

The responses to these questions have brought up very clearly the sharply differing perceptions in these issues of the forest dwelling communities, conservationists and commercially oriented groups. The discussions, that have involved to date more than 1500 participants, also reflected the major disparities in the understanding of global forest problems, due to – first of all – the disparities in income between rich and poor, and to the strongly contrasting consumption patterns and life style between people of the North and South.

Global forest problems, as seen from the perspective of richer dwellers of industrialised countries of the "North" (e.g. European citizens), include such issues as:

- what the continuing and increasing loss and degradation of global forests imply for human welfare and planetary survival;
- loss of biodiversity and the possible global warming mean a catastrophe for our planet;
- the negative impact on forests of ecologically damaging commercial logging, mining, oil extraction and other infrastructure development have received wide publicity and critic;

- the loss of biologically unique tropical rain forest caused violent public manifestations and spectacular individual actions;
- the growing concern of environmentally conscious citizens and consumers to ensure that the products which they buy come from forests that are being sustainably managed;
- the growing impact of environmental groups to enlarge and establish new nature reserves and new national parks and thus to create more "untouched forest";
- the frustration of commercial companies and the forest workers who depend on forest employment about what they regard as extreme and unwarranted attempts by environmental activists to close down logging operations and to destroy their communities.

By contrast, seen from the point of view of the "South" or from the point of view of less rich and less privileged societies and national political leaders in many developing countries, perceptions of forest problems are quite different. The most urgent problems to be resolved include:

- the pressure on national governments and political leaders to use forests and other natural resources as a way of generating development revenues, creating employment and accelerating economic development;
- the negative impact of industrial company operations and government policies on local communities' welfare and survival prospects. In many situations prevailing laws or commercial operations severely restrict forest dependent people's access to essential forest foods, fuelwood, medicinal plants and other products. They destroy the habitat on which local people depend for subsistence, food security and income;
- the inequity of government forest land-use policies and timber allocation procedures that have alienated local people's traditional land rights;
- the weak or non-existent political influence of many local communities or local self-governments on the equitable sharing of the benefits being derived from exploitation of their lands;
- the impact of local people on the conversion of nature reserves or national parks previously established into productive forests with the possibility to exploit them – to make the forest more and more useful.

the Regional Public Hearings many unresolved questions arose:

- How to revise existing economic, trade and other forest related policies to formulate new initiatives that promote conservation and sustainable development of forests consistent with local, regional and global requirements for a stable human environment?
- How to increase the contribution of forests toward the basic human needs for economic development, employment, energy, food, fibre, shelter and water without degradation of the forest environment?

- How to achieve sustainable management of natural resources as well as integrated land-use management?
- How to enhance the important role of agro-forestry-pasture farming system in the stability and rural incomes to meet human needs for fodder, fuel, timber and other forest products and services?
- How to increase world forest cover, particularly by rehabilitating degraded forest land and combating desertification?
- How to use afforestation for environmental – soil and water conservation, carbon reservoir – and economic benefits, as well as for energy production and what policy instruments – carbon tax or tradable emission permits – would be appropriate to accomplish these objectives?
- How to harmonise forest-based socio-economic benefits at the local and national levels with regional and global environmental responsibility?
- How to build the scientific, technical and institutional capacity of countries to allow them to address increasingly complex issues related to the management, conservation and sustainable development of forest lands?
- How to enhance the transfer of proper technology necessary for sustainable forest management as well as for conservation of forest biodiversity?
- How to strengthen institutional arrangements to improve international co-operation and mobilise international expertise and financial resources toward the management, conservation and sustainable development of forest lands?
- How to involve local populations as well as local communities and governments in the decision-making process?
- How to prevent the use of non-tariff barriers in the international trade in forest products?
- How to provide appropriate incentives to forest owners to conserve private forest for its public values?
- How to produce a system of forest evaluation that incorporates their environmental functions and services provided?
- How to provide appropriate compensation to forest owners, particularly in the tropical regions, for conserving and using biodiversity and maintaining forests as a carbon reservoir?
- How to assess the impact of accelerated timber harvesting and export that allow countries to meet foreign debt obligations on the prospects for conservation and sustainable forest management?
- How to assess the status of ongoing and future prospects for debt-for-nature swaps and similar debt-reduction mechanisms?
- How to strengthen and resolve forest land-use conflicts, which involve choices in many developing countries between forest and non-forest uses and in industrialised countries between different uses of forest?

The conclusions and recommendations emerging from the debate managed by WCFSD will be prepared after the last Public Hearing in Russia (September 1997) and will be submitted to the CSD. It could usefully contribute to possible CSD Forest Summit in mid-1999.

4. WHAT CAN WE DO?

What can Europe do for Europe? For Europe which is proud of the steadily increasing growing stock, and proud of the increase of forest cover, as well as the annual rate of wood increment increase, for Europe proud of the wood-fellings consistently decreasing and below the annual available cut, and proud of its activity to protect European and non-European forests? We must remember that the first Pan-European Conference on The Protection of Forests was held in Strasbourg two years before the Rio Conference and the already famous "Helsinki process", which started after second Conference in Helsinki, is serving as a model for many other "processes" of C&I formulation. What can we do for Europe having the European forestry traditions for centuries and having the best forest legislation?

But, we have at the same time European problems with "forest decline", airborne pollution of forest environment, we have forest fires and insect outbreaks as well as diseases infestations more and more frequently. We have acidification of soil, eutrophication of ecological sites and loss of biodiversity.

More wood in weaker forests – it could be the shortest description of the "state-of-the-art" of the European forestry.

In this context we can formulate three current main tasks without the risk of mistake: (1) respect and promote natural processes in artificial forests (man-made European forests); (2) stop the forest degradation and (3) continue to increase forest cover.

Let me focus on this third issue from the Polish perspective and taking into account the European scale.

Due to the socio-economic processes of development as well as the consequences of the damage caused during the I and II World Wars Poland's forest cover steadily reduced from 38% in 1820 to 20% in 1945.

Since 1945 the tendencies have reversed and in 1996 there was 27.8% of forest land. The mean rate of afforestation was 37 000 ha per year with the maximum 62 000 ha in 1960.

Poland's forest cover is below the European average of 32% and may be considered too low in relation to the geographical and climatic zone. Research and studies have shown that a cover of 33 to 34% would be rational from the point of view of land-use structure and environmental management.

The Polish forest cover is too fragmented – State Forest Organisation embraces 26 000 forest complexes while private forests amounting 1.5 mill. ha are divided between 1.4 mill owners. Forest cover is regionally differentiated: from more than 60% to less than 10%.

Making use of the national average forest cover is sometimes untrustworthy and could give a false picture. To better characterise whatever country forest cover it could be useful to provide behind the average also the maximum and minimum of the regional forest area as well as the number of forest complexes bigger than adopted area (5 ha for instance in Poland).

The most appropriate measure of forest cover, reflecting all needs and social demands from forest, as well as existing and potential conflicts addressed to the forestry is, however, the forest area per capita. Poland is a good example – in spite of the continuos increase of forest cover due to afforestation efforts, the demographic processes cause continuos decrease of the forest area per capita from 0.22 ha in 1960s to 0.20 ha in 1990s

During the past 20 - 25 years, and even before, one can observe a steady worsening in the country's water balance, a tendency for the landscape to take on an increasingly steppe-like character and an increase in the intensity of unfavourable geodynamic and geochemical processes. A manifestation of this is the spread and intensification of water and wind erosion, a loss of organic matter from the soil and a worsening of the chemical contamination of soil and water. This is particularly the case for the sandy soils which are in fact dominant in the national scale. Such processes are a serious barrier to national economy.

The fragmentation of forest complexes has combined with the simplification of their structure to cause a rise of discontinuities in natural ecological systems, a decrease in the biodiversity and reduced possibilities to survive for native animals and plants.

At the same time Poland has witnessed an excessive use of land with limited possibilities for biological productivity for agricultural purposes. It is estimated that 25% of agricultural lands (some 4 600 000 ha) is of the most limited suitability for agricultural production. Marginal land, i.e. unprofitable production, production unsuitable for use or storage, is estimated to cover 3 300 000 ha or 17.5% of agricultural land in Poland. It contains also about 100 000 ha of land polluted by toxic substances in the industrial regions.

This situation offered a chance and challenge to build a National Programme for the Expansion of Forest Cover with the following goals:

- improvement of natural environment by the extension of infrastructural forest functions referring to the protection of water, soil and air;
- nature conservation enhancement;
- mitigation of the greenhouse effect by the creation of new carbon sequestration sinks;
- creation of new forest-wood resources;
- counteraction of land productivity degradation;
- reduction of unemployment;
- stimulation of the space planning and land use improvement;
- harmonisation of rural development with ecological principles;
- stimulation of regional socio-economic development;
- fulfilment of the engagements referring to the Convention on Biological Diversity, on Climate Change, on Desertification as well as Forest Principles of Agenda 21 and C&I of Helsinki Conference and others.

The national programme for the expansion of forest cover enters into relations with many areas and focuses many institutions and public actors dealing with socio-economic and nature – environmental activity on national, regional and local level. It shows very clearly the cross-sectoral character of forest and forestry as well as their integrative role in the rural development.

The implementation of the programme is entrusted not only to the foresters and to the Ministry of Environmental Protection, Natural Resources and Forestry, but also to:

- the Minister of Agriculture and Food Economy,
- the Minister of Physical Planning and Construction,

- the Minister of Finance,
- the Minister of Labour and Social Welfare,
- the Minister of National Education,
- the General Directorate of State Forests,
- the president of the State Treasury's Agricultural Agency,
- the presidents and mayors of towns, cities, districts and villages.

The programme is implemented in 3 stages; I: 1995-2000; II: 2001-2010; III: 2011-2020.

The success in the implementation of the programme will first and foremost be affected by the availability of funds for the associated work on geodesic delimitation and spatial planning as well as in particular by the supply of money for the carrying-out of the reforestation work itself and the necessary aftercare. In absolute terms, the total cost of implementation amounts to about 650 000 000 PNZ (ca 240 mill. US$).

Implementation of the Polish Programme i.e. the expansion of forest cover in this part of Europe means to act on behalf of the improvement and detoxification of the European environment and to built an socio-economic and environmental common welfare in Europe.

5. DISCUSSION

1. After UNCED Conference in Rio, there were countless initiatives, meetings, conferences, seminars etc. Among these, the following UN conferences were held: World Conference on Population, World Conference on Social Development, World Conference on Human Settlement (Habitat I and II), and World Food Summit. In addition, there were 5 sessions of CSD, four sessions of IPF, and three conferences of COFO. All these should be multiplied by bilateral, multilateral, regional initiatives, amounting in numerous discussions.

All of the above mentioned forums arrived at the same conclusions:

The essential precondition for sustainable development is economic growth. Economic growth for developed countries means a surplus of production. For developing countries sustainable development means – first of all – eradication of poverty. Developing countries emphasise the urgent need to increase production of goods and services and provide market access for their products.

Higher production of goods means undoubtedly higher utilisation of natural resources: soil, water, air, minerals, plants, and animals. We survive and grow by extracting energy and materials from nature – from the same ecosystems which we are a part of. Do we "consume" some parts of ourselves? For how long can we do so? We consume the natural resources before returning them in altered form to the ecosphere – but never in the same form and never in the same quantity. The entropy is a real cost of our existence (II Thermodynamic law is implacable).

On the other hand, the concept of sustainable development based on the precondition saying that the same natural resources, which are irreplaceable factors of biological

production – soil, water, air, minerals, plants, animals and solar energy – should be protected for the environmental purposes and for the next generations. The circle is closed. We are in the state of perplexity.

How can we break off this vicious circle? The changes should be more profound than recycling, sound technology, more profound than the multiplication of the protected areas, Certification, C&I or SFM.

2. The IPF noted in the 74 paragraph that "*developed countries bear a special responsibility for facilitating the creation of conditions for SFM especially for the conservation of forest biological diversity and sustainable use of forest biological resources"*.

Let me focus on "*special responsibility*". What does it mean? It seems that it is not only the question of financial assistance. It is something deeper, more intellectual, more imponderable, it is more a "way of thinking" and concept of development than current practice and transfer of money. Perhaps it is related to equal and equitable sharing of benefits coming from the use of nature in the global sense.

The special responsibility is likely to be related to the fundamental paradigm of western science and western technology. Europe, from a historical perspective, is responsible for the deterministic, Cartesian paradigm, which separates the elements of nature or components of ecosystem from each other and considers them separately. This methodology was and still is the greatest achievement of modern knowledge and practice. Thanks to this methodology the humanity is continuously making progress. All our civilisation is based on it.

But, this wonderful paradigm was, and still is, very harmful for the nature. In various parts of the world, ecological degradation and environmental risks are becoming a significant factor of economic, social and political unrest. The links may be subtle but they are decisive for the depletion of forests, loss of biodiversity, soil and water degradation, air pollution and for the incapacity of the land to support an increasing human population.

Following the reductionistic methodology we divided the nature, also from the legislative point of view, in many different pieces, isolated by law. On the national level we have different law related to different elements of nature: Land Use Act, Water Protection Act, Game Management Law, Environment Protection Law, Law protecting air and law protecting Wildlife and of course separate Act on Forests.

The same situation we have on the regional – European – level: European Union has no legal basis for a common forest policy. The forestry sector is regulated by a variety of policies such as environment, tourism, transport, trade, agriculture, rural development, employment and others. There is a clear need for co-ordination and integration between these various policies.

We have the same situation on the global level. Indeed, forest ecosystem has been divided by international regulations into several, separated boxes or compartments, with separate functions:

- the climatic functions of forests are used by the Convention on Climate Change;
- the soil and water protective functions of forests are borrowed by the Convention to Combat Desertification;

- the protection of forest flora and fauna is handled by the Convention on Biological Diversity;
- the conservation of specific forest habitats (wetlands) and animals (birds) are dispersed on many other conventions, regulations and protocols (like Ramsar, Bonn, Washington and others).

One could ask: What about the Convention on productive ability of forest ecosystem? How can all different conventions be harmonised with a forest management practice which should accomplish Forest Law?

This situation does not facilitate the fulfilment of all international and national obligations resulting from so different documents.

High level international regulations divided the forest – by establishing so different instruments – into isolated elements. Independently and at the same time everybody talks about a holistic approach to the sustainable forest management. The forest ecosystem structure and functions cannot be treated in a holistic way when they are regulated separately, in the same place and at the same time, by such different legal instruments. There is something illogical in that.

A principal doubt arises then: Why is the nature, just being tried to be linked by a holistic approach into functional unity, when at the same time it is being partitioned by legislation into fractions managed according to different laws? Is it a success or a failure of the forest policy?

3. It seems that the substance of the relationship between people and nature should be changed. This is not an economic or managerial but rather an ethical and moral question. It is a real challenge for us.

The new relations mean the necessity to define a kind of “ethical code” based on the concept of “conservation by utilisation” with conformity of human valuation systems and full respect of alive entities. We should find the appropriate methods for that and stop the separation of the nature from the people.

In this concept forest is a specific operational instrument while forestry is a biotechnology of land-use able to achieve ecological, economic and social goals – forestry became one of the most important human activities on Earth. We must recognise forest as an element which integrates all other elements of environment: forest links air, water and soil, plants and animals – no other terrestrial ecosystem does this. Forest must be recognised as a driven-force for rural development of developed and developing countries alike, with a special intersectoral role related to the soil, water, climate, biodiversity protection as well as tourism, recreation, spiritual and cultural activity.

4. Europe has a special position in the world forestry. It reflects special intellectual responsibility as it was in the past, when 200 years ago the concept of sustainable forestry based on the sustained yield or sustained wood supply or sustained income was created in form of the “normal forest model”. European forestry should feel now a responsibility for the future of world forestry when new concept of sustainability based

on the persistence of forest ecosystem is discussed. This is a good time to make progress in two directions or in two fields: (1) in the field of research: to build a new forest model – model of multifunctional forest – based on the holistic methodology; and (2) on the field of forest policy: to start the negotiation process on the Regional European Convention on Forests.

Doing so – according to the above mentioned facts and processes – Europe could promote to set up a legally binding international instrument which may be a Global Frame Convention on Forests. Such a Frame Convention could be based on a sort of differentiated approach on controlled use of forests. This type of convention may have regional annexes – like the UN Convention on Combat Desertification – which are characterised by the main ecological zones like annexes for temperate, boreal, tropical forests and others. In several regions of the world such regional processes have already been implemented such as Helsinki process for Europe, Montreal process for boreal and temperate zones, Tarapoto process for South-American tropical zones and several others in Africa, Asia and Pacific.

International forest community cannot loose the momentum of willingness and common understanding; too much work has already been done, too much success has been achieved.

The global division of economic world into "developed" and "developing" countries – "North" and "South" still exists and even aggravates. It is reflected also in the forestry in form of conflicts focused on the issues related to the legally binding instruments of global forest policy. Regional action could mitigate this dissimilarity of interest.

5. During the II Session of IPF the delegate from Gabon stated:

- "Why forestry of my country should be regulated in such a way which decreases our competitiveness in the free market?
- Why is there free market for other products not for wood? Because the wood is our main resource of national economy and social benefits?"

The crucial question of our time emerges from the global discussion on forests: nature conservation for some means the decrease of economic development for others; preservation of common goods for everybody at the cost of only some of them.

We would perhaps have to put another question in front of us: for how long developing countries will be developing? For how long the countries with economies in transition will be still "in transition"?

SESSION V

ECOSERTIFICATION – IMPACTS ON FOREST PRODUCT MARKETS AND FOREST MANAGEMENT

Moderator: Prof. Dr. Peter Glück

THE THEORY OF RELATIVITY OF ECO-CERTIFICATION

Jeremy Wall

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This paper is presented on a personal basis and thus the information given and views expressed may not be taken to reflect any official position or obligation of the EU institutions.

ABSTRACT

This paper seeks to put the eco-certification of forests and their derived products, as denoting provenance from sustainable forest management (SFM) systems, into perspective relative to other possibilities which exist or may yet be developed to encourage and promote SFM. To this end, recent events in international fora such as the Inter-governmental Panel on Forests (IPF) are reviewed and alternatives as well as complements to certification are examined. Finally, the EU's own possibilities for action are outlined within the complex constraints of international trade rules and national forest policies.

1. INTRODUCTION

The grandiose title of this paper may have deceived the scientists among you into thinking that they would see a lot of complex mathematical formulae, stemming from Einstein's famous equation $e = mc^2$. However, the observant will have noticed that the title is written with small letters, indicating that my purpose is to outline the relativity of eco-certification to other aspects of the forest-based industries, particularly sustainable forest management (SFM). So the objective is to relativise, rather than to revitalise an issue which has already run for some time, and thus to set the scene for the other papers in this session. The mention of "theory", by the way, is to indicate that for some, there have so far been more words than actions.

Ilpo Tikkanen and Brita Pajari (eds.)
Future Forest Policies in Europe – Balancing Economic and Ecological Demands
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So, “what is eco-certification all about?” Is it

- a vital re-assurance about SFM? or
- a useful complement to other measures which promote SFM? Or just
- an irksome, unnecessary and expensive marketing gimmick?

Most participants in the certification debate would be divided between these alternatives, if not subscribe to some of the others which are around : including that of economists, where environment can be taken to mean certification involving multiple monetary costs, as well as that of the forest owners who might see certification as the root of all evil.

2. THE DIVERGENT STRUCTURE OF AND RESPONSIBILITIES FOR THE EU’S FOREST RESOURCES AND FOREST-BASED INDUSTRIES (F-BI)

Figure 1. European remote sensing forest/non-forest digital map. Projection: geographic; source: ESA/ESTEC.

Relative to Europe, forest resources are vast and varied. In the EU they occupy over 120 mill. ha. Even before the last enlargement the EU’s forests differed greatly as to their nature and location, their functions, ownership, type and intensity of management, and hence the forest policy to which they were subject. The next enlargement will have a similar effect.

Relative to a world context, however, the EU’s forest resources are not so vast, representing less than 3 % of the total forest resource. They do, however, represent a basis for a relatively very important economic sector, the forest-based industries (F-BI),

which if we include printing and publishing, generate around 310 000 MECU of GDP per year.

Table 1. Forest-based industries DG III C/5 key figures (1990)

Forest lands	Million Ha	%
North-America	457	13
Western-Europe	**115**	**3**
Eastern Europe	789	23
Asia	481	14
Latin America	967	28
Africa	545	16
Oceania	88	3
Total	3442	100

Table 2. Forest-based industries DG III C/5

Production value	310 000	Mio Ecu
Employment	2 200 000	Millions
Companies	> 500 000	

This production value, which equates to roughly 10 % of total EU manufacturing GDP, directly provides over two million jobs, spread between over 500 000 companies, most of these being in the SMEs of the woodworking and printing sectors. Indeed, if we consider what some call the forest-based industries (or F-BI) “cluster”, the EU can count about 4 M associated jobs, some of which are held by our 12 M forest owners.

3. A COMMON FORESTRY POLICY?

This diversity indicates that the EU is more than the sum of its parts. The historic heterogeneity of the EU forests and their associated policies has thusfar foiled all attempts at establishing a common EC/EU forest policy. This very diverse make-up of the forests and forest industries is also reflected in the member state government responsibilities for the sector.

Recently, however, the EU Parliament’s “Thomas Report”, along with that from the Economic and Social Committee (the “Kallio Report”), are fuelling a new debate about an EU Forestry Strategy. These are still being examined by the Commission, but it is already clear that any emerging forestry strategy should be based on both

- the Subsidiarity Principle, and
- Sustainable Forest Management.

Table 3. EU member state responsibilities for forestry and forest-based industries

MS	MIN ENV	MIN AG/FOR	MIN TRADE & IND	REGIONS
A		•		
BE				•
DK	•	•		
D		•	•	•
E	•			•
FIN		•	•	
F		•		•
GR		•		
IRL		•		
I		•		•
L	•	•		
NL		•		
P		•		
SV			•	
UK		•		

4. THE EU'S RESPONSIBILITIES FOR SFM

The following Commission services are dealing with SFM and eco-certification:

Table 4. EU Commission responsibilities

DGs	1	Trade	DGs	IB	ALA
	III	Industry		IV	Competition
	VI	EU forestry		VIII	ACP
	XI	Environment		XII	Research

The reason for these different responsibilities is the number and complexity of the issues facing the forestry and forest-based industry sector, many of them environmental, as shown in Figure 2. Left to right is the forest/wood/paper/graphic chain. This indicates both the horizontal themes shown below, and the sectorial issues, shown above the centre line.

5. SOME LESSONS FROM ECO-LABELLING

Taking one of these themes as an example, that of EU eco-labelling for paper products, it is probably fair to say that some lessons have been learned. These might be summarised as:

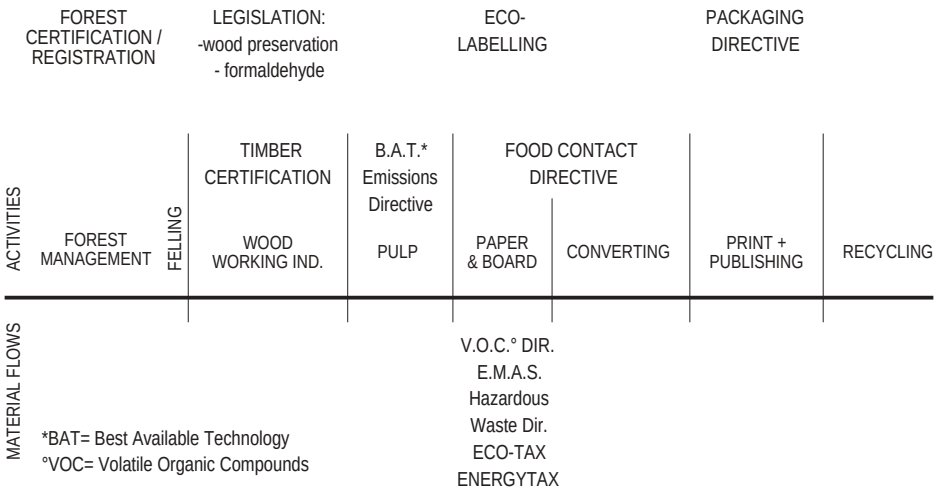

Figure 2. The forest/wood/paper/graphic chain

1. a workable and verifiable definition of SFM, with possibilities to cross-comparisons.
2. accommodation of different operating conditions between countries and regions as to institutional and other frameworks (subsidiarity principle).
3. broad-ranging consultation of interested and affected parties, including those from third countries.

One could perhaps add another idea; that of having complementary measures, such as eco-labels working together with EMS or EMAS, and not competing as alternatives.

6. A PACKAGE OF MEASURES

Thus, I shall dare to suggest that a package of complementary measures may be necessary to help promote SFM. Such a package might include :

- a coherent forestry sector policy and the means to implement it,
- forest management plans (incl. SFM), with means of control and penalties for abuse,
- international trade measures promoting SFM over UFM (unsustainable forest management),
- certification/registration of forests and forest products,
- tracing of wood flows from their source to the final consumers,
- identification, monitoring and countering of UFM, including illegal logging and trade associated with it.

This is not to forget research. Study on SFM in general and in particular into the wood flows and associated costs and possible benefits of certification are of vital importance to forest-based industries.

7. EU OPTIONS FOR ECO-CERTIFICATION

But what is the relevance of these elements to the EU situation? Many of EU and the elements of the package which has been outlined already exist, either nationally, or at EU level. Furthermore, on certification, the Commission laid out its possibilities a year ago in an options paper. This identifies the four elements of eco-certification and the so-called chain of custody. It then outlines the principles upon which a possible certification scheme should be based. The fourth formal session of IPF, in New York this February, produced principles very similar to those in the "Options Paper". These have become widely accepted.

- credibility,
- non-deceptiveness,
- cost-effectiveness,
- broad participation,
- SFM, and
- transparency.

In addition, the "Options Paper" included

- efficiency, including a demonstrable environmental benefit,
- voluntary nature,
- avoidance of unnecessary trade restrictions.

NB: relativity is not amongst these!

Based on these, the following policy options for certification within the EU were generated

- rely mainly on market forces, facilitating their action by avoiding trade barriers,
- actively contribute to the development of standards for SFM,
- establish an EU scheme as one of these legal instruments
  - a recommendation,
  - a directive,
  - a regulation,
- use other instruments, separately or combined (e.g. forest registration, independent auditing of member state forest policies, etc.)

But, you may ask, "what is the relevance of all this if there is no action?" Well, I can assure you that, following the "Options Paper" and the many events since, and after

UNGASS, the various Commission services involved with eco-certification are ready to take their responsibilities, but await further input from the member states, the industries and the other interest groups with whom we have been in discussion.

8. AN INTERNATIONAL PERSPECTIVE

Whether or not we certify our forests is possibly not the greatest issue, but we do want to be able to say that our forests are sustainable and are of sufficient quality. If we certify, the main questions would be

- to what purpose?
- for whom, and who cares?
- how?
- and, above all, at what cost?

Nevertheless, this matter must not deflect us from the greater challenges of forest degradation and destruction worldwide, in which context eco-certification may have a limited role. To really relativise certification and put it in perspective, I shall end with a quote, not from Einstein, the father of relativity, but from its grandfather, Sir Isaac Newton:

> *"I do not know what I may have appeared to the world, but to myself I seem to have been only like a small boy playing on the sea-shore, and diverting myself in now and then finding a prettier shell or a rounder pebble than ordinary, whilst all at once the great ocean of truth lay all undiscovered before me."*

FOREST CERTIFICATION AS AN INSTRUMENT OF FOREST POLICY

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ABSTRACT

This paper introduces forest certification, explaining the difference between forest management auditing and product certification. The objectives and mechanisms of certification are briefly reviewed.

Certification is then placed in the theoretical context of policy tools, policy networks and the policy process. The development of both performance standards-based certification and system-based certification are mentioned.

The paper concludes by offering several scenarios for the future evolution of certification.

1. INTRODUCTION

Over the past decade, forest conservation has become an increasingly important issue for both national and international policy-makers. Initial concern focused on tropical forests and the activities of the timber industry, and this spurred a number of international initiatives on tropical forests in the mid-1980s. Since UNCED in 1992, the focus has widened to include temperate and boreal forests, and several international forest initiatives (such as the Pan European process on the Protection of Forests in Europe) have emerged to deal with temperate and boreal forest issues.

Despite these efforts, deforestation in the tropics is on the increase. Statistics from the UN Food and Agriculture Organization (FAO) reveal that deforestation rates in the tropics have increased from 11.3 million hectares in 1980 to 15.4 million hectares in 1990. In most temperate areas the area covered by forest is currently stable or even expanding. However, the quality of this forest cover has declined, with old-growth forests increasingly being replaced by second-growth forests and plantations. In addition, forest decline (partly caused by air pollution) is occurring in many areas.

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The failure of international initiatives such as TFAP and ITTO to halt forest depletion, and the fact that in many tropical countries the situation is worsening, has prompted people to question the appropriacy of the approaches being used. Governments, NGOs, and the private sector are now reviewing their policies and approaches to forestry, and making an effort to come up with new and more effective ones. The recent activities of the UN Intergovernmental Panel on Forests (IPF) are an example of this.

In the past, policies concerning forestry or the environment were generally formulated and implemented by governments, while NGOs and the private sector sought to influence the policy process in various ways. Recently however, NGOs and the private sector have started to look for policy instruments that they can develop and implement themselves. This sometimes involves collaboration between NGOs and the private sector, with the government taking a monitoring and supporting role. It is in this context that certification has evolved. It can be argued that the development of certification has been facilitated by the existence of an international "epistemic community[1]" working on forest conservation and management issues (Adler 1992), made up of national and international NGOs and progressive actors in international organisations, governments and international institutions.

"Soft" (i.e. non-regulatory) policy tools like certification cannot replace tools such as national forest policy, legislation, and education. Forest certification only affects the forest management unit and thus cannot directly influence land-use planning and national policy. Nevertheless, as more and more industrialised country consumers profess a preference for "environmentally friendly" products, certification could play an important complementary role and may, if successful, help shape governmental policies.

2. DEFINITION

Certification can be defined as a process which results in a written certificate being produced by an independent third-party attesting to the location and management status of the forest in which the timber originated. There are normally two components (Baharuddin and Simula 1994):

Certification of forest management or forest auditing

This involves inspection of forest management on the ground against specified standards and review of documents such as management plans, inventories etc. Certification of forest management can potentially be carried out at different levels – forest management unit, forest owner, region, or country. Existing certification programmes work at the level of the management unit.

[1] An epistemic community is defined by Adler as a network of individuals or groups with an authoritative claim to policy relevant knowledge within their domain of expertise. The community members share knowledge about the causation of social and physical phenomena in an area for which they have the reputation for competence, and they have a common set of normative beliefs about what will benefit human welfare in such a domain. While members are often from a number of different professions and disciplines, they adhere to shared values and causal beliefs, professional judgement, common notions of validity.

Product certification

If certification is to influence a consumer's purchasing choice, the certifying process must follow an item throughout its entire production process, from forest to shop-floor. Certification therefore applies to a whole "chain-of-custody", which involves log transport and processing, shipping and further processing.

Certification has two main objectives:

- Objective 1: to improve forest management
- Objective 2: to ensure market access for certified timber

Conservation NGOs tend to focus on the first objective and retailers and timber traders on the second. This difference of interests could pose problems, but certification is unlikely to be successful in the long term unless both aims are achieved.

In the last three years, two forms of certification have evolved. The first, carried out under the auspices of the Forest Stewardship Council (FSC), has been referred to as a "performance standards" approach. Here the certifier is required to assess whether certain levels of performance are being achieved in the forest management operations. FSC has a set of generic Principles and Criteria which are intended to be used as the basis for the development of national or regional certification standards through a consultative process. This process is underway in several countries but has not yet been completed in any.

The second approach to certification has been called the "management systems" approach. Here the existence and implementation of an environmental management system (EMS) in the organisation being certified is assessed. The idea is that if the EMS is in place and operating successfully, environmental improvement will result. Each organization to be certified sets its own level of performance. The only "bottom line" is that a commitment must be made to reaching compliance with relevant regulations and legislation. The EMS approach has been formalised under the auspices of the International Organization for Standardization (ISO), in ISO standard 14001. In Canada the Canadian Standards Association (CSA) has adapted ISO 14001 for use in forestry.

The performance approach has usually been favoured by NGOs and the systems approach by industry. There have been conflicts between the proponents of each. NGOs have often said that the EMS approach is not sufficiently rigorous and that its results can be misrepresented as an ecolabel, even though this is not intended by ISO. On the other hand, critics of the performance approach see it as too normative and dogmatic. They also point out that it does not address the other parts of the life cycle of wood products apart from forest management. This conflict is unnecessary. It is possible to combine the two approaches and several large Swedish forest product companies are moving in this direction.

Finally, it should be noted that both approaches to certification have been criticised on various grounds ranging form trade discrimination to national sovereignty.

3. CERTIFICATION AS A POLICY TOOL

It is too early in the evolution of certification to evaluate its effectiveness, efficiency or impacts. What can be done however, is to seek to understand how certification has evolved and to seek precedents in other areas which might give us some ideas on how certification may develop. A policy approach is helpful in this regard.

To understand certification from the policy perspective it is useful to draw on three concepts from policy analysis: the policy cycle, policy networks and policy tools. None of these alone would provide a sufficient basis for the study of forest certification. However, the combination of the three constitutes a useful and potentially innovative framework. The policy cycle allows the identification of a series of stages in the policy process. Policy networks provide a useful approach to understanding the perspectives of different interest groups. This is particularly important at early stages in the policy process, when there may be very different views on the problem to be addressed and how to solve it. The policy tools approach offers a useful way to analyse the structure and functioning of certification programmes, and their impacts on different interest groups.

In this paper forest certification will be examined as a policy tool, defined as:

> *"A method through which government seeks a policy objective...the underlying methodology or approach used in a program or part of a program"* (Salamon 1989:29).

A policy tool differs from a programme in that it refers to the underlying method or approach used, rather than the particular combination of elements which constitute a programme (goals, resources, organisations etc.). A tool is more general than a programme, and a programme can combine several different tools.

The policy tools approach has mostly evolved in the US, in a political climate in the last two decades where there has been pressure for privatisation and delegation of central government functions in a number of areas. The policy tools approach is based on two premises. First, that it is possible to distinguish a limited number of devices or means by which the multitude of governmental and non-governmental programmes operate. Second, that each of these devices has a basic set of features and associated likely set of consequences, when it is applied (Salamon and Lund 1989).

If certification is considered to be a policy tool, it is useful to ask: what kind of policy tool is? Classification of policy tools is an important step towards understanding how they work. Thus far, the literature on policy tools has not so far accorded much attention to certification in general, or forest certification in particular, although some authors have explicitly recognised certification as an instrument of policy (Linder and Peters 1989).

There have been various efforts to classify policy tools. However, each classification has a number of problems associated with it. The simpler schemes, some of which use only four categories may have as much variance within the categories as between them (Schneider and Ingram 1990). Despite the problems with existing classifications of policy tools, it is interesting to use one of them to examine certification. For this

purpose, Schneider and Ingram's typology which divides tools into five broad categories (authority, incentives, capacity-building, symbolic and horatory and learning) is of particular relevance (Schneider and Ingram 1990). The authors of this classification provide an analysis of each category and the behavioural assumptions underpinning it. They note that if people are not taking actions needed to ameliorate social, economic or political problems, there are five reasons that can be addressed by policy as summarised in Table 1.

An examination of this table shows that it is difficult to classify certification in a definitive manner using these categories. Although it does not fit within the "authority" category, it could fit under "incentives" "capacity-building" and "symbolic", and perhaps even "learning".

Part of the problem with using the existing categories of policy tools to classify certification is that these categories have been developed with government in mind, whereas certification has been little used by governments so far. It has mainly been promoted by environmental NGOs or the private sector. In light of this, recent research by OECD (Organisation for Economic Co-Operation and Development) on environmental policy instruments is of relevance. OECD classifies environmental policy tools into three categories: regulatory instruments, voluntary approaches and economic instruments (OECD 1995:9). OECD defines economic instruments as:

> "*instruments that affect costs and benefits of alternative actions open to economic agents, with the effect of influencing behaviour in a way that is favourable to the environment. They typically involve either a financial transfer between the polluters and the community (e.g. various taxes and charges, financial assistance, user charges for services, product taxes), or the actual creation of new markets (for example, marketable permits)*" (OECD 1991:10-11).

The advantage of the OECD framework is twofold. First, certification clearly fits within the OECD definition of an economic instrument. Second, it clearly cannot be classified as a regulatory measure. Certification is voluntary, but the OECD categories of voluntary and economic instruments overlap considerably.

Forest certification has been classified as a voluntary market instrument by Merlo (1994). Merlo notes the similarity of the concept of timber certification to "appellation d'origine controlée" which have been long established for cheeses and wines and which limit the right to use a label to local producers, provided there has been adherence to certain procedures, sometimes including stewardship practices. From a marketing perspective this gives rise to product differentiation "*allowing remuneration not only for the product's quality, but also for the related practices and the environment*" (Merlo 1994:11). Compared to commoditization of access rights for recreation or mushroom picking through access fees, which he describes as **direct** (because the consumer then benefits directly from the environmental service), Merlo sees certification as involving **indirect** commoditization, as the consumer of the timber does not benefit directly from the environmental services generated by the "nature orientated silviculture".

We can thus best view certification as a market tool, in the category of economic instruments.

Table 1. Types of Policy Tools

	Authority	Incentives	Capacity-building	Symbolic	Learning
Description	statements backed by the authority of government which grant permission or prohibit specified actions	tools which produce tangible negative or positive payoffs to induce compliance or utilisation	tools which provide information and resources to enable targets to carry out activities or make decisions	tools designed to alter the perceptions of the policy-preferred activities	tools which assist targets and policy promoters (agencies) in defining problems and solutions
Reason tool is used	target population does not believe that the law directs or authorises them to take action	target population lacks the incentives to take the actions needed	target population lacks capacity to take actions needed	to alter beliefs and perceptions of target populations	to assist targets and agencies in understanding and agreeing what needs to be done about a specified problem
Behavioural assumptions	targets are motivated by a commitment to obey laws without tangible incentives	individuals are utility maximisers	targets facing barriers due to lack of information or resources	targets are more likely to act in accordance with desired policy perspective if they see this as consistent with their beliefs	targets and agencies are capable of learning and selecting appropriate policy tools
Example	laws	grants	AIDS prevention programmes	advertisements against drug use by well known public figures	mediation

(Information from Schneider and Ingram 1990.)

4. CERTIFICATION AND PUBLIC POLICY

The reaction of government forest departments to certification has been variable. Some, facing budget cuts and other constraints which have limited their ability to oversee forest management, have welcomed certification: "If the market demands certification and is willing to pay for it, all the better!". Others have reacted more defensively, seeing certification as a threat. When one looks at the list of policy requirements above, some of which can only be provided by government, this negative reaction seems exaggerated. Certification cannot replace the need for legislation, regulations, policy and land-use planning. However if the government has helped establish this policy framework, certification can be a means to obtain added benefits from it.

The relationship between certification and intergovernmental processes to develop criteria and indicators (C&I) for sustainable forest management is potentially complementary. These initiatives, such as the Helsinki process in Europe, the Tarapoto process in Latin America and the Montreal process in temperate and boreal countries aim at improving the quality of information available at the national level on the status of countries forests. Certification is quite different because it is normative rather than descriptive and operates at the management unit level as a market incentive. The complementarity arises because data from the C&I processes can be helpful in developing certification standards and information on the area of certified forests can feed into the C&I processes.

During 1996 two conferences on certification were organised by governments as input into the deliberations of the UN Intergovernmental Panel on Forests. The first conference in May in Brisbane, Australia was somewhat inconclusive. The second, jointly organised by the governments of Germany and Indonesia in Bonn did not come to any definitive conclusions but did recognise that certification could have impacts at the national and international levels in addition to the forest management unit, and made the useful recommendation that certification schemes should comply with the following criteria:

- open access and non-discrimination in respect of all types of forest, forest owners, managers and operators;
- proportionality (not more trade-restrictive than necessary to achieve the environmental objectives);
- credibility;
- non-deceptive;
- cost-effective;
- a participatory process that seeks to involve all interested parties;
- implementable and practical;
- related to sustainable forest management.

One of the concerns which has been raised about certification is that as a market instrument, it may discriminate against smaller forest owners, because the costs of obtaining certification will tend to be proportionally higher for them. This is an important issue which cannot be neglected. FSC guidelines for certifiers require them to develop systems to avoid this problem although less than 10% of forest operations

certified under the FSC umbrella are small-scale. Increased dialogue is needed with small scale forest owners around the world to secure their inputs into the certification process.

Discussions on forest management between stakeholders so far seems to have often divided them more than uniting them. A step forward has been taken with certification because good forest management can now be based on three concrete elements rather than vague generalisations: clear standards which have been developed locally, internationally agreed principles which apply to all types of forests, and independent verification.

5. CONCLUSION

Forest certification will make a contribution to improved forest management when the actors involved find ways of working together, and of collaborating with governments. As a market instrument, certification is neither a panacea nor a replacement for legislation and regulations. It is a tool which may play a positive role when the basic preconditions for good forest management have been satisfied. Like any other tool, it may have unintended or even negative side-effects, under certain circumstances. It is important to be aware of these and take corrective actions where necessary.

In the most optimistic scenario we could envisage major parts of the world's production forests being certified, probably beginning in the Nordic countries. In a more modest scenario, only a limited area of forests will be certified. In a pessimistic scenario, certification will disappear having been a fashionable topic of discussions and seminars for a few years.

Which scenario, or combination of scenarios, will emerge is still unclear. A lot will depend on what market and non-market benefits are actually obtained by the first operations to be certified. In this respect, the long-term benefits of certification may lie as much with improved dialogue between stakeholders as with market benefits.

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CERTIFICATION OF SUSTAINABLE FAMILY FORESTRY AS A MARKETING TOOL IN EUROPE

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ABSTRACT

The UN Conference on Environment and Development (UNCED), held in Rio de Janeiro in 1992, inspired a large number of initiatives and new projects in different parts of the world for the promotion of sustainable forestry, either through national, intergovernmental or market-driven certification processes. Whatever process and whoever its promoters, the driving force is a genuine concern about the diminishing of the world's forest areas and the degradation of forest nature. After the UNCED, international public discussion on forestry has increasingly stressed the economic, ecological, social, cultural and spiritual significance of the world's forests. At the same time, the need for more openness in the decision-making concerning forestry has also been recognised.

1. INTERGOVERNMENTAL SFM PROCESSES COVER NEARLY ALL OF THE WORLD'S FORESTS

The intergovernmental processes see the promotion of sustainable forestry as complementary to existing forest policy and do not link it directly to certification. There are seven intergovernmental processes under way at the moment:

1. The Helsinki process (Pan-European scale)
2. The Montreal process (for non-European temperate and boreal forests)
3. The International Tropical Timber Organization (ITTO) initiative
4. The Tarapoto proposal for the Amazon region
5. UNEP/FAO: Dry-Zone Africa initiative
6. FAO/UNEP: Near-East initiative
7. FAO/CCAD: Central American process of Lepaterique

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In addition, the African Timber Organization (ATO) is establishing a set of criteria and indicators (C&I) to be used for the verification of sustainable forest management (SFM) on an intergovernmental basis. However, this initiative does not have the same status as the other intergovernmental initiatives, since the ATO's principles and C&I are used directly for certification and labelling purposes.

The different initiatives already cover nearly all the countries of the world; even to the extent that Brazil, for example, is involved in both the ITTO and the Tarapoto initiatives. In all of these processes the definition of sustainable forestry includes economic, environmental, as well as sociocultural sustainability (see Tables 1 & 2, Fig. 1). The tools used to promote sustainable forestry are similar all over the world, including legislative, institutional and economic instruments as well as informative means such as education and advice.

The nations of the Helsinki process have agreed on the political implementation of the resolutions concerning sustainable forestry. Additional work has been initiated as a continuation of the Helsinki process: the preparation of common pan-European guidelines or recommendations for sustainable forestry, cooperation between the follow-up of the European forestry ministers' meeting and the biodiversity strategy of European ministers of the environment, as well as preparations for the third forestry

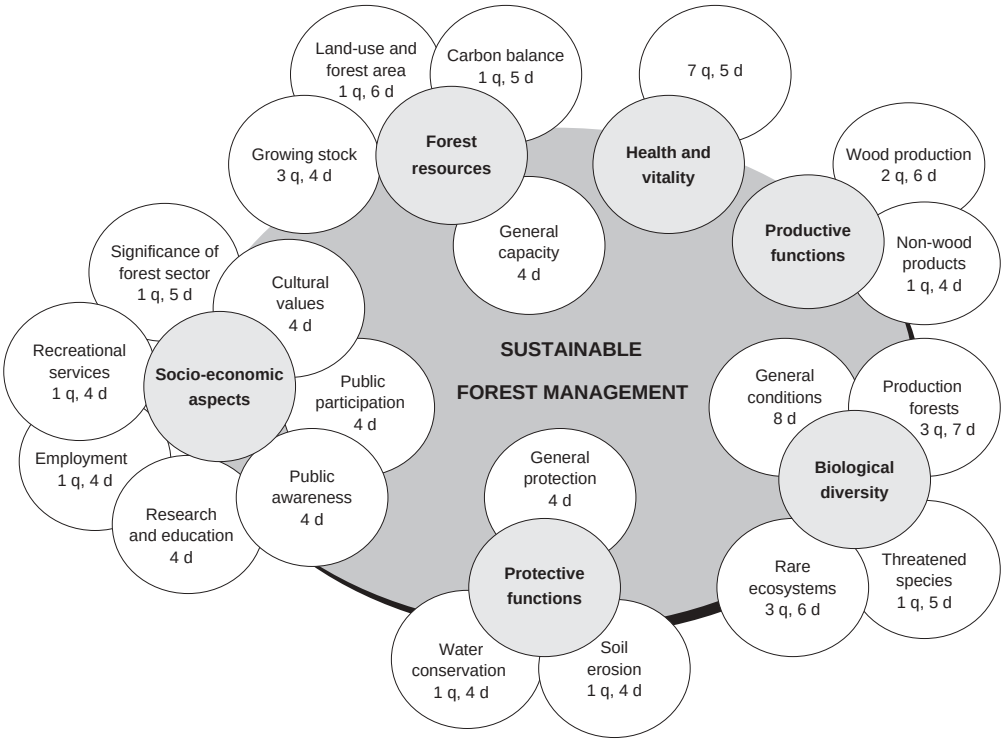

Figure 1. Pan-European Criteria and Indicators 27 quantitative (q) indicators and 101 example descriptive (d) indicators

Table 1. Comparison of the national level criteria and indicators for sustainable forest management, Initiatives and countries involved

Initiative	Countries	C&I Level(s)
ITTO (May 1992). International Tropical Timber Organization	AFRICA: Cameroon, Congo, Côte d'lvoire, Gabon, Ghana, Liberia, Togo and Zaire. ASIA-PACIFIC: India, Indonesia, Malaysia, Myanmar, New Guinea, Papua, Philippines, Republic of Fiji and Thailand. LATIN AMERICA: Bolivia, Brazil, Colombia, Ecuador, Guyana, Honduras, Panama, Peru, Trinidad & Tobago and Venezuela	• National • Forest management unit level
HELSINKI PROCESS (June 1994). Pan-European Process. The Follow-up process of the Second Ministerial Conference on the Protection of Forests in Europe (Helsinki, 1993)	Signatories of the Helsinki Resolutions H1 and H2: Austria, Belarus, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Monaco, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom and the European Communities. In addition, Albania has reported on her activities related to the Helsinki Resolutions in spite of not having signed them	• National level
MONTREAL PROCESS (February 1995). The non-European Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests	Argentina, Australia, Canada, Chile, China, Japan, the Republic of Korea, Mexico, New Zealand, Russia, Uruguay and the USA.	• National level
TARAPOTO PROCESS (February 1995). Regional Workshop on the Definition of Criteria and Indicators for Sustainability of Amazonian Forests.	Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela	• National level • Management unit level; Services at global level
DRY-ZONE AFRICA (November 1995). UNEP/ FAO Expert Meeting on Criteria and Indicators for Sustainable Forest Management in Dry-Zone Africa	Angola, Botswana, Burkina Faso, Cape Verde, Chad, Djibouti, Eritrea, Ethiopia, the Gambia, Guinea Bissau, Kenya, Lesotho, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Senegal, Somalia, South Africa, Sudan, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe	• National level
NEAR EAST (October 1996). FAO/UNEP Expert Meeting on Criteria and Indicators for Sustainable Forest Management in the Near East	Afghanistan, Cyprus, Egypt, Ethiopia, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Pakistan, Quatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, Turkey, United Arab Emirates and Yemen (countries of the FAO/Near East Forestry Commission)	• National level
CENTRAL AMERICA (January 1997). Central American Process of Lepaterique FAO/CCAD Expert Meeting on Criteria and Indicators for Sustainable Forest Management in Central America	Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama	• Regional • National level

Table 2. Comparison of criteria

IPF [2]	ITTO	Helsinki	Montreal
Extent of forest resources	**C 1:** The forest resource base	**C 1:** Maintenance and appropriate enhancement of forest resources and their contribution to global carbon cycles	**C 1:** Conservation of biological diversity **C 2:** Maintenance of productive capacity of forest ecosystems **C 5:** Maintenance of forest contribution to global carbon cycles
Health & vitality	Under the forest management unit criterion: The conservation of flora and fauna	**C 2:** Maintenance of forest ecosystem health and vitality	**C 3:** Maintenance of forest ecosystem health and vitality
Productive functions	**C 2:** The continuity of flow	**C 3:** Maintenance and encouragement of productive functions of forests (wood and non-wood)	**C 2:** Maintenance of productive capacity of forest ecosystems
Biological diversity	Under the Forest Management Unit criterion: The conservation of flora and fauna. *ITTO has ”Guidelines” for biodiversity	**C 4:** Maintenance, conservation and appropriate enhancement of biological diversity in forest ecosystems	**C 1:** Conservation of biological diversity
Protective and environmental functions	**C 3:** The level of environmental control	**C 5:** Maintenance and appropriate enhancement of protective functions in forest management (notably soil and water)	**C 4:** Conservation and maintenance of soil and water resources
Developmental & social needs	**C 4:** Socio-economic effects	**C 6:** Maintenance of other socio-economic functions and conditions	**C 6:** Maintenance and enhancement of longterm multiple socio-economic benefits to meet the needs of societies
Legal, Policy & Institutional Frame-works	**C 5:** Institutional frameworks	The descriptive indicators of the Helsinki Process: - Legal / regulatory framework - Institutional framework - Financial instruments / economic incentives - Informational means	**C 7:** Legal, institutional and economic framework for forest conservation and sustainable management

IPF [2]	Tarapoto	Dry-Zone Africa	Near East	Central America
Extent of forest resources	**C 3:** Sustainable forest production **C 4:** Conservation of forest cover and biological diversity	**C 1:** Maintenance and improvement of forest resources, including their contribution to global carbon cycles **C 4:** Maintenance and enhancement of production functions of forests and other wooded lands	**C 1:** Extent of forest resources	**C 2:** Forest cover **C 4:** Contribution of forest ecosystems to environmental services
Health & vitality	**C 4:** Conservation of forest cover and biological diversity	**C 3:** Maintenance of forest ecosystem health, vitality and integrity	**C 3:** Health, vitality and integrity	**C 3:** Forest health and vitality
Productive functions	**C 1:** Socio-economic benefits **C 3:** Sustainable forest production	**C 4:** Maintenance and enhancement of production functions of forests and other wooded lands	**C 4:** Productive capacity and functions	**C 6:** Productive functions of forest ecosystems
Biological diversity	**C 4:** Conservation of forest cover and biological diversity	**C 2:** Conservation and enhancement of biological diversity in forest ecosystems	**C 2:** Conservation of biological diversity in forest areas	**C 5:** Biological diversity in forest ecosystems
Protective and environmental functions	**C 5:** Conservation and integrated management of water and soil resources	**C 5:** Maintenance and improvement of protective functions in forest management	**C 5:** Protective and environmental functions	**C 4:** Contribution of forest ecosystems to environmental services
Developmental & social needs	**C 1:** Socio-economic benefits **C 3:** Sustainable forest production	**C 6:** Maintenance and enhancement of socio-economic benefits	**C 6:** Maintenance and development of socio-economic functions and conditions	**C 8:** Maintenance and enhancement of multiple socio-economic and cultural benefits of forest ecosystem to meet the needs of all levels of society. **C 4:** see above
Legal, Policy & Institutional Frame-works	**C 1:** Socio-economic benefits **C 2:** Policies and legal-institutional framework for sustainable management of the forests **C 7:** Institutional capacity to promote sustainable development in Amazonia **C 6:** Science and technology for the sustainable development of forests	**C 7:** Adequacy of legal, institutional and policies frameworks for sustainable forest management **C 6:** see above	**C 7:** The legal and institutional frameworks	**C 1:** Existence of a legal, political, institutional, technical and socio-economic framework which promotes and guarantees sustainable forest management and conservation of the resources **C 7:** Scientific and technological capacities for the development of the forest resource **C 8** (see above)

[1] Tables 1-8 are based on the comparison table published in the Report 1 of the Background Document of the Intergovernmental Seminar on Criteria and Indicators for Sustainable Forest Management (Helsinki, 19-22 August 1996).
[2] Recognised common elements. CSD/Intergovernmental Panel on Forests. Report of the Secretary General to the II Session. 20 Feb. 1996. Programme element III. 2: Criteria and Indicators for sustainable forest management.

ministers' meeting. The implementation of the Helsinki resolutions is also being monitored. Finland for its part is actively involved both in the monitoring and in the preparation of new measures.

Our country has also participated in the work of the open Intergovernmental Panel on Forests, which was established under the UN Commission on Sustainable Development in 1995 to coordinate the preparation of international forestry issues and to seek international consensus. Finland's viewpoint in the panel was that certification must support the UNCED forestry principles and be voluntary and indiscriminatory. It has also been seen as desirable to involve the authorities in the determination of the C&I of sustainable forestry.

In Finland, for example, the preparation of the national criteria and indicators for sustainable forestry has been a joint process in accordance with the principle of transparency, involving all interested parties. As a result, approximately 160 quantitative and descriptive indicators have been identified. The ability of these indicators to measure the sustainability of forestry at the regional level has already been tested in Pirkanmaa in southern Finland. Some certification procedures have also been tested in connection with this project.

The discussion on sustainable forestry in the context of the Helsinki process has so far taken place at such a high level that the individual forest owner has hardly been drawn into the process. Nevertheless, at this point it is important for the small-scale forest owner to follow the new developments carefully to see what kind of common recommendations for forest management are being planned at the pan-European level, and who will bear the costs if the forest biodiversity demands become unreasonable for the private forest owner. The most rational way of monitoring the indicators of sustainable forestry in a forestry system based on small-scale holdings is within the frame of a larger, defined forest area, rather than within a small forest management unit. All aspects of the trinity of the forest must be taken into account, that is: economy, the environment, and social issues.

2. ENVIRONMENTAL ORGANISATIONS ARE DISSATISFIED WITH GOVERNMENTAL PROCESSES

Environmental organisations, in particular, first regarded certification as a political means of protecting tropical forests from desertification. Currently, certification is being increasingly demanded also from wood produced in the boreal forest belt, since the progress of the governmental processes appears to be quite slow. The pressures initiated by environmentalists for the demand of certified wood are strongest in the environmentally aware markets of Europe and the United States. In the German market, the largest printing houses in particular demand certification from the paper they buy. The so-called "Group 95+" in Great Britain, representing a large number of wholesalers of sawn timber and other wood products, has exerted pressure on the timber suppliers.

The aim is to promote the so-called "Forest Stewardship Council" or "FSC", which is an international market-oriented forest certification system driven by NGOs. The FSC system is based on performance standards which define the condition and treatment of

forests. The FSC itself does not carry out certification, but it promotes the FSC principles and criteria of forest sustainability. It also grants accreditation to certification organisations and monitors their activities as well as the use of the FSC label. Criteria at the regional level have to be developed in consensus between parties representing economic, environmental and social interests. At the moment there are around 3 million hectares of forest certified under the FSC. The target is to raise that area to 10 million hectares during next year.

The FSC system has caused a great deal of concern especially among the small-scale forest owners of Europe. It has become increasingly obvious that the FSC system was originally created with a view to large-scale tropical forestry, without considering the type of family forestry which is predominant in Europe. Currently there is, though, a so-called group certification process for small-scale forest owners being developed under the FSC. However, it is not easy to agree on the standards of sustainable forestry on a consensus basis between stakeholders due to varying restrictions related to private ownership and income.

It would also appear that there are different levels of performance standards evolving within the FSC. Certifications in Costa Rica, Gabon and Poland, for example, have evoked criticism under the system. In addition, the value of the ecolabel – the FSC symbol – is still unclear in the situation where the chain-of-custody question remains largely unsolved. The relative powers of the different parties involved is also source of concern among economic interest groups.

3. THE ISO CERTIFICATE DOMINATES HALF OF THE MARKET

The environmental management system (EMS) of the International Standardization Organization, the ISO, has grown into a keen competitor with the FSC. The ISO 14001 standard aims at the continuous improvement of environmental management within the organisation.

The forthcoming international forestry report to be issued by the ISO will help the forestry organisations in different countries to harmonise the way in which the ISO 14001 is applied in forestry. The purpose of the report is not to establish a forestry-specific standard, but rather to give guidelines and tools to be used in practical forestry. The report is informative by nature – that is, it aims at building a bridge along which the C&I of sustainable forestry and other forestry-related instructions can be integrated into the environmental management system. It should be noted, however, that the ISO 14001 standard does not set any performance levels for forest management, but deals with the management procedures of environmental issues.

The ISO standard, therefore, is not an international measure of good forest management. Still, the ISO 14001 certificate can be regarded as a certificate of sustainable forest management, in so far as the performance requirements of forest laws and statutes and the requirements set by the organisation itself for SFM are incorporated into the environmental management system.

Although ISO-based certification was only started at the beginning of this year, it already has an increasing share of the market, mainly because it is regarded neutral in

comparison with the politically charged FSC system. The technical costs of ISO certification are estimated to be about 20 to 30% lower than under the FSC system, where the negotiation arrangement is considered quite expensive. In addition, the FSC with its performance standards will probably incur more costs to forestry than the ISO system.

From the perspective of the small-scale forest owner, the preparation of the international ISO forestry report has proceeded quite well. Several European countries with small-scale family forestry as the predominant ownership pattern have been involved in the preparation of the report.

4. NATIONAL CERTIFICATION MODELS DIFFER CONSIDERABLY

There are several national processes currently under way in Europe to develop means of verifying the sustainability of forestry. What is typical of most of these processes is that they apply the indicators of sustainable forestry that have been created in an international framework, but at the same time are based on the specific conditions in the country in question. Those countries which produce wood primarily for domestic markets, have either decided to oppose certification or developed a system of marks of origin, based on national legislation and supervised by authorities – examples are Austria, Germany, UK and Belgium. On the other hand, the main exporters of forest products – such as the Nordic countries – have strived to develop forest certification models that are based on a wide consensus and auditing by a third party (e.g. by the FSC or ISO).

5. FINLAND'S MODEL IS A PIONEER IN FAMILY FOREST CERTIFICATION

Finland, with altogether 440 000 small-scale forest owners, is a major exporter of forest products and has been actively involved in different forest certification processes. An important outcome of this work is the international compatibility model of forest certification, which was published in the spring of 1997. This is the first certification model developed for small-scale family forests and can also serve as a model for other European countries where family forestry is predominant. The model aims at integrating the standards of sustainable forestry that were developed on the basis of the Helsinki process, with existing international certification systems such as the FSC, the ISO's EMS and the EU's EMAS.

These forestry standards were prepared in a process involving a very broad consensus, that is, altogether 29 different parties took part in the process, representing Finnish forest owners and the forest industry as well as environmental organisations and other interest groups. The achieved consensus is unequalled world-wide.

The unique feature of the Finnish certification model is that it enables the certification of small-scale family forests within a regional framework. The idea is that certification is mainly applied for the area covered by an individual forestry centre, but

the applicant for the area is the regional union of forest management associations. However, each forest management association or even an individual forest owner is also entitled to apply for certification. Certification for a larger area at a time is, though, preferred because it is cost-effective. In addition, many of the economic, ecological and social indicators of sustainable forestry are such that it is logical to monitor them at a regional level. Since certification is voluntary by nature, individual forest owners or forest management associations may also choose not to participate.

The sustainable forestry standards which were created for forest certification strengthen the efforts made in Finland to protect the biodiversity in forest management. Our forestry legislation has recently been revised, an environmental programme for forestry has been approved, and extensive conservation schemes have been agreed upon.

The next step is to test the new forest certification standards in the field and to carry out a test audit to see what amendments may be needed to verify different factors. Three very different forest areas were selected for testing the standards, ranging from the lush forests of Pirkanmaa in southern Finland to the barren lands of Lapland.

One of the main causes of concern, at least in the minds of Finnish forest owners, is who will ultimately bear the technical costs of certification. The forest owners feel that they take care of their share of the costs by carrying out various environmental measures in their forests, and even these costs should not burden their economy too heavily.

6. FUTURE OF THE CERTIFICATION OF EUROPE'S FAMILY FORESTS

It is hard – and probably impossible – to find a single, unambiguous model by which the family forests of Europe could be certified commensurately and cost-effectively. The biological and ecological features, use, ownership structure and target markets of the forests in different European countries vary to such an extent that each country prefers to seek its own solution from its own national and cultural perspectives – or to refrain from certification altogether.

In any case it is clear that the forest owners, who are primary stakeholders in the certification issue, must take an active part in the debate and the development work concerning sustainable forestry and forest certification. They have to be pro-active instead of waiting to react to an accomplished fact. We need to take a pluralistic stand in discussing and studying these questions, and respect the various ideologies and customer needs, even if the final decisions often have to be based on an educated guess.

At this moment the development scenarios related to certification range from FSC-based models to national marks of origin. This is quite well, since no one should be given the monopoly in such an important question. Nevertheless, some kind of harmonisation is needed in the long run to prevent the spectrum of marks and labels from getting too wide – or too wild. Active development work seems to be under way in Europe to find a rational certification model which could be applied to small-scale forestry. The international compatibility model developed in Finland might well be suitable for application in many other European countries as well.

One of the potential problems related to forest certification is that forest owners may refuse to participate if the cost exceeds the benefit. Consumers do not seem too eager

to pay a "green premium" for the products of sustainable forestry – perhaps with the exception of a small core group of activists. Thus the majority of consumers would be free riders, and the forest owners would have to bear the costs. This would distort the functioning of the markets but not necessarily create economic incentives to preserve the biodiversity of forest nature. It is likely that new instruments will then be needed to encourage forest owners to take an interest in certification.

Examining sustainable forestry in the context of certification poses many challenges both to those who study forest policy as well as to those engaged in practical forestry. It must be borne in mind, however, that at least in Europe, forest certification is only one of the policy measures by which we can promote and market economically, ecologically and socially sustainable forest management in the environmentally aware markets of the world.

MTK requests clarification to the following open questions concerning FSC certification:

- What is the standpoint of the FSC Group certification model in relation to the Finnish regional model, which is based on a wide consensus and transparency?
- How does FSC take into account country-specific features?
- What is the goal of FSC-based certification: a green niche or mainstream?
- How is the chain-of-custody question going to be solved?
- What is FSC's image, objectivity and credibility considering that the certifications of Poland, Gabon and Costa Rica, for example, have raised criticism?
- Is FSC working on the terms of the large-scale forest industry, as the situation in Sweden would indicate?
- How is FSC going to ensure that the FSC-logo will be widely accepted all over the world? Is there some kind of a marketing plan for the logo?
- Why is FSC and groups associated with it continuously criticising the ISO EMS, which is complementary to FSC P & C?
- What are the operational linkages between FSC, ISO and EMAS?
- Is FSC's decision-making structure at present biased, particularly in the Board of Directors?
- How is FSC financing its present operations?
- Who is going to pay?
- Is FSC certification truly voluntary and consumer driven?

MULTI-STAKEHOLDER PROCESSES (MSP'S) AS KEY ELEMENTS OF FOREST AND FOREST PRODUCT CERTIFICATION: CONSIDERATIONS FROM AN URBAN FORESTRY PERSPECTIVE

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ABSTRACT

In recent years forest and forest product certification has gained considerable international attention as a tool used for promoting 'good forest practices (GFP)' or 'sustainable forest management (SFM)'. The use of consumer/ retailer pressure to promote the system is one of the most highly debatable issues in the forest sector world-wide. The confusion that surrounds certification has arisen due to the uncertainty of the system and the complex diversity of the forest with its different environmental, economical and social roles. Certification is constantly developing with claimed consideration towards all relevant stakeholders and multi-stakeholder processes are now recognised as a key element and used in its development.

Likewise, at the local policy-making level, multi-stakeholder processes (MSP's) have started to become a rather well-established phenomenon in European forestry. In the specific case of urban forestry, the high number and great variety of societal demands placed upon an often small area of forest – and the resulting high conflict potential – require to have the different stakeholders participate in forest policy-making and planning from the early stages onwards. Urban forestry is defined as forestry in or near an urban area, the policy-making processes of which are dominated by the local urban actors.

In this paper we look at recent cases of multi-stakeholder processes from urban forestry in different larger European cities, with the purpose to consider possible implications for the forest and forest product certification process. Furthermore, in urban forestry, certification, especially at the local level, might offer a useful application not only by promoting good forest practices or sustainable forest management, but can also be used as a functional tool to stimulate and develop multi-stakeholder processes looking for solutions acceptable to different stakeholders in urban forestry.

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1. THE AIM OF MULTI-STAKEHOLDER PROCESSES (MSP'S)

In recent years multi-stakeholder processes (MSP's) have started to become of primary importance in the forestry sector, especially as a tool for achieving sustainable forest management (e.g. ODA 1996). With its aim of finding a balance between the different interest groups each having their own social, economical and environmental goals, these policy making and planning processes are intended to enable all relevant stakeholders with their different values to find a common goal. Stakeholders in forestry are defined as "any person, group, community or body who has something to gain or lose from changes in management of the forest resource." (ODA 1996, adapted from SOS Sahel). There are currently a wide range of processes used in different situations and for different issues. A considerable amount can be found in the natural resource sector and more specifically in forestry sector. While often the term public participation is also applied (Bass et al. 1995), MSP refers more to the process in which all, including governmental, actors are involved. Furthermore, a differentiation has to be made between different types of MSP's, ranging from consultation to high levels of public participation. In some cases certain types of MSP's might in fact not be the most productive for achieving a common goal and sometimes could be counter productive towards its initial aim. Therefore a clear understanding is needed with both the process and the issues it is used for.

MSP's can be found at different levels in the forest sector, from local forest issues affecting communities and neighbouring environment to global discussions of international forest policy, forest agendas and international forest management principals as identified in the United Nations Conference for Environment and Development (in Rio de Janeiro) 1992. National processes can also be identified in the forest sector as countries now use them to identify and conclude an agreement on criteria and indicators for forest management on a national level.

A relevant development in the forestry sector striving for improving its activities is that forest and forest product certification has been developed to address the issues of forest management, using consumer and retailer pressure to support the use of third party auditing approach. However, the plethora of initiatives has caused confusion on the type of standards that should be used for defining 'sustainable forest management' (SFM) or 'good forest practices' (GFP). Recently, there have been several programmes to identify these standards on a regional and national level. This will enable clearer objectives, means and co-operation in the search for unilateral agreement on forest management standards. In this case, MSP's are used to achieve the common goal and can be considered as the 'hardware' in the overall process and certification is the 'software' tool selected for implementation and use. However, these processes are still rather new to the forestry sector therefore a degree of uncertainty exists with its success and most suitable formats. Greater identification and understanding is needed on the use of these processes and the positive or negative impacts they may have.

2. MSP'S IN FOREST CERTIFICATION

Certification began as one means of independently, via third-party auditing, to assure that the consumer or end user is purchasing timber from a forest which adheres to a set of accepted standards. However, there has been a considerable amount of attention, especially at the international level, to agree on a global standard or common scheme.

With any independent third-party auditing scheme the credibility is of key importance not only to the organisation which implements the standard but on the individual who places trust in the standards and auditing process. In this context, a multi-stakeholder process is used to achieve an agreed set of standards or principals, at a regional, national or international level, and also provide the certification is consistent, credible and reliable (Ervin 1996).

Even with the use of MSP's in the development of standards for forest certification, conflicts occurs with the representation and participation of the different stakeholder groups. This can clearly be seen by organisations such as the Forest Stewardship Council (FSC) which do have equal social, environmental and economical voting chambers but do not allow government organisations to have voting rights. However, governments are encouraged to participate with the national working group and processes for the development of national or regional standards (FSC 1997b).

National and regional processes have promoted the potential of using multi-stakeholder processes to achieve a common goal, in this case, national standards for forest management. One such example can be found in Ghana whereby MSP's and more specifically stakeholder consultations remains a fundamental part for the development of a credible certification system (IIED 1997). In this context MSP's can be considered the 'hardware' for the development of certification, the 'software'. The success of certification is often related to the type of MSP used in its planning, development and use.

3. PROBLEMS OF USING MSP'S IN CERTIFICATION

As conflicts often occur between environmental groups and government organisations in both tropical and temperate countries disagreements are manifested in many different aims or standards, forest projects and other activities such as the application of certification. This can be clearly seen by the amount of different certification initiatives and schemes currently being developed and used.

One means applied while trying to solve this problem is to use a multi-stakeholder process as the link between different representative groups. This offers all major parties the (more or less) equal opportunity to contribute towards a process and agreement of standards and application guidelines. However, there remains a great deal of problems with the use of MSP's, such as: issues of representation of different stakeholder parties, the levels participation from various groups, how are these issues managed and who dictates the direction of the process. These factors play a considerable role in the process and more importantly the outcome.

With existing processes such as the Forest Stewardship Council (FSC), FSC national working groups, the Canadian Roundtable process, current multi-stakeholder processes used for the development of certification in Ghana and Finland and planned processes in countries such as, Gabon, Congo and Cote d' Ivoire, it is important to understand these types of processes and what effect they can have on both a short and long term for each specific area.

More detailed understanding is needed with the development of typologies for participation and consultation in MSP's. The typologies will try to find the balance between the different social, economical and environmental disciplines, however, this does not mean a single 'blueprint' MSP would be the key to solve the problem. Consideration and more specifically for the forest sector. Contrary, MSP's success can be found with its flexibility to address the regional and local levels needs, thus distancing from a 'blueprint' approach (Ervin 1996).

A wide range of examples of MSP's can be found at the regional and local level such as in the case of urban forests. Urban forestry has a very diverse role to play with many different users and interested parties in a single, often small-sized forest area. Next, the application of MSP's in urban forestry will be dealt with.

4. MSP'S: EXPERIENCES FROM URBAN FORESTRY

4.1 MSP's and forestry at the local level

As indicated before, successful certification processes are heavily dependent upon multi-stakeholder processes in search of agreement on principles of sustainable forest management (see: Glück et al. 1996, Saastamoinen 1996). Multi-stakeholder processes might not really have become common practice in forestry as so far, they are not a new phenomenon either. Therefore, looking at past and present MSP-experience in forestry is believed to be very useful.

Before, we stated that especially the local level might hold good MSP-potential. One of the most interesting areas within forestry when it comes to MSP's is that of *community forestry* in its broadest sense. While Westoby (1989) once made the plea that all forestry should be social, the concept of social forestry has largely become associated with local-level and especially community forestry, delivering benefits to a local population which is highly involved in forest decision-making and management. In fact it has been recognised that the success of local (forestry) projects is highly dependent upon local populations have a determining say in policy-making, planning and management (e.g. Raintree 1991, Petit and Gangloff 1995). These thoughts are in line with for example the FSC certification concept, which emphasises that agreement on sustainable forest management between the local stakeholders is a prerequisite (Businк 1995).

To some, community forestry might relate merely to developing countries, but of course this is not the case. Community forestry not only encompasses village-based projects in the South, but also for example planning a forest near the metropolis of Copenhagen. The basic elements are the same: local commitment and involvement in

policy-making, planning and management in order to optimise the benefits forests deliver.

In case of cities, the term *'urban forestry'* has become widely established (e.g. Miller 1996), although confusion still exists on the definition of urban forestry (see: Nilsson and Randrup 1996; Konijnendijk 1997b). Here, an urban forest is defined as a forest in, next to or nearby an urban area of which decision-making processes on desired functions are dominated by local actors and their objectives, values and norms (Konijnendijk 1997b). In other words: local interests are determining what happens with these forests, in the spirit of community forestry. Various authors have shown that especially on the local level, people are often highly committed to forests and willing to have a say in what happens with the forests and green areas nearby (see: Kaplan and Kaplan 1989, Swellengrebel 1993, Konijnendijk 1995a, Miller 1996). In addition to this, pressures on urban forests are high as demand (high and diverse interests in the forest, expressed by thousands or millions nearby) and supply (the limited area of forest) are mostly unbalanced. This situation has often resulted in serious social conflicts over use, planning and management of urban forests, as an ongoing study of European urban forestry has indicated (Konijnendijk 1997b). Urban forest policy-makers have therefore been trying to find ways of minimising conflicts and sustainably delivering an optimal range of benefits by means of a limited forest area. In many cases, MSP's have become an important tool for realising this. Therefore we will here give some examples of how MSP's have become an important element of urban forestry. Though many examples are known from especially North-America (see for example: Petit and Gangloff 1995, Miller 1996), we will focus on Europe. Cases are derived from the EFI study as mentioned before, which aims at providing a first comparative overview and analysis of urban forest policy-making in Europe (see: Konijnendijk 1997b, in prep.).

4.2 MSP history in European urban forestry

The involvement of local people with the urban forests in or near their city, which is seen as an essential element of urban forest policy-making, has a long history in Europe. Though the nobility was still in power during the late Middle Ages and early New Time, citizens often protested when those in power turned themselves to 'their' urban forests as source of extra income. Magistrate and citizens of The Hague in the Netherlands for example prevented cutting of a local urban forest by Prince William of Orange (Buis 1985). The citizens of Hannover had their own forest called Eilenriede close to the city walls. During the late Middle Ages, the forest was protected from illegal use by a special 'Landwehr' (land guard, CK and AP) which operated in the name of the citizens (Hennebo 1979). Many examples of conflicts over urban forests are known, often with local public and government on one side, and national rulers, governments and their representative institutions on the other (see for example: Cornelius 1995, Konijnendijk 1997b).

Involvement and actions of the local urban public and government – sometimes initiated by nature conservation or other interest groups – continued to be an important element of forestry in an urban setting throughout this century. As many European

societies became more democratic, public complaints often grew stronger and had more (political) impact. In some cases, therefore, those responsible for urban forest planning and management started to look for ways to involve different (local) interests in policy-making and planning, in order to at least minimise conflicts and public protests. One of the earliest examples of such an initiative is the special council which was installed for the ancient royal forest park of Jaegersborg-Dyrehaven near Copenhagen. Over the ages, this area had become the major recreation area for the Danish capital. Because of conflicts between forestry practice and public demands, a special Council was established in 1921. Purpose of the Council has been to advise the state forest service on planning and management of Jaegersborg. It still is in function today and consists of nine members, including representatives of the Danish Nature Conservation Council, the Danish Outdoor Council, the county of Copenhagen and local communities. Parties involved have been rather satisfied with the functioning of this institution (Waage Sørensen 1997).

After WW II and especially during the 1960s and 1970s, public awareness of environment and nature issues grew. Forestry not seldom became subject of severe public criticism (Hellström and Reunala 1995). And often, forests in the direct neighbourhood of cities were among the first to attract attention, as the public had a first-hand experience of forestry practice there. A 'classic' example is that of the Oslomarka forest area surrounding Oslo. After World War II, the Forest Service of Oslo (managing part of the area) became the main target of public protests. Leisure seekers and nature conservationists saw timber operations – including construction of new logging roads and large-scale clearcutting – as destructive for the forest. By the Nature Conservation Year of 1970, Oslomarka had been made into a major political issue on national level. The opposing parties finally came closer together and in 1982 a special Marka Council was established. In this Council, nine members representing municipalities, counties and the most important user groups from Oslo are represented (Opheim 1984, Hellström and Reunala 1995). In the Netherlands there has been the case of the forest of Amelisweerd east of the city of Utrecht. Cutting of part of the forest during the 1970s and early 1980s in order to establish a new highway lead to fierce protests, first on a local but later even a national level (Grimbergen et al. 1983). This specific case is believed to have played an important role in the development of environmental impact assessment and public participation regarding similar projects in the Netherlands (Konijnendijk 1996).

4.3 MSP's in European urban forestry: state of the art

When looking at the contemporary situation, the study on urban forest policy-making in various European cities indicates that MSP no longer is a rare phenomenon in urban forestry. In at least 11 of the 16 case-study cities which were visited and where major urban forest policy actors were interviewed, some sort of MSP involving non-governmental interest groups had been established (Table 1). In the case-study cities, MSP's range from consultation to far-going public participation and shared responsibility (for a typology of different stages of participation see e.g. Bass et al. 1995). Though the data still have to be structurally analysed, it seems that only in the

Table 1. Role of Multi-Stakeholder Processes in selected European cities' urban forest policy-making.

Country	City	Role of MSP's in urban forest policy-making
Finland	Helsinki	+
	Joensuu	+/-*
Denmark	Copenhagen	+
	Odense	+
Germany	Berlin	+
	Freiburg	+
Netherlands	Amsterdam	+
	Arnhem	+
Austria	Vienna	(+/-)
Czech Republic	Prague	-
	Brno	-
Poland	Warsaw	-
	Gdansk	-
Russia	St.-Petersburg	-
Italy	Rome	(+/-)
	Padua	+

Derived from Konijnendijk (in prep.). +: significant MSP's, including public participation in policy-making and/or management or at least a high level of public consultation; +/-: some MSP's, mainly through few major NGO's; -: no significant MSP's; (+/-) some MSP's suspected, but no precise data available. *MSP's in Joensuu have only started recently and are believed to develop further.

This table is based upon preliminary analysis of data. MSP's here include involvement of the public; processes involving only different governmental institutions are not regarded MS-Processes.

former communist countries MSP's have not developed so far. On the other hand, the trend of an increasing number of social conflicts over urban forests, as well as the growing willingness of urban forest policy-makers in cities such as Warsaw, Gdansk and Brno to have a more open ear to the public demonstrate that MSP-potential is present. Still, resistance against public participation exists, mainly from the side of forest authorities not familiar with MSP.

Examples of rather far-going MS-Processes include the cases of Helsinki, Copenhagen, Odense and Arnhem, where interest groups and/or the general public are actually involved in the decision-making or management. In Helsinki, participatory planning regarding urban forests started two years ago. With the help of a public participation expert, a planning group involving a wide range of interest groups was established to develop a new management plan for one of the major urban forest areas, which had been subject of social conflicts before. Experiences from this participatory planning are generally seen as positive by the participants, and also by the city officials who give away part of their authority. The pilot project will most likely be applied to fifty other urban forest area in the city (Turunen 1997). For all Danish state forest districts, special local forest user groups have been established over the last two years. These groups have for example become involved in evaluating planning and management of urban forests of Copenhagen and Odense. Forest managers see the feedback from the groups as very useful and constructive (Kirk Strandgård 1997, Waage Sørensen 1997). Interest groups are involved in planning and management of the urban forests of the Dutch city of Arnhem. The city's forest service has even 'lent' an area of

forest to the so-called Forest Working Group, an interest group which developed from different nature conservation associations. Under supervision of the forest and parks service, the Group can carry out forest management according to its own ideas and principles in the 20 hectare area, which has seemingly facilitated communication with authorities and other interest groups (van den Ham 1996).

5. URBAN FORESTRY AND CERTIFICATION

The previous has demonstrated that when developing MSP's as essential element of forest and forest product certification, relevant experience and information can be derived from urban forestry as specific type of community forestry. But we can even go one step further: urban forestry and forest certification have already found each other in some – one has to admit: rare – cases, especially in Germany (e.g. Lübeck and Bamberg), but also in the Netherlands (Arnhem, Ede, Apeldoorn, Renkum) and to some extent in Poland (Regional Forest District of Gdansk) (Konijnendijk 1995b, Fähser 1996, FSC 1997a, Kühn and Becker 1997, Machatzi 1997). Certification at the local (urban forest) level: it might seem not so strange given the fact that MSP's have become an integral element of urban forestry in many cities. One could say that the stakeholders are already brought to the table, which saves a step in the certification process. A look at the examples of Arnhem and Berlin might give some indication of the potential.

5.1 Certification in Berlin

Recently, two major nature conservation associations in Germany (NaBu and BUND, the latter with support of Greenpeace) have developed concepts and guidelines for sustainable forestry and forest certification. Both groups are trying to promote their respective (national) concepts – which differ on some significant elements – and see the German capital Berlin with its extensive forest ownership of about 28,000 hectare and political status as suitable for this. Berlin is also well-known for its rather progressive forest policy, in which protection and recreation are given first priority, and in which the importance of natural processes is emphasised. Though preconditions for certifying the Berlin forests might seem good, the main problem seems to be that the two initiatives are in competition. Efforts are undertaken by the Berlin Senate to bring the two groups to the table and have them develop a joint concept. The Berlin Forest Service is interested in certification, as well as are the politicians that see it as an important public relations instrument more than as a marketing tool, as wood production is only of secondary importance in Berlin. However, the foresters of Berlin have developed a rather specific, local concept of forestry which might not be in line with the 'national' certification concepts of NaBu and BUND. To give an example: in a heavily used urban forest as that of Berlin, it will be hard to set aside – and exclude management – forests for studying the natural processes, which is required according to the BUND-Greenpeace concept. Still, the process is proceeding and goodwill seems to be present, so that certification of the Berlin forests might occur in the near future (Kilz 1997,

Machatzi 1997). It has to be remarked that in the concept of NaBu nor in that of BUND much attention is given to social sustainability or MSP, even though especially BUND largely follows FSC-criteria (Kühn and Becker 1997).

5.2 Certification in Arnhem

The city of Arnhem in the Netherlands wanted to follow-up its initiative to certify hay coming from the city's lands. The idea has been to have timber from Arnhem's forests certified as well. As wood production from the city's forest area (including the forest parks less than 2,000 hectare) is rather limited – recreation is the main function – certification was mainly seen as a public relations tool, to demonstrate Arnhem's 'green image' and willingness to take a leading role in the matter. But Arnhem's Forest Service wanted to go one step further and have their forestry and forest products certified according to FSC-criteria. The opportunity for this emerged through the involvement of Skal, a Dutch organisation which recently was accredited by FSC. Some of the main problems when striving for certification of Arnhem's forests included the small and fragmented forest area which complicated application of FSC-criteria, as well as the high costs of certification compared to direct benefits. MSP have become well-established in Arnhem's urban forest policy-making – e.g. a citizen group called 'Friends of Sonsbeek' has become involved in all aspects of policy-making and planning for the forest park of Sonsbeek (Konijnendijk 1995b, van den Ham 1996). Recently, Arnhem's urban forestry and forest products were certified through Skal, and some other Dutch cities have also succeeded to have their municipal forests certified (Borgman 1997).

6. CONCLUSION

6.1 The role of certification in developing MSP's in urban forestry

The examples of Berlin and Arnhem have shown that certification is not always easy in urban forestry, even when preconditions seem to be beneficial. One of the main problems is that the production function is only of secondary importance in urban forestry, where recreation and protection are of highest priority. The costs of certification will therefore not become compensated by revenues from wood production. Then the financial situation of urban forestry is rather particular because of low revenues from wood production and an often high input of public funding. Furthermore, urban forest areas are often small and fragmented, which makes it harder to meet guidelines and criteria for sustainable forest management. Finally, high local involvement might in fact have a negative impact, as 'competition' between different certification concepts might be harsh (see the case of Berlin), and other urban interests might complicate sustainable forest management.

However, forest and forest product certification can be tool for starting MSP's from an urban forestry situation in which MSP-potential is present. Certification in urban

forestry can also be used for developing or formalising MSP's, for sharing of responsibilities. Moreover, both in Arnhem and Berlin forest managers and policy-makers regard certification of their forests as an important public relations' instrument. Certification can improve the 'green' image of a city and acknowledge its leading role in promoting sustainable forestry.

6.1 How can certification processes benefit from urban forestry experience with MSP's?

We have seen that MSP's can be regarded to be an essential element for establishing sustainable forest management. The main benefit from looking at MSP history and presence in urban forestry is that this field can be seen as a source of positive and negative experiences in this matter. Successful examples of MSP's ranging from consultation through councils or user groups with various stakeholders to participatory planning have been given, also showing the different types of MSP's which might be applied for specific situations. As MSP's have only recently started to become a more established phenomenon in forestry, these insights are believed to be very useful.

Furthermore, urban forestry is mainly forestry at the local level, which might encourage 'real' MSP's, as direct interests of local stakeholders are at stake, local networks are often present, interests in nearby forests are often higher and issues are more 'concrete' to the stakeholders (NiMBY: 'not in my backyard'). Focus on local level MSP's is relevant also from certification concepts such as that of FSC, which gives priority to local level policy-making, and negotiation between local stakeholders on principles of sustainable forestry. The case of Berlin has shown that transferring national concepts and guidelines to lower levels of decision-making without proper 'translation' can cause major difficulties. The certification process seems to have been 'smoother' in Arnhem, where local stakeholders were the initiators.

Another lesson can be learnt from urban forestry. In some certification processes today, for example in Germany and even in the case of Berlin, social sustainability and MSP's seem rather undervalued. Focus is more on forest management practices, natural processes and such. But overlooking social aspects is impossible in urban forestry, given the involvement of large numbers of urban dwellers with a wide range of interests. In this respect, urban forestry can be seen as a good 'test area' for developing MSP's and even certification processes, even when urban forests might not be the most obvious types of forests to apply certification processes to, given the secondary importance of wood production and its rather distinctive characteristics.

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FOREST MANAGEMENT ECOCERTIFICATION – POLISH EXPERIENCE QUESTIONS

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ABSTRACT

The problem of ecocertification in forest management is extremely controversial for many reasons which include cost and benefits, trade and voluntary certification, labelling, transparency of rules, national sorereignity, domestic regulations, the scientific basis for defining and measuring sustainable forest management, the roles of governments etc..

Poland is one of the few countries in Europe where a certification assessment of forest management operations has been made in the State owned forests.

The reason for the QUALIFOR visit to Poland was to assess forest operations against the Forest Stewardship Council's Principles and Criteria, and the SGS Forestry's own internationally recognised standard of forest stewardship QUALIFOR.

During this assessment, no major or even minor corrective request was raised, and consequently the full team of assessors recommended the forest regions to be certified under the QUALIFOR standard for forest management.

The paper presents the most complex problems as being consequent from the following fundamental question:

If the structure of the entire State Forests administration is based exactly on the same regulations (forest policy, rules and standards used during forest operations, etc.), why should we certify each of over 400 forest superintendencies instead of making an ecoassessment only in one, and consequently certify all of them?

This problem became more complex in Polish conditions, where we have, in addition to the State Forest ownership, also over 1.4 million private owners managing over 1.5 mil. ha of forests.

Moreover, there is currently insufficient information to determine the extent of the market demand for certified products.

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1. INTRODUCTION

With its 8.7 million ha of forest Poland has the ninth largest forest area in Europe. Poland's forests cover 28% of the country, as compared with the average percentage of 32% for Europe as a whole.

After 1945 the forest resources were doubled from 700 million m^3 to 1572 million m^3, their standing volume increased from 130 to 187 m^3/ha. Also, the share of deciduous species increased from 13 to 22 %.

The development and growth of forest resources came mainly as an effect of the work performed in the State Forests, which now accounts for 85% of all Polish forests. As a result of unstable agricultural policy and the uncertain ownership assignment, private forests which occupy 17% of the forest land are neglected and poorly productive. In 1996 the production of timber was 22.6 million m^3 from all types of forest ownership (without ever exceeding the current increment and it now accounts for 65% of the annual increment). The State Forests are a potentate on the timber market and they produced nearly 92 % of the timber. Private forests produced about 7% of the timber. The assortment of produced timber is differentiated, the majority of coniferous big timber consists of sawmill timber, while the majority of deciduous timber consists of pulp-wood.

A 2% share of public forests are within National Parks. Private forests account for 17% of the total, and a final 0.9 % is in the hands of "gmines" (the units at local level). On the basis of the Minister's decision, 38 % of Polish forests (48 % of State Forests) were included in the category of protected forests where economic activities were restricted.

The Forestry Law of 1991 determined the three basic functions of forests – productive, ecological and social – equal in terms of significance. In amending the law in 1997 it was recognised that not only a forest stand but the whole forest ecosystem should be the object of forest management. It became obligatory for the forest management plan to contain a chapter on nature conservation. Thus, forestry and forest management in Poland comply with the 6 criteria which were adopted for European forests at the 2nd Conference of Forestry Ministers in Helsinki in 1993. Their further development will be oriented towards strengthening the ecological and social functions of forests (Szujecki and Paschalis 1997).

The State Forest Holding is organised on three levels. The basic unit of organisation is the Forest Inspectorate, which enjoys a considerable degree of autonomy. The 437 Inspectorates are directly subordinated to one of the 17 Regional Directorates of the State Forests, and the organisation as a whole is under a Director General who has ultimate responsibility for the state of the country's forests.

The practice of forest management in Polish forestry is based on principles and instructions covering the following fields:

- adjusting forests and forestry to fulfilling the multiple functions demanded by society,
- growth and protection of forest resources and natural value of forest,
- common but, at the same time, controlled availability of forest for the public,
- improvement of financial-economic solutions, ensuring the sustainability of forest ecosystems and multiple-use forestry.

2. WHY CERTIFICATION?

The problems of environmental protection have become more important during the last decade, both in the opinion of the public and politicians all over the world. This has been triggered by the critical situation of the tropical forest and the activities of wood industry in the tropics.

All the efforts that have recently been assumed both by state governments and NGOs have aimed at suppressing the growing rate of deforestation in a number of countries, both in the tropics and in the boreal zone, but these have not had satisfactory results. According to recent estimates, the rate of deforestation has been on the decrease at the global scale but it is still alarmingly high: over 13 mill. ha of forest disappear annually. It seems that the biggest hopes were raised by the Rio de Janeiro 1992 Conference. No documents were, however, produced following the initiative, except for the very general statements of Forest Principles. Actually, only the 1993 Helsinki Ministerial Conference gave impulse to work out a number of documents on the forests of tropical and temperate zones.

It should be emphasised that in the countries of the boreal and moderate zones a continuous increase in forest area has taken place and the forest management methods are based on a coherent forest policy. A problem to be solved is, thus, how to introduce the European forestry solutions to the forestry of, e.g., African countries, and avoid the suspicion of instrumental treating of their forestry. No controversies are to be expected in the field of forestry operations of indices-based methods of control and assessment in forest utilisation. The attempts at elaboration of indices and criteria of sustainable development with regard to forest utilisation may play the role of a special matrix. Thus the final shape of the criteria and indices is still open and subject to consultation. A number of institutions have prepared a special list of questions that, when answered, will facilitate the evaluation (Paschalis 1995).

Is certification in forestry all the rage? Why does it provoke so much emotion? Why are so many countries all over the world of the opinion that it is too early to cover the whole of forestry through the certification process, unlike, e.g., the ship-building industry (Dubois et al. 1996)?

The very primary causes for this situation shall be seen in the still dominant model of forestry in many countries: the model based on the exploitative management of forest. Though the model dominated, first of all, between 1950-80, its consequences are still painfully visible in the subtropics and tropics (Gullison, Cannon 1996). Very many cases have been observed of the ‘grasping-like’ forest exploitation, leading finally to the disastrous disappearing of the tropical forest at the rate of 10 and 20 mill. ha per annum. On the other hand, this situation has helped to establish the well organised, financially and intellectually powerful movement for the protection of forests. The drastic methods of forest exploitation have led to an equally radical counter-action, with the resulting both rational and irrational arguments, which have not, however, slowed down the rate of deforestation on a global scale (Greenpeace 1994).

In this global protest action aimed at preservation of forests, maintenance of their biological diversity, increase in their stability, increase in reforestation and increase in the portion of forest covered with different forms of protection, very serious abuses have been found. As a matter of fact, the achievements of forestry science and forestry

practice have been disdained in those countries where, following the legislative solutions, principles of forest policy, and a variety of protection forms have been applied, all the important indices are on the increase, given proper level of economic development: forest acreage, standing volume, stability, biological diversity.

Therefore, one has to deal with a distinct dichotomy in the assessment of forests and forestry. The starting point is common for both parties and it is based on the meaning and role of forests in the civilisation development of man but the conclusions of the foresters' activity assessment are strikingly different .

It should be pointed out that this situation was used by other mighty, highly professional groups of non-government organisations; those groups, emphasising the legal helplessness of intergovernmental agreements, took over the initiative and tried to implement other systems of forest management control.

The most basic argument of those groups that had implemented certification was the statement that certification plays an important role, both in the sustainable forest management and in ensuring economic and social profit, given the principles of environmental protection (Walder et al. 1996).

There is, however, no doubt that a number of European countries (to concentrate on Europe exclusively) do have such a model of forestry that is in agreement with the above stated conditions. If this is so, why are so many European and North-American, and also African, countries so far away from accepting the certification conditions? This complex problem might be analysed in the following two fields: first – the far from perfection formulations of the criteria needed to get a certificate; second – the complexity of certification procedures that relate exclusively to very precisely defined ownership of a specific fragment of forest, sometimes even down to the level of forest stand compartment.

Leaving aside other difficulties resulting from the first mentioned field, it should be stated explicitly that all the criteria and indicators included into the certification scope have had their beginning in the Helsinki Conference results. This Conference formulated the theoretical background of multiple-use forestry, fulfilling the principles of sustainable development and determined the framework of criteria and indicators of forest management assessment. Practically all the currently operating certification firms in the field of forestry use, even if they do not admit this, these universal criteria worked out in Helsinki. The criteria themselves are subject, of course, to modifications, many of these have been improved, others have been broadened, a number of new indicators have been added, describing more precisely the dynamics of forest management and possible long-term effects (FCS Notes...1996; WWW Guide...1996).

At the end of 1995 an offer was submitted by firms importing wood materials from the State Forests to carry out the certification procedure of Polish forestry for the cost of the applying firms. It was specified in the offer that the certification process would cover a review of the most basic legal documents, directives and principles of forest management binding in an organisational unit producing wood and, also, a verification of the degree of their practical accomplishment. This offer found support among those wood buyers producing different products for export; they claimed that once they have the QUALIFOR certificate, their products have some advantage over the competitive products in the wood market. Those products made of wood produced in certified forest may be labelled as ones coming from the properly managed forest.

3. FORESTRY CERTIFICATION IN POLAND

In Poland, the certification works started at the turn of 1995/1996. As a result, Regional Directorates of State Forests in Szczecinek, Gdañsk and Katowice gained the Forest Stewardship Council Certificate.

The whole process of certification was based on Principles and Criteria for Natural Forest Management, a document consisting of 10 Principles and 52 Criteria (WWF Guide... 1996). These were described and explained rather carefully in a number of papers. The most essential legal documents, directives and rules of forest management accomplishment were reviewed and a detailed review was carried out of compliance with the rules in randomly chosen Forest Divisions. The practical verification of the principles and the system of task accomplishment was conducted following the QUALIFOR program, considering both environmental and socio-economic aspects. Actually, a small part of forests in Poland was assessed. In order to briefly present the problems that were subject to the certification procedure, the following questions may be asked:

1. Is forestry in Poland amenable to the highest-rank legal regulations?
2. Are there mechanisms to control the Acts?
3. Do forestry operations meet the requirements of adequate regulations of occupational safety?
4. Are the employees supplied with working clothes? Do they use these?
5. Are all operations in forest utilisation, forest protection and silviculture subject to control?
6. Are there minor forest products utilised?
7. Are the forests utilised recreationally?
8. Is the data on the forest utilisation size available?
9. Are the activities in the fields of forest utilisation, forest protection and silviculture assessed, also, in the context of their environmental impacts?
10. Are rules prepared and obeyed considering illegal forest utilisation?

The answers to the above set of questions, obtained in all the Forest Divisions under examination, (and confirmed by a field visit) showed that the forest management activities fulfil all the criteria of QUALIFOR assessment. Is this a surprise?

Of course not, as can be concluded from all the conditions discussed above. If so, another question should be asked:

Maybe all Polish forests administered by the State Forests should obtain a proper certificate following an inspection in one freely selected Forest District?

The answer should be affirmative, as the principles of forest management are in common and the actual regional differences resulting from varying climatic conditions, stand, species, composition, infrastructure etc., do not change the principles in the least. It should be reasonable to treat quite a number of countries like this, where forest management is run and controlled according to defined principles.

However, one has to admit that in the case of the prevailing small privately owned forests, certification should be conducted, following the FSC principles, separately for each forest owner, because every part of forest should fulfil significant and diverse

functions. This would mean that in Poland the certification process should cover about 1 400 000 forest owners. It does not seem realistic and one of possible traps of the currently proposed certifying systems should be seen here.

4. EXPERIENCE FROM THE ALREADY COMPLETED CERTIFICATION IN POLAND

a. The fact that the explicitly-expressed position of wood product importers, as stimulated by the demands of their clients allowed for paying for the certification process, should be considered very advantageous. This cost – according to Mr. Christopher Upton from SGS Forestry (personal information) is from USD 0.10 to 0.20 /ha and it was fully covered by the importers. The cost level is certainly a barrier against the further accomplishment of certification.
b. The publicity given to the perfect forest management in State Forests by a number of international NGOs gave a well deserved reputation to forest administration among local NGOs.
c. The principles of forest management have been, to some extent, verified by independent experts and this fact: the confirmation of Polish forestry rightness is, as always, gratifying.
d. The certification final result did not influence the remunerativeness of forest management and possible profits that could have been obtained by those producing final wooden products. Similarly, it could not be found whether wooden product importers obtained extra income.

No arguments have been found to support the thesis that the use of certification procedures is better justification for the idea of sustainable forestry when compared with the criteria and indicators worked out in the Helsinki process.

The accomplishment of certification produced a lot of controversies among the local forest administration personnel. The controversies considered the certification as such and not the final opinions of the certifying team. It can be concluded, on the basis of the Polish experience, that the most basic questions to be answered are:

- Can we agree, at the present stage of international agreements, upon one institution to be charged with authorisation to conduct certification? Which institution should this be?
- Is there really, at present, a demand for certification from the side of those who would be ready to pay for it?
- Is there support from the public of a given country for the necessity of certification?

The implementation of new criteria of forest management assessment for a given country needs to be preceded by a very careful analysis of possible profits and consequences.

Any certification procedure conducted should be based on a very keen assessment by the certifying unit.

Each of the above listed questions and statements have been partly answered by solutions employed in different countries. No question, however, has been fully and satisfactorily answered yet. The conclusion can, therefore, be drawn that no univocal solution of the above problems should be expected in the near future. Nevertheless, we have to be aware of the growing competition in the wood market. This considers, also, the countries of boreal and temperate climate zone, that is, the largest producers of wood (with their wood resources and standing volume on the increase).

The possibility to sell raw wood may be promoted, also, by certification, with or without a chain of custody. This is a very significant factor and its meaning will grow. Large companies harvesting and selling raw wood material in Canada, USA and Sweden have already experienced this trend (The B and Q World... 1995), and in October 1996 the Canadian Standard Association elaborated a whole set of criteria used in the assessment of the principles of forest management; this last document was accepted by the Canadian Parliament (CL Newsletter 1996).

It can be expected that the certification process will unavoidably enter the contemporary forestry, but its final form may be different from what we know today.

It is believed that this process will actually become a kind of assessment of environmental impacts and consequences based on the Life Cycle Analysis LCA; this analysis will need standardised forms of description for further improvement of the principles of forest management.

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DO EUROPEAN FOREST PRODUCTS MARKETS SUPPORT THE DECISION TO INTRODUCE ECO-CERTIFICATION PROGRAMMES – HOW MUCH DO WE KNOW?

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ABSTRACT

The European forest products markets will play the key role in the success or failure of timber eco-certification initiatives world wide. The success of timber eco-labelled products in the market is obviously dependent on the attractiveness of the certificates for buyers which is thus a key information for a rational planning and decision making approach concerning the introduction of an eco-certification programme. Some information exists about European business markets, which mainly consists of members of national "Buyers Groups", a support initiative established by WWF and other environmental NGOs to promote certified timber in the market and demand raised by publishing companies. Very little information is available, however, on consumer market aspects. Even together the information that exists on the European market for certified timber is not sufficient to be a sound basis for a decision concerning an engagement in certification. This lack of necessary data for rational policy planning shall be alleviated by an ongoing EC-FAIR research project that will deliver decision support data both for the consumer and the business market.

1. INTRODUCTION

The European market is undoubtedly one of the big global markets for forest products. Both the role in total consumption and in trade underline its dimension and importance. Several countries in Europe show a per capita consumption of up to 0.49 m^3 of sawn wood per year (Europe average: 0.16 m^3) and up to 0.20 metric tons of paper and paperboard per year (Europe average: 0.12 metric tons) (UN/ECE-FAO 1997). Despite the vast forest resources in Europe the region is a large net importer of forest products, accounting for about 27 percent of global inter-regional trade which means that Europe is the second largest destination for forest products globally (UN/ECE-FAO 1996).

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Together with some other favourable conditions such as high per capita income, well functioning markets and relatively well informed consumers the conditions for a cost-effective use of a market-based policy tool such as eco-certification are given. However, market forces will in the end determine the outcome and success of policies that try to enhance sustainable forest management by using eco-labels.

Sustainability of forest management has been on the political agenda since the 1970s, when the deforestation of tropical rain forests started to cause global concern, environmental problems got increased attention and the limits to growth and finite resource availability was increasingly seen as a severe threat to the future well-being of mankind. The goal that was envisaged globally is a concept that has a long history in forestry particularly in parts of Europe: "sustainability", respectively "sustainable development". First real broad political attention of this concept arose as a consequence of the report "Our common future" by the WCED in 1987, and the subsequent conference UNCED in 1992. "Sustainable development" has since then made its way into several general political strategies, and seemingly into the majority of environmental strategies and policies written by governments after 1992. In regard to forestry and timber it is a widely held belief within the forest sector that the renewability and thus the possibility of sustainable use of the raw material wood is one of the few strategic advantages against competing substitution materials.

Certification is an independent party action to demonstrate conformity to certain quality standards. A certificate is used as a means of communication that fulfils three major functions (Weisenfeld-Schenk 1997, Meffert et al. 1995):

- guarantee function (objective reduction of uncertainty)
- information function (on aspects that are otherwise not or difficult to get – reduction of information seek expenses / information-economic theory)
- reputation function (subjective build up of trust, profiling, differentiation)

Certification is most often chosen as communication medium in circumstances where adherence to certain standards wants to be communicated which otherwise cannot easily be evaluated by buyers on the product itself (seek or trust property of a product) or where sufficient trust shall be provided that a certain quality can be maintained over time.

Eco-certification, the certification of conformity to environmental impact related quality standards, has also seen an increasingly broad attention on global scale, although by far not as impressive as the rise of the concept of "sustainability" (see e.g. UNCED Agenda 21 /IV/Para 4.21, OECD, UNEP). Two kinds of eco-certification programmes are generally distinguishable: the certification of systems/processes (EMS) and/or their performance or the certification of products. Some of the widely known certification schemes in the latter category comprise the classical life-cycle eco-labels such as the "Blue Angel", the "Nordic Swan", the "EC-Eco-label" but also in some regard the EC-organic farming regulation. The most widely known certification schemes for the certification of systems for processes and/or their performance are ISO 14.000, EMAS, BS 7750 and FSC respectively. The number of eco-certification programmes has risen considerably since the introduction of the first national eco-certification scheme in Europe in Germany in 1978 ("Blue Angel"), especially within

the last couple of years, and the range of countries with existing product eco-labelling schemes has expanded to include such countries as Brazil, Taiwan or China.

The certification of wood products takes an intermediate position between a product and a systems/process/performance certification. Forest management is in its essence a process which would speak for a system/process/performance certification approach. On the other hand, an (intangible) quality of a wood product is guaranteed, which in turn is clearly a product certification approach. This unclear situation leads to widespread confusion in terminology whether to speak of forest-, forest management- or timber certification. This problem can only be resolved after determining clear goal priorities and specification of key elements of a certification system. The terminology used here assumes forest/forest management eco-certification and subsequent timber or wood product eco-labelling.

A certification *system* is a system of rules of procedures and management for carrying out certification of conformity for a certain certification *programme*. Most of the eco-certification systems and programmes have been set up by governments, some other, however, by private bodies. Governments in increasing number have started to use this market-based instrument mainly for the following goals (EPA 1993 in: Welford 1995):

- to circumvent misleading and false environmental advertising by providing an expert, objective assessment and judgement
- to raise awareness of consumers and to encourage them to take environmental considerations into account in purchasing decisions
- to provide a market-based incentive for manufacturers to develop new products and processes that are less harmful to the environment
- to cause market changes that ultimately result in decreased environmental impacts from consumer goods

It is a precondition of rational planning to analyse the benefits to be expected and the expected costs of a potential new programme before detailed formulation and implementation in order to use cost-effective policy tools. As the set up and maintenance of eco-certification systems has in most or all cases not been able to run on a self financing basis (see e.g Schuhmann 1993 for European eco-labelling programmes) and hardly any ex-ante or ex-post evaluation is available on the cost effectiveness of or benefits that resulted from existing eco-certification schemes (!) (see e.g. OECD 1997; Oosterhuis et al. 1996) this is indeed an important area for improvement of political practice.

Figure 1 shows that the service provider, i.e. the provider of the certification programme, who has to set up and maintain a certification system is well advised to perform a cost-benefit analysis for product “certification programme” from the *marketing point of view* as the voluntary nature of such programmes imply market conditions that are almost identical with any other service market of private enterprise.

The demand for certification programme services shows a direct correlation with the market for certified products (or processes). After years of discussion on technical aspects of forest eco-certification programmes it is more than just interesting to ask how much we know about the demand side – the market for certified products.

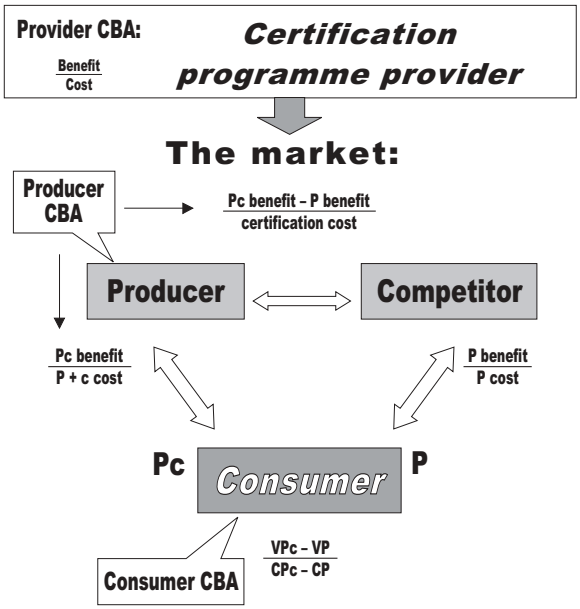

Figure 1. Key decision factors for different actors concerning the engagement in certification (adapted from Weisenfeld-Schenk, 1997). Legends: P= product, Pc=certified product, c=certification, V=value, C=cost

2. THE EUROPEAN MARKETS FOR ECO-CERTIFIED TIMBER PRODUCTS

A market is often defined as the place for the exchange of goods or values, usually an exchange of products or services for money, however, there exist a broad variety of definitions which are used according to specific circumstances (see Bauer, 1989 for an overview). The notion of "market" used here is "*...the set of all actual and potential buyers of a product"* (Kotler, 1994). A *product* can be seen as a set of characteristics that shall enable consumers to satisfy perceived needs.

The *value* that a specific product characteristic inherits depends on the overall capacity to fulfil a consumer's specific need. The value of a specific product characteristic is therefore *a subjective dimension which varies between individuals.* The product characteristic in question is an intangible feature: the raw material wood that originates from a sustainably managed forest. The *market reaction,* i.e. the reaction of the actual and potential buyers in relation to a SFM-certified wood product will *mainly depend on the total value that European consumers see in sustainably managed forests (SFM).*

Information provided concerning SFM by a certain information source through a specific information channel is influential in the purchasing decision process and thus of value only if the information is seen as *credible key information* (see Hansen et al, 1994 and Kroeber-Riel, 1996). In the case of certification the information channel is the certificate and the information source, on whose reputation the credibility of the information will be judged, is the certification programme provider.

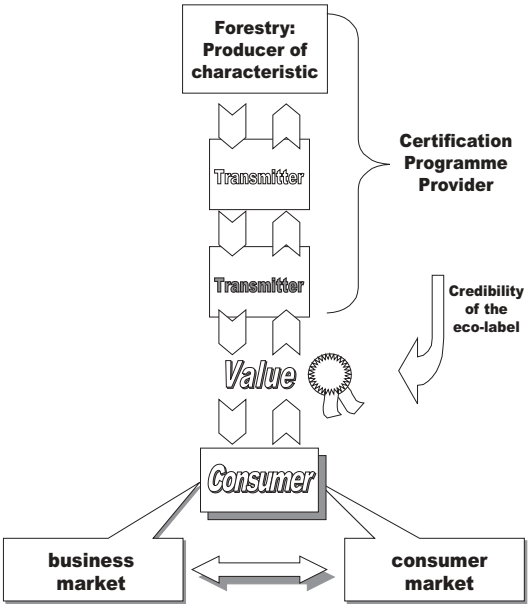

Figure 2. Certification programme: Main market players and information/value flows

The case of certification of SFM / timber eco-labelling shows some specific characteristics that will be important to keep in mind when one analyses the market for eco-labelled wood products:

- although SFM nowadays means multifunctional forest management only one output is currently intended to be eco-labelled: timber
- the certificate in question does not address any of the technical, optical or other physical properties or qualities of the wood product. The utility for consumers is therefore purely based on sentiment
- the righteousness of the claim cannot be checked by the buyer – it is a trust or belief property of the product.
- the producer of the intangible characteristic is located at the very beginning of the producer chain
- a considerable proportion of timber is used in low value added categories (e.g. construction) and is quite often invisible
- a considerable proportion of timber is used by businesses (e.g. for construction or as office paper) rather than private consumers
- it is not a pre-condition of eco-certification to address the private consumer (see e.g. ISO 14.000 or EMAS certification schemes)

It has been said previously that the European market is one of the biggest consumer markets for forest products world wide. The most important wood product categories

where timber is extensively used are construction, furniture, packaging, paper as well as a big variety of other high end uses. As consumers are expected to have different perceptions and preferences concerning the utility and value they attach to the specific product attribute "certified timber" within these product categories it would be advisable to analyse each of these categories separately. However, as we will see, the existing empirical evidence and available data to answer some of the most important questions is not at all sufficient even on a general level.

2.1 The European business markets for eco-labelled wood products

Quite much empirical data can be found on business market characteristics. This is partly due to characteristics inherent in business markets such as the comparatively small number of market players. Also, more studies were conducted on business markets than on the consumer markets (Barbier 1993, Sowerby 1995, Depner-Berger 1995, Brockmann 1996). The majority of data available on European business markets, however, has its background in a support initiative of the World Wide Fund for Nature (WWF) and other E-NGOs (environmental non governmental organisations) to

- support an existing global certification system, the Forest Stewardship Council, and its goals
- assist member companies in developing communication to the end user and facilitate communication and co-operation within the group

Hardly any data is available on demand outside these buyers groups, which is partly due to the often local character and another inherent characteristic of business markets: unstable fluctuating demand.

2.1.1 The business markets represented by "E-NGO-Buyers Groups"

Although membership conditions are not identical for each of these "WWF-Buyers Groups" or buyers groups organised by other E-NGOs members usually commit themselves to shift their purchasing behaviour within a certain time frame to purchase certified timber (usually FSC-certified timber/products from "well managed" forests).

a) Geographical location of markets.
Figure 3 shows existing respectively potentially existing future business markets for certified timber in Europe. The regional pattern of the markets (north-western and central Europe) already allows some conclusions on favourable market characteristics.

b) Market size
The volume of FSC-certified timber bought in Europe in 1996 is estimated to have been less than 100 000 m³ of (mainly) sawn wood. However, this is to some extent an effect of supply restraints, as the FSC trade mark itself was only launched in

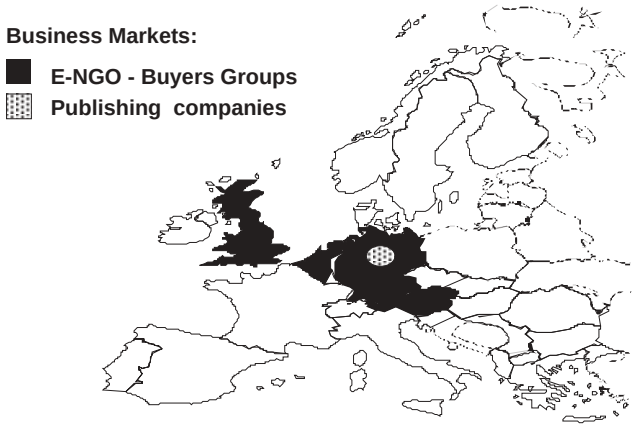

Figure 3. Geographical location of main business markets for certified timber in Europe

spring 1996. As several key forest certifications have taken place during 1996 in Europe (most notably Swedish forests) and other parts of the world (e.g. South Africa), the volume traded in the following years is expected to grow considerably which will allow a more accurate indication of total market demand.

c) Market growth/market potential
Market growth can be roughly estimated by using three indicators:

- supply-driven growth: managers of certified forests will try to sell their wood as certified

  As of January 1997 approximately 1 940 000 ha forests were certified in Europe (= ca. 1.4% of European forest area). More than 99% of this area is certified according to the FSC-system. Assuming annual removals in the order of net annual increment this would result in roughly 6 mil m³ roundwood actual potential supply from European forests. Total FSC-certified forest area globally was about 3.1 mil. ha in January 1997. Several further major certification projects are currently performed in Sweden and outside Europe (e.g. South Africa).
- demand driven growth: the members of the Buyers Group will have to fulfil their commitment of gradually increasing the proportion of certified timber bought.
- changes in the number of Buyers Groups and/or in the number of members of the Buyers Groups: Three more national groups are intended to be launched in Europe; the number of members in the various existing groups is either increasing or stable

d) Market characteristics
The structure of the Buyers Groups members allows the identification of major buyer segments (see Table 1). The diversity of company sizes also indicates the diversity of interest that is present in the business market. Three factors are noteworthy:

Table 1. Buyers Groups: members and membership structure

	UK	NL	Belgium	Austria	Germany
Founded:	1991	1992	1994	1996	1997
Members (6/97)	78	476	84	21	10
Member Structure	5 DIY Chains	3 major DIY Chains	18 Importers	11 Timber traders	6 Timber traders
	9 Major retailers	72 Project developers	63 Timber trader	7 Producers / suppliers of wood products	1 Major retailer
	33 Suppliers of wood/ wood products	139 Housing associations	3 Distributors	1 Producer of pulp/paper	
	17 suppliers of paper/ paper products	252 Municipalities	1 Converter	2 Architects / consultants	
	7 Timber traders	10 State departments			
	4 Converters end users				1 Converter
	1 Packaging company				
FSC-labelled timber sold in 1996	600 products in the shelves; no official sales figure	2.000 m^3	Virtually none	none	none
Market share of companies claimed	Represent ca. 15 % of wood usage in UK		> 50 % of wood trade	4,2 % share of wood market	

- the high proportion of traders in the Buyers Groups, which clearly reflects the relative advantageous position of this sector concerning certification cost and benefit calculations.
- the increasing relative power of the often concentrated retail sector in saturated markets who are functioning as "gatekeeper" to the end consumer. Thus their decision taking behaviour is crucial for whole production chains upstream.
- institutional buyers such as municipalities are a potential and influential customer group (see NL).

To put the existing European business market in the global picture one can say that the number of companies showing interest in or demand for certified timber in Europe is considerably higher than in the USA which is the by far second largest potential market for certified timber.

2.1.2 The business markets not represented by E-NGO Buyers Group

The major potential business market outside the E-NGO concern mainly pulp and paper where no certified timber is currently on the market. The market potential is mainly depending on

- the market pull factor: demand by European publishing companies
- the market push factor: ready supply of products made of certified timber by big suppliers in Scandinavia or Canada. Canadian companies recently announced plans to certify about 20 mil. ha of forests that represent a joint output of about 25-30 mil m^3 of timber per year (Holzzentralblatt 67/1997)

2.2 The European consumer markets for eco-certified wood products

Little is known on the market behaviour of the private consumer. Although several private organisations have made some surveys or organised test markets for their specific purposes this data is in most cases not available to the public. Some small studies have been undertaken in order to be able to estimate market potential and the willingness to pay by consumers in recent years in the most promising or important markets (MORI/WWF in ESE, 1993, see also chapter 2.1)

2.2.1 The existing market demand for certified timber products in Europe

a) Geographical location
   Private consumer markets with more than occasional market transactions/purchases of certified timber products can only be found in one European country, namely UK, to some extent probably also in the Netherlands. No or low interest in certified wood products seems to prevail in southern Europe, although, again, hardly any data is available (see Cooper et al, 1996 for an exemption). From the location of the

two markets UK and the Netherlands some indicative inferences can be made concerning the characteristics and favourable conditions for certified timber. Both consumer markets share:

- high per capita income
- high percentage of total tropical timber import
- high media coverage concerning tropical deforestation
- comparatively well developed level of consumer power awareness (?)
- early start of lobbying for Buyers Group membership (and thus information on existence and availability of certified products)

a) Market size

The size of the existing market for certified timber products in Europe is thus negligible – a tiny fraction of a percent of total market size. This fact is not surprising. Certified timber products are hardly available even in the most advanced markets in U.K (a total of 600 products in the shelves as of 6/97) or the Netherlands. Furthermore the experience with other product eco-labelling/ certification programmes shows the niche market character for eco labelled products. This is the case even for the most widely used "eco-certification programme", the organic farming regulation, where total market share of the different product categories seems to have been well below 3 % even in more attractive markets (v.Alvensleben 1992, Allersdorfer, personal communication) although changes in business market behaviour and in the EU-Common Agricultural Policy have recently led to considerable increases of market share in some countries, notably in Austria. The different structure of the forest sector and the uniqueness of a market support initiative such as the WWF Buyers Group might result in higher market shares also in forest products markets.

c) Market growth

No data is available on current market growth.

d) Market/buyer characteristic

Very little is known about psycho- or sociodemographic characteristics of potential or actual buyers of certified wood products. It is a widely held belief that the degree of environmental awareness of an individual will play a role as a explanatory variable in the decision to buy sustainably produced timber. Despite the number of studies undertaken in environmental attitude research no clear picture emerged as to the main factors that determine environmental awareness. Most of the existing studies use different theoretical and empirical approaches which results in low direct comparability. However, some conclusions can be drawn that seem to prevail in most of the studies (see Martin et al, 1994 and deHaan et al 1996 for an overview of studies in the Anglo-American respectively German speaking regions). There is no clear relationship to socio-demographic variables such as sex or age. Furthermore it has repeatedly been shown that environmental attitude does not directly lead to corresponding behaviour (ibd.).On the other hand few people would claim no correlation at all. Few international studies are available that enable a comparison of the geographical differences in Europe. Some opinion polls, however, have reported

similar patterns of responses to questions related to the environment throughout Europe (Eurobarometer 1995). Time-series studies on environmental attitudes do exist for at least one of the European states for about 10 years. The 10-year trend mean points to a relatively stable attitude and a slight upward trend (ibd.).

e) Price margin
Most of the surveys that were conducted (see chapter 2.1 and 2.2) and that included questions concerning the willingness to pay for an eco-label differ in methods, depth and scope. However, the results indicate jointly that there are markets for eco-labelled products with a willingness to pay about 5 –10 % more for certified wood products.

2.2.2 The future market potential for certified timber products in Europe

The market potential is defined by Kotler (1994) as the limit approached by market demand as industry marketing expenditures approach infinity, for a given environment. The market potential is not identical with market demand as it is widely known that marketing efforts are influential in raising market demand. In order to be able to make some estimations on future market potential of certified timber products it is of crucial importance to know about consumer behaviour determinants. However, as has been highlighted several times before, there is an apparent lack of information on which to base an assumption.

Little is known to what extent consumers understand the information that is provided by eco-labels, whether they attach any value to the information that is communicated and in how far this information is able to act as key information and thus alter purchasing behaviour in favour of eco-labelled wood products. Even less is known on the key factors that influence the outcome of the evaluation of the information and thus are responsible for the behaviour of consumers in purchasing situations. An estimation of market potential without such data has therefore to be based on crude assumptions.

a) short to medium term potential
Under the assumption that market potential can to some extent be inferred by trend projections of the market characteristics highlighted in 2.2.1 a) and by assuming the following trends in the variables
- there is a reduction in media appearance of tropical forest destruction
- tropical timber is further substituted by certified timber or timber from other regions
- certified products are increasingly available and marketing efforts by companies increase

and by otherwise assuming no major changes in the other influencing variables the short to medium term market development factors could be interpreted as jointly indicating moderate future growth of market potential after an initial supply-driven growth phase (increased availability of products). It has been said before that existing product eco labelling schemes generally imply a niche market character of eco-labelled products.

b) long term potential
Preisendörfer (1996) showed that the concept of "sustainable development" ("nachhaltige Entwicklung") is widely unknown in German society today, which usually is considered a country with rather highly environmentally aware citizens. If long term trends towards increased resource scarcity and a parallel diffusion of the sustainability concept into society respectively an increasing activity in active communication of the sustainability concept then certified timber from sustainably managed forests could achieve an increasingly strong comparative advantage.

3. THE EU-FAIR RESEARCH PROJECT

To alleviate the apparent lack of knowledge on virtually all aspects of consumer behaviour that would be necessary as decision basis for policy decisions concerning an eco-certification programme an EU-FAIR Shared Cost project (EC-FAIR CT766-95) has been launched by a team of four European Institutes from the Universität für Bodenkultur Wien, University of Helsinki, Universität Freiburg and the University of North Wales. This project consists of several tasks related to the European market for eco-labelled wood products. Most notably primary data is collected both for consumer markets and for business markets. The general objective of the consumer survey as well as the producer survey is the evaluation of the demand as well as determinants for the demand of timber eco-labelling programmes.

Consumer survey method: A representative consumer survey is performed in the four main markets of Europe, namely Germany, U.K, France and Italy and, by additional funds, in Austria (n > 1000 persons per country, face-to-face interviews)

Producer survey method: Forestry-wood chain industry survey in Finland, Germany and the U.K. (n ~ 150 companies per country, mainly personal interviews)

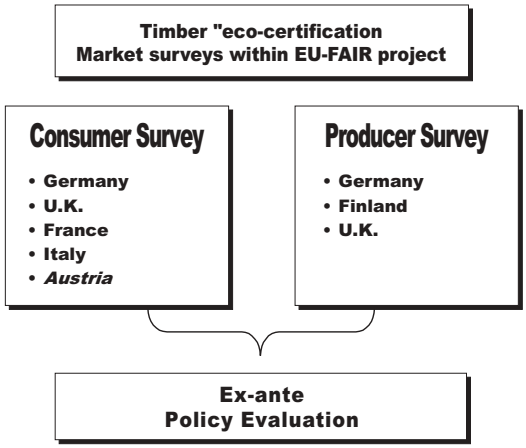

Figure 4. EU-FAIR research project CT95-766 and affiliate Austrian survey

4. CONCLUSION

Europe is one of the most important forest products markets globally and shows favourable conditions for the use of market based policy instruments to enhance environmental standards in relation to sustainable forest management. Whether or not eco-labelled forest products find a ready market in Europe will however be a key factor for the success or failure of policies that use "eco-certification" as policy tool.

Despite the importance of market related data for an ex-ante evaluation of the cost-effectiveness of a new certification programme before taking the decision to install a certification system little data exists on this key success aspect.

Comparatively much is known about European business markets, mainly due to market support activities by WWF and other environmental NGOs that establish "Buyers Groups" of companies who commit themselves to gradually shift to purchasing certified timber. The size, structure and location of these Buyers Groups allows conclusions concerning the existing market conditions.

Very little is known about the market and market potential for certified products on private consumer markets. The existing experience seems to show that consumers are not yet in the position to understand the value of "sustainability" and that considerable educational communication will be necessary. Existing product eco labelling schemes generally imply a niche market character of eco-labelled products.

In order to overcome this apparent lack of data on market aspects regarding eco-labelling of wood products a EC-FAIR project has been launched by a team of four European Universities that perform research into the consumer market as well as into the business market in several European countries. The resulting data should provide the basis for rational planning and decision making in relation to further policy measures concerning "eco-labelling".

Whatever policy measures are taken in Europe they will inevitably have global implications, as it can be said that the European market is the most important market for eco-labelled wood products globally and will remain to be the key market for at least several years. Thus the European market will eventually determine global success or failure of existing or emerging eco-labelling programmes.

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DOES FOREST CERTIFICATION PROMISE MORE THAN IT DELIVERS?

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1. INTRODUCTION

At Business Environment Europe (BEE) our principal aim is to help our clients to go beyond the headlines, and to understand the patterns and structural forces which drive those headlines or events.

In anticipating change, whether EU-related or not, we help give our clients a better chance to adapt their strategies to change and (hopefully) to influence their future business environment.

Why am I here? We have heard a great deal at this gathering about the operational questions surrounding forestry management. I would like to ask a simple question – is there not a risk that we no longer see the forest for all the sustainably-managed trees?

My aim, therefore, in this short talk, is to ask such simple but important questions which, from my objective viewpoint, seem to have disappeared from the debate but which are still fundamental.

My theme is does forest certification promise more than it delivers, from both the economic and the environmental point of view.

My focus is on the issue primarily as seen from a European perspective. I question the need for forest certification as a means to guarantee sustainable management. I query whether there is a real demand for the products of voluntarily certified forests. I suggest that such certification is unmeaningful if it is not accompanied by product eco-labelling. And then, given the international connotations of the debate, I wonder if it might not be simpler to certify, independently, the sustainable policies of governments.

"Balancing economic and ecological demands" – is the conference theme

This conference, rightly, aims to find where the balance lies between the sometimes conflicting needs of the forest economy and its ecology.

I too will try to strike such a balance. I am not here to represent any interest group. I will share with you my personal observations on the sustainable forest management debate.

Ilpo Tikkanen and Brita Pajari (eds.)
Future Forest Policies in Europe – Balancing Economic and Ecological Demands
EFI Proceedings No. 22, 1998

I hope that, coming at the end of a long day, this might serve to remind you of the importance of the overall aim of sustainability.

Sustainable forest management is my base point

My starting point is that our common aim should be to maintain and even improve the quality of the world's forests (my principal interest being European forests).

Sustainability can be measured in many ways. Nobody has a monopoly on how this should be achieved.

Let's not argue about ecocertification/ecolabelling/ benchmarking

My very straightforward point is, therefore, that all stakeholders in the wood value chain should be prepared to consider all the options to achieve the sustainability balance.

This is not currently the case. The pulp and paper industry, for understandable reasons perhaps, reacts badly to the word “eco-label” due to its associations with the European Union's eco-label scheme. For others, certification simply equals the Forest Stewardship Council – this is not the case either (at least not yet).

Cleverer people than I have explained the relative merits of the different measures of sustainability. As I said, I will simply put my perspective on this.

2. CERTIFICATION – ARE WE ALL CLEAR?

Some questions occur to me:

These are:

Surely we should begin with the question – “does the standard of Europe's forests really merit the amount of time and energy (and eventually money) being devoted to discussing its level of sustainability”? Would scarce resources be better-employed elsewhere? Specific questions are:

- Firstly, is there a need for forest certification in Europe?
  - Most observers agree that western Europe's forests are generally well-managed;
  - Certainly those forests suffer from other problems (for instance health) but these are being tackled separately already;
  - So, is there really a need for a new concept of certification?
- Second question, is there a demand for it?
  - We are told that there is, but it is unclear what the level of that demand is, or how it might grow in the future;

- Thirdly, if so, why and from whom?

  · As far as I can ascertain, there is no clear demand, from the final consumer, for the products only of sustainably-managed forests. Given the absence of such products from the market-place, it is difficult to see how this demand has been measured;
  · Perhaps the demand is arising at another point in the wood value chain? My overall point here is that, if the forest industry cluster is being persuaded into certifying its/its suppliers' forests, then surely there should be some empirical basis for this;
  · Or, perhaps the push to certify stems from forecasts of demand for the products of sustainably-managed forests? Again, I am not aware of a plethora of information on this;

- Lastly, who is the "customer"?

  · This leaves me unsure, when I hear of demands for the certification of forests, as to what this demand represents. Is it the "man-in-the-street", the environmentalist, or somebody else in the value chain seeking a market advantage? Why is there such pressure in the retail sector?

Test these questions against current activities

This leads me to the view that we must test, again and again, the assumptions on which we are all discussing this question.

The enormous amount of activity that we have heard about over these last days may not be addressing the right questions, and may be an inappropriate use of resources anyway.

Can we conclude that the "customer" is satisfied?

The acid test, eventually, must be customer reaction.

Is there evidence that customers for the products of certified forests are currently satisfied? How is this being tested?

3. A SIMPLISTIC VIEW?

Let me try to take a very objective standpoint and contrast the theory and the practice of certification, hopefully in a non-simplistic way.

The theory of certification in Europe

Forgive me if I take an economist's point of view. An economist would look for the following as proof that certification is working:

- Consumers demand it

  There should be clear evidence of consumer demand for certified products;

- Stakeholders should provide what is being demanded

  There are a number of systems allowing for this, perhaps too many (though this does not matter if customers can understand the differences and make choices);

- Finally, customers identify products and pay for them

  This is the bit I have most difficulty with. In the first place, a certification scheme does not, by itself, provide the final consumer with any information when he/she is examining the product on the shelf. Consumers need clear information – usually this means a label of some sort on the product itself. Secondly, anybody who claims at present that their processed wood product (whether it be a paper or a wood material) comes from sustainably-managed forests, faces a credibility problem since it is admitted by all stakeholders that tracing the origin of such products through the whole "chain of custody" is highly problematic. Thirdly, again there is little evidence that customers who supposedly demand such sustainable products are prepared to pay a premium for them;

So what is the practice of certification in Europe?

In practice, it seems to the objective observer that:

- Consumers might have heard of it ...

  but, the final consumer knows little of certification, and is not actively enquiring about the availability of wood-based products from sustainably-managed forests;

- ... but, someone else is demanding it.

  There are pockets of demand from parts of the wood value chain, but this cannot be described as widespread or consistent and, in some cases, rather than increasing it appears to be receding;

- Stakeholders provide it…

  Nevertheless, in response to this inconsistent picture, as I have said there is an enormous amount of activity around this whole issue. Groups of forest industry stakeholders are engaged in tortuous discussions in many fora (I won't list them – we have heard from many people already on this), seeking to find the most agreeable form of certification;

- …but customers cannot identify it

There are no reliable labels which demonstrate to the consumer that the product comes from a sustainably-managed forest. The consumer does not, therefore, have a clear choice to make between one wood product or another;

- and, customers don't pay for it (somebody else does).

  Even in the limited cases where similar products are clearly distinguished by their "sustainable" and non-sustainable" origins, there appears to be no price differential. Indeed, I am informed that this would be dangerous since the real competition wood products face is not with each other but with competing non-wood materials (metals, plastics and so on). Thus, logically, if the consumer is not paying, someone else must be;

  This leads me to speculate that, as is so often the case, the costs of certification are going to be passed back up the marketing chain.

4. WHAT'S THE FALL OUT?

What would be the result of the widespread application of certification schemes? These are my speculative views:

Small forest-owners (the weakest link in the chain) would pay for certification

The weakest link in the wood value chain, by common accord the small forest-owner, is having to/will have to foot the certification bill. One can see that small forest owners believe this to be so, for example from recent events in Sweden.

Larger owners/processors will "feel good"

Let us assume that, in a given area, a certification scheme of a type familiar today is adopted.

The larger players in the market-place would, in contrast to small forest-owners, find themselves enjoying the "feel good factor". Yes, they have devoted significant resources to working out a set of sustainability criteria they can live with but, presumably, they expect a market pay-off in the end. At the very least they anticipate no further criticism of this aspect of their environmental performance, and no market penalties in future.

Environmental NGOs see "a job well done"

Environmental NGOs would feel justifiably proud of "a job well done" in the event of significant adoption of certificates of sustainable forest management. They know that, in a European context, the improvement in management in many areas is likely to be marginal only. But, sustainable development is crucial, and every little helps.

Users and sellers of wood products will be relieved

Users and sellers, of all the groups in the wood value chain, seem to have been those put under the most pressure to provide products from a sustainably managed environment – a reliable certification scheme should provide some comfort.

The ultimate customer knows nothing ...

But I return to my main concern. The ultimate consumer, as far as I can see, is unlikely to know much about this in the absence of clear information on a label attached to the product itself.

And, if the consumer is unable to comprehend, are we justified in imposing extra costs on a relatively weak sector in European industry, thus undermining competitiveness for a questionable environmental gain.

5. ... UNLESS CERTIFICATION EQUALS ECO-LABELLING

Without a label customers (i.e. consumers) are ignorant

Yes, advertising and promotion, education programmes and other publicity can help inform consumers, but this is not the most direct route to alteration of their behaviour. So, in the end, in any voluntary certification situation, certification and eco-labelling boil down to the same thing. I am sorry if that isn't popular to those who dislike the EU eco-label, but I am not referring to that.

But this poses practical problems

I will not repeat at length the practical problems this presents. I believes all stakeholders are alive to this. But, an obvious example is paper products, which result from such mixed origins in terms of pulp and wood supply (even in a country like Finland pulp is imported to obtain the right quality mixture) that granting a reliable label would be impossible. Neither is it clear at what point in the marketing chain labelling should take place – on the paper sold to the publisher, or on the final newspaper or magazine sold to the consumer. Making compromises on the standards involved could, equally, undermine a label's credibility.

6. SO, WHAT'S THE POINT?

So, is there any point in all this debate, all these resources devoted to some fairly esoteric arguments.

Is there a market gain?

From the anedoctal evidence I am aware of, certification of sustainably-managed forests is unlikely to make anybody in the forest industry cluster very much richer. One company may take somebody else's share of the cake, but is the total cake any bigger?

Would there be a gain in sustainability? (in Europe?)

Trying to read the certification debate objectively, it seems that the gain in the overall "sustainability" of European forests would be small (some would say minimal).

"Full of sound and fury signifying nothing"

So, does the certification debate constitute, in Shakespeare's words, "a tale told by an idiot, full of sound and fury, signifying nothing"? Clearly many people do not think so, but I merely ask the question.

7. AN ALTERNATIVE APPROACH

Given that the economic and ecological demands on forests should be kept in balance, given that there is a strong international and trade element to the whole question, and given the need for a speedy resolution, perhaps the following approach is a clearer path.

National/regional/local approach

It is widely recognised that there cannot be a global or even European forestry management standard. Given the complex bio-diversity of forests, a flexible approach, allowing for national, regional even local standards of sustainable forest management is necessary.

International mutual recognition

History teaches us that such standards must fall into some common framework, in order that one country or another does not seek to protect its own industries by questioning the environmental purity of another's, and using environmental standards as barriers to trade. For environmental and economic reasons there must therefore be an international agreement on mutual recognition of sustainable forest management standards. This agreement must be made legally-binding.

Governments should look after the forests

Seeing as I am speaking in Finland, which has a long history of both looking after its forests while at the same time using them commercially, I do question the need for other agents to step in as guardians of the forest. I am sure not all countries can boast such a

good record, but why not improve their information and regulatory systems rather than creating something new. If the overall aim is an incremental improvement in sustainable forest management, let us keep to the essential needs, which vary nationally.

Independent verification of government goodwill and action

The criticism often levelled about that idea is that nobody trusts governments. Again I ask a question. Do consumers trust industrial companies, farmers and land-owners, large supermarket chains or even (nowadays after Brent Spar) environmental NGOs more?

Why cannot the actions of governments simply be verified by experts acknowledged as independent?

The problem with this suggestion is that it dispenses with the voluntary approach and requires regulation. But perhaps, in this instance, this would be the lesser of two evils. Or governments could operate negotiated agreements. In any case, since all forests would have to meet minimum criteria for sustainability, there would be no need to find a solution to the problem of tracing the products of sustainably-managed forests all the way through the custody chain.

Would minimum standards, comprehensively applied, not be better for forest ecology (overall) than a patchy application of a voluntary system?

8. AN EU ROLE?

Of course a government's only approach begs the question, "What role for the EU"?

No involvement in the detail

In my view it would be folly for the EU to try to set out an EU standard for the sustainable management of forests. The ecological and economic requirements of the member states are too diverse.

Set out the principles (Helsinki Guidelines?)

The EU should confine itself to establishing the minimum requirements to be satisfied, for a government to be considered as administering sustainable management systems. These are likely to be the Helsinki Guidelines, supplemented by whatever field-level criteria are agreed at national or lower area.

Subsidiarity/regional/local approach

This implies a subsidiarity approach. The EU's main role would then be to ensure that those countries that adopt relatively stricter field-level standards cannot use these to prevent free trade in wood products.

Referee, don't set the rules

The European Commission would thus be placed in the role of referee and "guardian of the Treaty", which many EU citizens consider to be its proper place and which (I suspect) it feels most comfortable with.

One particular element of this would be to ensure that rules/systems not meeting the minimum standards are forced out of the market.

Police the police

The Commission could thus most usefully "police the police", ensuring that implementation is thorough and abuses kept to a minimum. It can do this in harness with other selected "independent" bodies, if this is thought to be desirable – an approach the Commission is increasingly taking in the environmental field.

9. CONCLUSION

My messages, in conclusion are, the following:

Cannot identify the demand for higher forest management standard

It is very difficult to identify a real widespread demand now for higher forest management standards in Europe. There is a lack of evidence about the potential future demand.

We are told that the process of arriving at certification criteria is almost as important as those criteria? But are consumers interested in process?

Sustainable forest management can be achieved by other means that certification

Sustainable forest management does not necessarily require certification. Perhaps there is a simpler way.

Perhaps we have all become a bit hung-up-on certification. Take a step back and see what is really necessary to achieve and let us go for that.

To impress customers, use a label

And, in case you think I am some sort of anti-environmental hit-man, I believe that, ultimately, in a voluntary certification situation wood-based products will have to be labelled as coming from sustainably-managed forests – if consumers are really to be impressed by voluntary certification schemes and persuaded into altering their purchasing habits. At the moment voluntary forest certification does not look like it will deliver all it promises.

Keep it simple

And let's keep it simple. There is a real danger of over-kill, and over-charging, in the current debate. All stakeholders will have to acknowledge that all their principles cannot be accepted. Compromise will be necessary.

Unfortunate consequences

I fear that, if the current debate is allowed to continue, we shall see the following unfortunate consequences:

- Firstly, a plethora of voluntary labels. While there is nothing necessarily wrong in this – it implies plenty of consumer choice – I believe it will be accompanied by protectionist measures being taken, at several levels, involving:

  · undermining of the European single market;
  · discrimination against many tropical forest wood products;

- Secondly, you will have an unhappy and less competitive EU forest industry cluster. This would be a pity since the cluster, working together, is the guardian of the forest;

- Thirdly, we will see confused consumers;

- Fourthly, forest management in Europe would only be marginally improved. There would be little impact on wider sustainability.

Surely this is not the aim.

Don't forget the real, common interest.

The real common interest of the people in this forum is surely the promotion of wood as a sustainable raw material for many purposes. That is the most important message. The long-term economic and ecological interest of the forest industry cluster in Europe, and all its stakeholders, is surely in collaborating to that end. We at BEE see a need for the stakeholders to club together now to influence that future environment so let us have the right arguments in the right places over the right issues.

SESSION VI

CHALLENGES AND ALTERNATIVES FOR FOREST POLICY DEVELOPMENT IN EUROPE

Conference chairman: Mr. Tim Peck

CHALLENGES AND ALTERNATIVES FOR FOREST POLICY DEVELOPMENT IN EUROPE

Paul Weissenberg

European Commission, DG III

1. INTRODUCTION

Mr Chairman, ladies and gentlemen,
On behalf of Commissioner Bangemann, I would like to thank you for the invitation to this congress in Joensuu. Finland is a country for which forests and forest industry are of vital importance and necessary preconditions of general well-being. This is also the reason I have been asked to talk about the present and future European Forest Policy. I appreciate very much the opportunity to give you an overview of the current state of the policy and to highlight elements of the future European Forest Policy.

Forests constitute one of the European Union's key renewable natural resources. Forests generate wealth, serve for recreation and fulfil important conservation functions. They also play a central role in the carbon cycle and in the preservation of biodiversity. Moreover, a wide variety of cultural values and sources of inspiration are attached to forests, for example, was Jean Sibelius not one prominent example of those to find several themes in forests and forestry, like in the symphony poems of Tapiola and Wood Nymph or the series of short pieces for piano with tree motifs (e.g. the Spruce, the Birch, the Lonely Pine, the Aspen)?

2. ECONOMIC FACTS

General

The "face" of the Community changed considerably both regarding political and economic aspect after the adhesion of the new Member States – Finland, Sweden, Austria. This is certainly true, particularly in European forestry:

- The forestry resources doubled, both in terms of area and wood production.
- Pulp production tripled and the production of paper and board increased by 50%.

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- Moreover, the overall trade-balance of the Union changed from being heavily negative to a trade surplus sector.
- Since the new Member States were rather producers than consumers of the forest industry products, the average degree of EU self-sufficiency rose considerably.
- Thus today, the EU has become the second largest net exporter of paper and board products in the world.
- More than 500 000 SME's all over Europe are linked to forest industry. They are widely dispersed in rural areas, the reason why this industry is of high regional economic importance.
- With around 4 million employees, EU forest industry has considerable labour market effects.

3. EUROPEAN INDUSTRIAL POLICY

Against this background the need and the importance of a European Forest Policy is evident. Also due to the fact that wood is, on one hand, linked to the agricultural sector and, on the other hand, to industry, it is a matter for European Industrial Policy. As Industry Commissioner, Mr. Bangemann is responsible for the forest industry.

What is the current state of the forest policy in Europe? The Council adopted a Forest Programme as early as in 1989. It serves a flexible approach with respect

- to the diversity in the forest types in Europe
- to the structure of ownership
- to social and external environment.

Despite this programme, we still do not have a political strategy, a political concept for forest industry. The Commission is currently working on this based on the growing consciousness of the forest sector's triple value: economic, ecological and social.

Our reflections are based on the key principles:

- global strategy
- subsidiarity
- continuity of long term actions
- selection and concentration of actions.

As main objectives we regard the following:

- improvement of environment protection
- development of the sector own dynamics
- safeguard of forest patrimony
- development of cultural/leisure role and
- taking into account the forest in all Community policies.

Scope of action could be:

- infrastructure

- Community harmonising regulations
- organisation of forest owners and sectoral groupings
- development of specific sub-sectors (cork, resin, tropical wood)
- inventories and forest previsions
- research and technological development, education and training.

The overall objective of any industry policy strategy is:

- To improve competition conditions in the Internal Market and to improve the global competitiveness of European industry.

What does this mean for forest industry ? In other words:

- How is the Internal Market Situation for forest industry ?
- How is the situation on international level ?

The internal market

The forest-based industries' within EU amounted up to 47 billion ECU in 1996, representing around 5 % of total EU's internal trade value. The quantity within EU was 75 million tons representing approximately 8 % of the EU's total internal trade quantity. Regarding this economic importance of community trade the Commission's objective is to improve Internal Market situation in the forest industry. We are promoting a comprehensive review of legislation inside the Union, aiming at completing, simplifying and adapting the legislative framework. In this field of legislation the Commission has for example contracted a study for the wood directive (68/89 CEE). This directive (68/89/CEE) became an actuality during the adhesion negotiations with the new Member States (Finland, Sweden, Austria) to the EU, due to the different approach in measuring felled timber – The Continental Method has an "academic" approach how to classify timber. A felled tree is thus given categories according to their different dimensions (length, diameter), quality, regularity. The Nordic Method, on the other hand, consists of deciding the classification according to the use of the tree: pulping for paper or energy recovery, etc. Due to these different approaches, we have to decide before the end of this year how this directive should be modified. Therefore, the Commission asked for an analysis of a professional institute before decision-making.

Another field in which the Commission is active concerns European standards. The European standards should guarantee a minimum level of quality and safety of specific products. They do also contribute to the elimination of technical barriers to trade. For the moment, a manufacturer often has to have his products tested in all countries of the EU in order to be allow to put them on the market. Once a European standard will be implemented in all countries, it will be sufficient to have a product tested only once, which will reduce costs and facilitate intra-community trade. A good example on standards is the one defining standard qualities of recovered paper (EB643). The establishment of European standard qualities enables trading in these "new" products. Moreover, it contributes and facilitates the development of recycling, recovering and management of this secondary raw material and thus has a positive effect on the European environment. The size of the recovered paper market is 30.000.000 tons in

Europe. More than 5.000.000 tons is traded between EU-15 countries (Germany being an important exporter of it; Spain, Italy and Nordic countries being importers).

The international dimension

Only some years ago a main question was: How can we "shift" national industrial policy to the European level? Today, its a matter of fact that even the European level is "not high enough". We must take the "lift" to the global platform, which means:

- Globalisation forces entrepreneurs and politicians to global strategies.
- International co-operation and international agreements are required.

The same goes for the forest industry, which is changing rapidly with the world economy under the impulses of globalisation and information and communication technologies. It is facing competition from areas of the world characterised by abundant raw material resources and low production costs. At the same time, in the EU, the global awareness of the limits of resources has lead to stressing the importance of sustainable development and environmental policy actions. These changing economic conditions induce companies to new business strategy. "Delocalisation" describes one of the possibilities. Briefly, companies are leaving high cost countries and invest in regions where they see more favourable conditions. But different levels in cost, wages or taxes can be particular chances for international co-operation. The Nordic countries and their industries have an important influence promoting industrial co-operation particular with their Baltic neighbours. At the same time this means that you play a major role in integrating new Member States regarding the enlargement. This deserves our thanks.

EU trade policy emphasis on opening up markets through a "Market Access Strategy" by multilateral negotiations and international industrial co-operation. Regarding Eastern Europe industrial co-operation becomes of essential importance as Eastern European countries constitute a growing interest for our industry as they constitute both a potential market and a possibility for significant investments. A key issue is the significant forest areas accounted in these countries. From the organisational point of view, European forest industry associations are progressively being enlarged to include Eastern European countries. Today, they count as members (associated) following countries: Latvia, Lithuania, Poland, Hungary, Czech-Republic, Slovakia. Contacts with organisations in Romania and Estonia are pursued. Several Western-European industrialists of the forest industry sector have established good business relations with CEEC countries e.g.

- UK sawmilling in the Baltic States
- German furniture manufacturers in Poland
- Austrian pulp and paper industry in Hungary
- Spanish paper and board industry in Slovenia.

At the seminar "When East meets West" in 1995, there was a call from the CEEC representatives for support in the field of education and training. Therefore, European

Information Bank for the European Forest and Timber Industry (Eurofortech), on request of the European Commission and with the support of the mechanical wood industry has worked out a programme for training and education in the wood sector for a number of CEEC countries. In the context of this programme, industrialists from the East will spend up to a month in the West to learn about the way we run our companies and do business.

The main aim of this exercise is to give ideas to the CEEC industrialists how they can start building up their own home market. Monitoring activity is also carried out to compare the performances of the European and American paper and board industries in the Japanese market. This exercise was especially interesting due to the fact that the USA, our main competitor and Japan had established an agreement to promote the access of American paper into Japan. The 5-year US-Japan agreement (1992-1997) has been under discussion even since the visit of Mrs. Albright to Japan this spring. The EU Tokyo delegation is following the subject.

Research and development

For most people wood is a "simple" natural product and with forest industry they link more "romantic" ideas than ideas of being a high-tech industry. Therefore, forest industry is currently facing an image problem which, indeed, is not justified. On the contrary, R&D, the application of new technologies, high-value-added and specialised products, modern logistical systems and processes are the trump cards of the European, particularly the Scandinavian forest industry. In order to ensure and improve the future competitiveness of European forest industry and to meet the expectations of society concerning efficient resource utilisation including energy, products and environmental issues, the Commission supports R&D activities by special programmes. Previously, Commission's support had the objective to give "everyone a slice of the cake". In consequence, the efficiency of the financial means and the output was not very high. Therefore, the Commission proposed a new concept for the 5th Framework Programme: "Concentration" of the financial support by defining clear priorities and to foster research co-operation.

Esprit

The Esprit programme is a good example in this field. The European Commission is supporting a project called IMS (Intelligent Manufacturing System-project). Its overall objective is a "co-existence" of process-industry manufacturing and environmental needs. The project brings together chemical companies, pulp and paper producers as well as the world leaders in the field of plant design, engineering and construction.

Another ESPRIT project is Eurofortech which I have already mentioned. Its objective is to support the supply and the distribution of information technology products to industrial end-users within the European forest and timber industry. In addition, research of environmental technology and sustainable management of resources in forest industry is supported in the area of "Living World and Ecosystem Theme". The

forest industry, having the EU's second largest recycling activity, can focus for example on recycling aspects and on biomass energy as an alternative energy approach.

4. FOREST INDUSTRY – ENVIRONMENT

Apart from technological advantages, forest industry has a unique chance – its environmental friendliness can be used and promoted as a competitive advantage with respect to consumers as well international competitors. For example, labelling of environmental friendly products or production processes is in consumers interest but it is as well a strong factor in international competitors. In my opinion, the Scandinavian asset is: availability of technologies and awareness of environment. European forest industry should become an "exporter" of environmental protection technology! With the Nordic "tradition" in environmental policy you can really make a value-added contribution to this. Economic viability and environmental protection are two sides of the same coin. Therefore, future environmental challenges, I believe, can only be met by a strong and competitive industry. Consequently, an appropriate industrial environmental policy relies on:

- best available techniques;
- eco-efficiency; and
- continuous innovation.

5. CONCLUSION

A sustainable forest management is of vital importance economically, ecologically and socially. The enlargement of EU to new candidate countries would just double the forest resources once again. Also, the increased importance of the forestry and forest industries has also been reflected in the European Parliament's so-called "Thomas Report" and the Economic and Social Committee's so-called "Kallio Report". These reports call for a cohesive EU-strategy in the sector of forestry involving thus the forest based industries. The "Thomas Report" requests the Commission to make proposals for the instruments and adequate funding for implementation of three main areas of concern:

- economic utilisation / environmental importance;
- extension of forestry resources; and
- forest protection.

In forest protection the main issues concern forest degradation, erosion, desertification, conserving of the economic and biological value of the forestry heritage, reduction of atmospheric pollution and protection of forests against fire. The Commission should make proposals, together with the Member States, to continue to work actively towards

an international convention on the protection and sustainable management of forests. In order to ensure that the forestry sectors together with forest industries' voice will be heard in the Commission, we have decided to revitalise a so-called Wood Chain Committee. The Wood Chain Committee originally founded in 1983 did concentrate a lot on forestry issues. The intention when revitalising the Wood Chain Committee is to focus much more on the industrial aspects of it. This Committee serves as a common platform for the different sectors within the forest industry and should concentrate mainly, in our opinions, on broad issues affecting the forest industry, e.g. on forest policy, certification, enlargement, energy, transportation, environment. So, forest industry will demand us in the coming years. "We still have a lot to do". In business life you are talking about growing markets or future markets. Applying this terminology on political life I would say: Forest industry policy is a future market in the European Union.

THE NEW POLICY OF SWEDISH FORESTRY: A POLICY TOWARDS PRACTICAL FULFILMENT OF SUSTAINABLE FORESTRY, OR MERELY "THE EMPEROR'S NEW CLOTHES"?

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ABSTRACT

This paper discusses the importance of using a *combined* approach in analysing the politics of implementation: the top-down steering implementation versus the bottom-up response, in order to understand *why* a certain policy is more or less successful. A large number of empirically relevant actors are involved at the level of implementation, which implies that the bottom-up approach is as important, and even more appropriate in policy-areas which involve a multitude of public and private actors. The practical implication for the actual outcome is closely related to the forces and counter forces affecting the forest owners' motivation. An important point to be made is that the implementation process should be regarded as a result of a *multitud*e of structural factors, all affecting the policy outcome. The legal programme is regarded as *one* of the influencing factors, and in the form of a framework legislation it provides both advantages and disadvantages. The Forestry Act of 1993 provided a new, revised policy for Swedish forestry, giving *equal* priority to environmental consideration and high and valuable timber production. The implementation of environmental aspects of forest policies is to a large extent dependent on the professional administrative culture, and in the interaction between multiple-use actors in a policy network it is one of the factors which may *directly* affect the actual outcome and the acceptance of a policy programme. Another outcome of the new policy is the changed balance between the policy instruments. Striving towards deregulation and less state intervention, the new policy relies, to a great extent, on the good-will of the forest owners. Owners must now take greater direct responsibility compared with their earlier role which was merely that of an "executor". The role of the forest owner is now changed to that of a "caretaker", taking the initiative and being responsible for the future state of the forest. What remains to be seen is if this indicates a possible development towards a more pluralistic perception of future forest policy decision-making.

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1. AN APPROACH TO IMPLEMENTING FOREST POLICIES

The variety of attitudes and behavioural values shaping our relation towards the forest, are not just a result of steering-attempts at a political level. Instead, an important starting point in gaining sustainability in forest treatment is to start at the grass-roots level, viewing the forest owners' understanding of the situation and the influencing factors affecting the process of implementation. In this context I define *implementation* as the interaction which arises in the communication between the public authorities and the forest owners.

Today, Swedish forestry is highly influenced by the fact that about 49% of the forests are owned by private non-industrial forest owners. To study individual attitudes and behaviour and the interactive processes at the grass-roots level makes great demands on the approach used for analysing the politics of implementation. Usually this kind of analysis is carried out from a macro-level, a top-down approach, but I argue that a *combined* approach: *top-down steering* versus the *bottom-up response*, is as important in understanding *why* a certain policy is more or less successful (Lundquist 1988, Sabatier 1986, Elmore 1985, Hjern and Porter 1982). A large number of empirically relevant actors are involved at the level of implementation, and this implies that the bottom-up approach is as important, and even more appropriate in policy areas which involve a multitude of public and private actors.

Katarina Eckerberg (1987, pp. 197-198) argues that "steering can be effected both from the top and down, through the bureaucrats and the experts, and from the bottom and up during the implementation process". Furthermore, Eckerberg explains that "the main differences between a top-down and a bottom-up approach is thus whether the emphasis of the empirical work is put on analysing formal or informal implementation structures, and whether the implementation study is carried out in a basically deductive (top-down) or an inductive (bottom-up) manner" (ibid. p.12).

Top-down steering in itself is *not* a central explanatory factor; instead the official policy and the steering mechanisms emanating from it (e.g. legislation), should be regarded as *one* of the factors influencing the behaviour at the level of implementation – and thereby the policy outcome. The practical implication for the actual outcome is thus that the bottom-up approach with its emphasis on *informal* rule-making, starts with the policy problems which are brought on by the participants' every-day experiences. A suitable starting point will then be to ask: which *forces* and *counter forces* affect the forest owners' *motivation* to observe environmental consideration in their forest treatment.

2. GOAL FORMULATION AND VALUE PERCEPTION OVER TIME

To illustrate this point of view, I will use the figure below. It highlights the development of forest-policy in Sweden during the past two decades.

It would be wrong to say that there has been a total change of forest policy in Sweden; it could be described not as a revolution but rather as an *evolution*, emanating from the grass-roots levels. The goal of the former Swedish policy of 1979 (P1) was *production*,

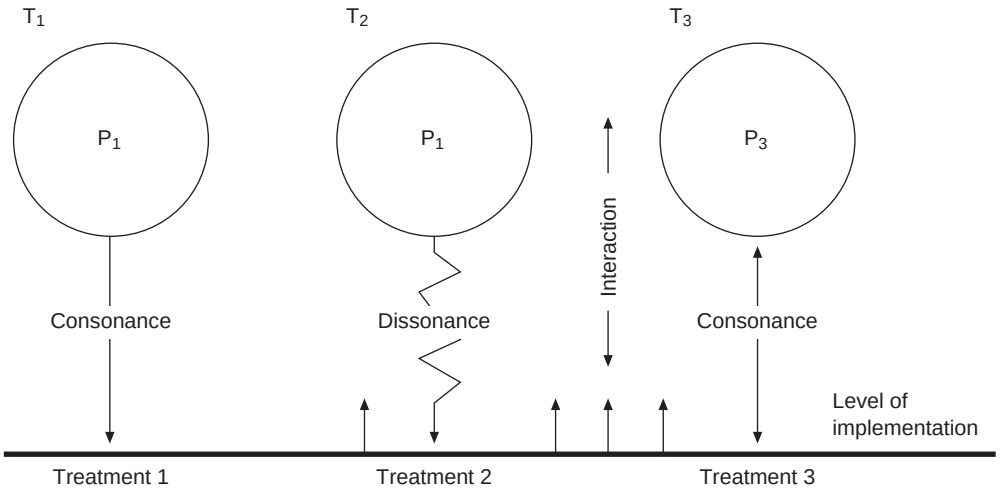

Figure 1. The interaction between the policy level and the level of implementation.

that is, its main objective was economic efficiency. Though environmental consideration was regarded as increasingly important, it was still subordinated to timber production. During this period (T1) there was considerable *state intervention* in forestry; the legal programme was very regulatory and had strong controlling effects on forest management, and also economic incentives were used to force forest owners towards more commercial management. The governmental policy-programme of this period was strongly supported by the industry and the labour unions as it was primarily aimed at private forest owners. The role of the forest owner during this period (Treatment 1) was merely that of an *"executor"*; he had to carry out whatever the authorities decided – a compulsory way of influencing behaviour towards a specific policy goal.

During the 1980s (T2) the forest sector gradually began responding to multiple-use thinking in forest management (Eckerberg 1995, Hytönen 1995). *Information* and *campaigns* to educate the forest professionals, and the forest owners' awareness of environmental protection helped to create an interest in the economic profitability of managing forests in an ecologically sustainable way. Other important influencing factors were of course the changed economic relations in the market, the consumers' demands for "green" products, and the growing pressure from different environmental groups.

The *professional culture* was slowly changing during this period; more specialists, such as biologists and ecologists, entered the previously quite homogeneous forest sector (Eckerberg 1995, Hellström 1996). This revised attitude and change of focus, seems to have started within the forest authorities, spreading along to private companies and public forestry, and in turn affected the outcome of the interactive process between the County Forestry Boards and the forest owners. This change of attitude was reflected in the treatment (Treatment 2) – while the policy (P1) remained the same – and the outcome was a disturbed interaction between the policy-level and the level of implementation.

These strong signals from the grass-roots level reached the political level at the end of the 1980s, and in combination with the growing international awareness of conservation issues (but before the UNCED process), this lead to an evaluation of the former policy: a governmental committee was set up, which resulted in the new Swedish forest policy (T3), manifested in *the Forestry Act of 1993.*

My assumption is that there has been a change in the external forces affecting the forest owners' behaviour, from what I call a *monologue line of action* (T1) towards a *dialogue line of action* (T3). The monologue line of action represents a one-way communication: its prime goal is to steer from above, a persuasion strategy which seeks to affect the target group so that they fulfil a political goal. This kind of steering-model is often economical or carried out by legal sanctions. The dialogue line of action represents a reciprocity, an action involving mutual communicative elements, which ideally, is some sort of influence and consensus.

3. THE LEGAL PROGRAMME AS A PART OF THE POLICY PROCESS

The overriding aim for Swedish forestry today is to maintain sustainability within the framework of multiple-use oriented management. Since the beginning of the 1990s the political view of forestry has changed drastically. We are now facing the challenge of a *nature-conservation oriented* policy which has been globally manifested by the Forest Principles accepted at the UNCED conference in Rio de Janeiro 1992.

At the beginning of this century, Swedish forests had been severely exploited due to new export openings in combination with technical inventions and developed channels of communication. Mismanagement of the forests became a major political issue, and the opinion that state invention was needed gradually grew so strong that it resulted in the first Swedish *Forestry Act of 1903* (which came into force in 1905). The law, which aimed to ensure *re-growth* (preservation), was received with deep mistrust among the farmers, who saw it as a severe interference in their freedom of action.

As the new policy was shaped in the form of a *framework legislation*, with very vague and abstract regulations, it was not very popular at the grass-roots level. It was said that it was so difficult for the farmers to read and interpret the abstract formulations of the law, that they stood in front of it "like a sow contemplating the starry sky". The legislators were quite aware that these *abstract rules* would not have the desired result, and that there must be *a living social organ* which "brought the dead rules into life". For this purpose the *County Forestry Boards* were set up, one in each county council area, their main task was to implement the legal programme of the new policy (Stjernquist 1973, 1997).

As mentioned above, it is important to emphasise that the law is regarded as *one* of many influencing factors in the policy process; *one* possible steering-mechanism. For a Sociologist of Law, a few questions arise at the beginning of such a process, all related to how the programme should be carried out successfully at the level of implementation:

- How are the political openings for introducing legislation created?
- How are the patterns of action for forest owners planned?

- How are these patterns interpreted and made concrete at the administrative level?
- What devices are introduced to motivate the forest owners to follow the programme? (Stjernquist 1973, p. 68)

In his study, Stjernquist (1973) illustrates the importance of regarding the implementation process as a result of a *multitude* of structural factors, all affecting the policy outcome. He points out that the change in the forest owners' behaviour was affected by a number of factors: social and political pressure, technical changes and economic improvement. But the *main reason* why the policy could be carried out so successfully, gaining legitimacy at the level of implementation, was the work and attitudes of the field personnel. Their soft but direct methods of approach were characterised by a give-and-take attitude, negotiation and persuasion rather than distanced legal control and formal procedures. This interpretation was decisive for communicating the *intentions* of the new policy to the individual owners.

The legal programme of 1903 was important in itself, because *firstly* it gave a firm direction for the reform measures, *secondly* it helped legitimise them, and *thirdly* and perhaps the most importantly, it eliminated other alternative solutions in favour of the solution preferred by the politicians. The professional culture at the administrative level is, according to Stjernquist, of the utmost importance for altering motivation and behaviour in accordance with a specific policy. Eckerberg has also shown that the influence of the forest owners' behaviour is almost "exclusively exerted by normative inducements – information, advice and persuasion" (1979, p. 167). Banakar concludes that Stjernquist's investigation demonstrates "the significance of extra-legal knowledge in effective application of *certain* laws, which like the forestry laws are based on a *general programme*" (1997, p. 15).

4. AN EVOLVED AND REVISED IDEOLOGICAL ATTITUDE

The Swedish forest policy of 1979 strongly emphasised *production* as its goal; the main objective was economic efficiency. Though environmental consideration was regarded as increasingly important, it was still subordinated to timber production.

In May 1993, the new forest policy, manifested in the Forestry Act of 1993, was approved by the Parliament, and it came into force in January 1994. The parliamentary committee, which had evaluated the previous forest policy, found that it had been less successful in the area of nature conservation and production of high quality timber. The committee even stated that the previous Forestry Act of 1979 had restricted developments in these respects.

The new policy included one goal for the maintenance of environmental values and another for production, which were considered *equivalent* in the Forestry Act of 1993:

Environmental goal:
The productivity of forest land shall be preserved. Biodiversity and genetic variation in the forests shall be secured. Forests must be managed so that plant and animal species which exist naturally in the forest ecosystem can survive under natural conditions and

in vigorous populations. Endangered species and vegetation types shall be protected. The forests' historical, aesthetic and social values must be defended.

Production goal:
Forests and forest land shall be utilised efficiently aiming at a sustainable and valuable yield. The composition of the forest production must be such, that it has the potential to satisfy different human needs in the future. (Prop. 1992/93:226 p. 27).

For the first time environmental values and high and valuable production are given *equal priority,* implying that they should also be given equal weight in *the practical management* of forest resources. The revised policy is following the recent tendency towards *increased discretion* in the policy process in the Nordic countries, in terms of fewer precise regulations as well as allowing market forces into the multiple use arena of forestry.

5. FRAMEWORK LEGISLATION AS A POLICY INSTRUMENT

These two goals can be achieved by applying different strategies, but the overall guiding strategy is clearly expressed in the new policy: a *multiple use* approach highly regarding the preservation of biodiversity. The importance of formulating goals that are *non-conflicting* and how fundamental this is to the practical implementation of the new policy is especially obvious in the new Forestry Act of 1993, with its framework legislation design (cf. Saastamoinen 1995). Framework legislation (also referred to as open-ended laws) may be defined as *goal-oriented* laws consisting of normative objectives to be realised by officials and administrative personnel. (Banakar 1997 p. 16). What distinguishes this legal regulation from traditional legislation is that it is based on policy declarations, and therefore constructed to achieve certain substantive goals and values in accordance with prevailing ideology.

Handling the complex issues of forestry requires *specific knowledge,* which has shown to be hard to achieve through traditional legislation. Instead, the Swedish solution is to manifest and implement the policy through the instrument of framework legislation. Framework legislation is to be regarded as a goals/means legislation and this indicates that the law in itself loses controlling power. To compensate for this, it is important that the professional bodies at the level of implementation are fully aware of their role in implementing the policy directives. As a consequence, the actual wording of the law can become more vague and based on more generalised guidelines and goals; in practice this makes the legal *interpretation* very much dependent on *attitudes* and professional *competence* among the administrators.

There is yet another risk to be considered at the level of implementation: a law is never applied into legal practice in a vacuum. There is always a multitude of different influencing factors affecting the behaviour and attitudes alongside the legal programme. Decisive for the acceptance of the legal programme is *the normative context* in which it is to be implemented. If there are strong *counter forces* it will be more difficult for a policy instrument like framework legislation to be efficiently put into practice. Even though the framework legislation has a certain legal (i.e. normative) content, it can be

ideologically displaced, given a wider, more extended application. It will also become more sensitive to the influence of non-legislative factors, such as public discussion, dominated by certain interests (see the discussion in Bernt 1985, Esping 1994, Hydén 1984, 1996).

Implementing policy through the legal instrument is always a risky project – there are a multitude of possibilities for failure. One possible pitfall is to believe that the law *in itself* can change behaviour and attitudes. I especially emphasise this aspect in my study: a successful sustainable forest treatment *cannot* be built on blind faith in legal rules and sanctions. Instead it ought to be based on and supported by the commitment and interest of the individual forest owner (cf. Stjernquist 1973). *The behavioural changes* which come about whenever a policy is manifested through a legal programme, are *not* the effect or outcome of the law *alone*, it is rather an effect of an ongoing economic and political process of which the legislation is a part.

The manifestation of overriding often ambiguous environmental goals in framework legislation, do nevertheless have an important function at the political level; certain goals are *pointed out* by manifestation in a law. In the process of implementation this will help legitimise and enable the administrators at the level of implementation to enforce the policy programme. Emmelin (1993, p. 22) emphasises this as he argues that "the laws and regulations define a framework within which the scope for interpretation is considerable".

6. PROFESSIONAL CULTURE

The implementation of environmental aspects of forest policies is to a large extent dependent on *the professional administrative culture*, and on the interaction between multiple-use actors in a policy network (local implementation structure), it is one of the factors which may *directly* affect the actual outcome and acceptance of a policy programme. The professional administrative culture is in this context defined as a culture developed in an organisation that establishes routines that are connected to certain values and attitudes, which in turn affect the application of laws (cf. von der Lippe 1985, Bang 1988, Lundqvist 1996a).

The forest authorities, *the National Board of Forestry* and the eleven (11) (from 1997) *County Forestry Boards* are responsible for the implementation of the environmental as well as the production goals of the new forest policy. Swedish forestry is regulated by the Forestry Act of 1993, but also by other more general legislation, such as the Nature Conservation Act, the Nature Resource Act and the Cultural Heritage Act. As *the balance* between the different policy instruments has been *changed* in the new policy, striving towards deregulation and less state intervention, the policy puts more responsibility on the individual forest owner.

The predominant instrument in modern Swedish environmental policy has been *legal rules*, and it still is, but this dominance has been challenged: there has been a dawning realisation that legal/administrative solutions might not be effectively implemented. An important implication of the new policy is also that *the role* of the individual forest owner has been changed. Due to simplified and less restricted legislation in

combination with fewer subsidies, the owner must now take greater direct responsibility, both from an economic and from a managerial point of view. The new policy wants to see the owner as a "caretaker", taking the initiative and being responsible for the future state of his forest. Therefore, the policy instruments are increasingly put into use to change *attitudes* and *everyday behaviour* towards ecologically more preferable patterns. More stress is now put on *information*: the transference of knowledge and values. *The extension services* carried out by the County Forestry Boards, are also becoming more important.

In accordance to this, *the split role* of the County Forestry Board in its relation to the forest owners, may be the bearer of an implicit conflict; there is a tension as the district officers, on the one hand, are acting in their role as *official* representatives, and on the other hand, in their role as providing *commercial* services in competition with other organisations. As the district officers traditionally have a very friendly, informal relationship with the forest owners, the outcome of this new "two-way" dependence, remains to be seen. Emmelin discusses "the relationship between the administrations' normative role and its function as serving the public" as "a conflict between implementing a policy given to the administration and the expert role of advising on policy or even formulating the problems and agenda" (1993, p. 26).

Due to a restricted state budget the new policy must – to a great extent – rely on *the good will* of the forest owners. In accordance with this, a new policy-instrument has been launched, a sort of voluntary agreement called "*naturvärdsavtal*" between the forest owner and the forest authorities. This agreement states that valuable private forest land can be protected at a lower economic compensation level than is required by the legislation (Bengtsson 1991, 1992, 1993, 1994, Michanek 1996).

The principle of responsibility for the forest environment in combination with a simplified and less restrictive legislation, will also put more stress on the forest authorities. They will be given broader assignments, especially when it comes to the transfer of knowledge and information to help enforce the environmental aspects of the forest policy. In order to meet up to this task, the professional culture among *the County Forestry Boards* has undergone some significant changes increasing their educational level in environmental protection and ecology. Eckerberg states that "the influence of professional culture and attitudes towards multiple-use forestry among implementing agencies and practitioners, play an important role in forest policy decision making" (1995, p. 357).

7. THE EMPEROR'S NEW CLOTHES?

Though the new policy displays a high level of responsiveness to *new* problems: what is important for the actual outcome is how it bridges *the gap* between its ambitious environmental goals and its limited enforcement possibilities.

The political goal has great expectations but its *practical fulfilment* is being *limited*; with each step taken the Emperor is losing another piece of clothing. At *the first step* the political intentions are limited by legislation, especially the rules concerning economic compensation for the preservation of valuable private forest land, but also by the limited

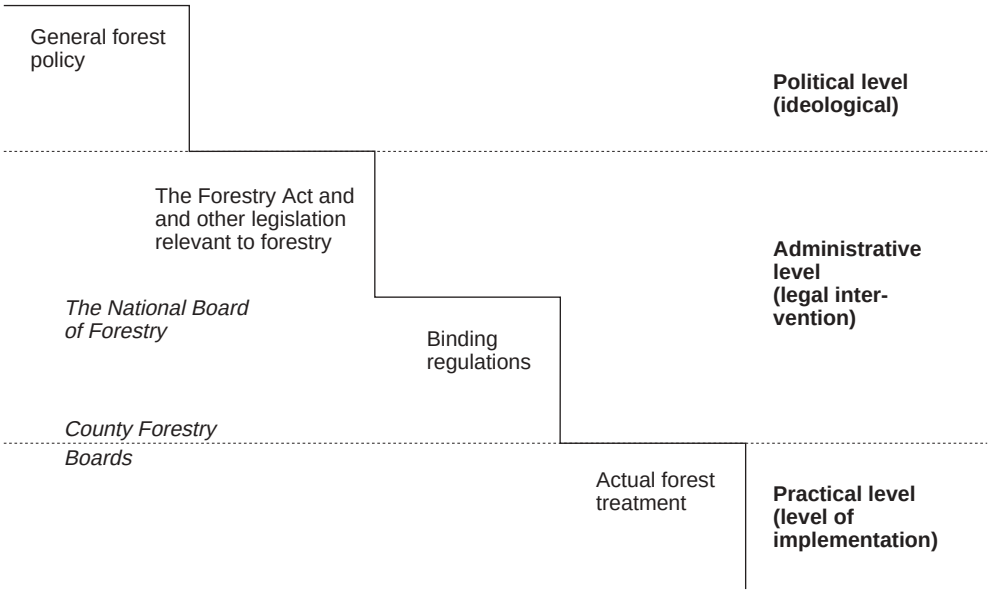

Figure 2. How the general policy goals are transformed, limited and put into practice.

enforcement possibilities of the Forestry Act. The new policy is, to a large extent, relying on the good will of the forest owners. At *the second step* the goals are made concrete and more limited by the binding regulations made out by the National Board of Forestry. As the Forestry Act is a framework legislation, it has to be made practicable. As discussed above, implementing policies through framework laws has its advantages, but it is also, politically, a very risky project. There are a variety of influencing factors – not least the market forces and economic considerations – that can distort the original objectives.

At *the third* and the final step, the local administrative level, the County Forestry Boards are the ones responsible for implementing the forest policy. By tradition in Sweden, there is a very friendly, informal relationship between the County Forestry Boards and the forest owners, built on co-operation, negotiation and mutual understanding. The relationship towards the forest authorities is informal, and they are merely considered as friendly advisers by the forest owners, who can assist them in their disputes or the problems they face with other authorities. This relationship has been criticised by some researchers (e.g. Eckerberg 1987) as a factor which affects negatively the implementation process, while others (e.g. Stjernquist 1973, 1997) see it as a decisive and most necessary condition for a successful implementation.

Even though the political goal of forestry is different from before, it is becoming more and more obvious that there are *two routes* in practice: on the one hand *the general policy route* at the ideological level, with its high standards of environmental consideration. On the other hand there is *the practical route* of actual forest treatment, with limited enforcement possibilities. What actually happens when a "policy meets reality" is quite clearly illustrated in today's Swedish forestry; a political goal starting at a very high intentional level, is bit by bit limited on its way to practical fulfilment.

8. A PLURALISTIC PERSPECTIVE OF FUTURE FOREST POLICY DECISION MAKING

The future development of forest policies is very much dependent on *how* conflicts on the forestry arena are *perceived*; there are three more or less defined approaches towards forestry-related conflicts which Eckerberg (1992, 1994) discusses as a choice between three perspectives:

1. The *consensus* approach (or perspective); characteristic for this approach is that society regards economic and environmental goals as *equally* important; they are seen as compatible. Conflicts emerge only in situations of misunderstanding or divergence. To solve and prevent such conflicts, the society prefers "soft" instruments like information, education and societal integration.
2. The *conflict* approach (or perspective) is characterised by deep explicit conflicts with implicit economic aspects. The society tries to make the conflicts seem less dramatic than they really are, but this only leads to even stronger actions from other groups in society, for example, the NGOs. Conflicts are solved by "hard" methods; i.e., through the use of direct power. Negotiations are seen as a less useful instrument – if used at all.
3. The *pluralistic* approach includes *both* the consensus and the conflict view of the actors on the arena. Legislation and legal programmes are seen as providing important starting points. However, these must reflect and be moulded by the underlying motivation and interests of the actors at the level of implementation. To ensure the relationship between motivation and legislation, informal negotiations between different groups must be considered important for handling conflicts, and different models are provided for institutionalising such negotiations (cf. Eckerberg 1992, 1994, Crowfoot and Wondolleck 1990, Henning and Mangun 1989).

I see Sweden of today responding, by tradition, to a consensus oriented strategy of policy-making, moving towards a more pluralistic approach. For the future politics of forestry-implementation it will become more important to regard *public participation* as a means to sustainable forestry. What is also important is *the attitudes of the professionals* on the forestry arena when it comes to the priorities made regarding the environmental aspects of forestry management. The public discussion, somewhat reflected in the forest legislation of 1993 with its emphasis on negotiations and co-operation, must be followed up with the necessary implementation of environmental issues at all political arenas and levels. A possible step on this way might be the use of *legal framework-programmes* implemented in a decentralised administrative and political culture, designed and put into practice so that they provide a fairly open attitude to *integrate* the interests affected into the policy-making process at all stages and levels.

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HARMONISATION OF FORESTRY LEGISLATION AND STRATEGY FOR FORESTRY SECTOR DEVELOPMENT IN SLOVAKIA

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ABSTRACT

Forests cover 41% of the total area in Slovakia. While applying for full membership in the European Union, Slovakia seeks to harmonise its domestic forestry policy and legislation, as well as the development of its forestry sector to fit within the common framework of the EU countries. During this process, forestry in Slovakia counts on the assistance of foreign experts within the framework of the technical co-operation project of FAO. This paper presents the expected trends and aims of harmonisation and outlines several common problems related to forestry policy in the European countries.

1. BACKGROUND

1.1. Basic information on the forests in Slovakia

Forests in the Slovak Republic cover 1.99 mil ha. which represents almost 41% of the whole territory and classifies the country on the sixth place in Europe according to the percentage of forest cover. Broad-leaved trees cover 57% and conifers 43% of the territory. The most important tree species are beech, 27%, spruce, 27% and oak, 11%. Slovakia has a significant share of mixed semi-natural forests in the temperate climate zone. Of the whole forest area, 15% are forests with protective functions and 17% of forests have special functions.

These facts point out the importance of preservation and correct management of the Slovak forests in the country, as well as on a cross-regional scale, although their indicators of volume and intensity are not very high, as can be seen in the following section.

The total timber volume is approximately 384 mil m^3 in Slovakia, which is 70 m^3 per capita. An ecologically tolerable annual felling rate is approximately 5 mil m^3, that is, almost 1 m^3 per capita, which covers the current inland needs of the country. The gross annual increment is 6.8 m^3/ha per year on an average. The forestry's share (excluding

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forest industry) of the gross domestic product was 1.4% in 1996, and it employed 1.3% of the inhabitants fit for work.

During the last few decades the forests in Slovakia are being exceedingly damaged by anthropogenic injurious agents, mainly by pollution. In 1996 according to results of regular annual monitoring, 86% of the trees were affected or damaged by pollution when evaluated in the scale of 1 to 4 (classification of ICP Forests): 3.5 % of the trees were classified by degrees 3 and 4, which mean endangered forest existence.

1.2. Forestry policy

An important aspect in Slovakian forestry is the returning of forest estates, which before 1990 were used almost exclusively by the state, to their legitimate owners. Almost all larger forest estates have been returned to individual municipalities, associations, churches, and to private persons. Returning of small private forest estates is delayed considerably due to legal and practical problems. Currently, special attention should be paid to the non-state forestry sector within the state administration, with its long over-due reorganisation, considering the insufficient material equipment and often staff, who do not always have sufficient professional training.

The Slovak Republic was born after the division of the former Czech and Slovak Federation, therefore the majority of the Laws were taken over from the previous state – in some cases from the period of economic centralisation before 1990. During that time, the original federal Act of Law of the former Czechoslovak Socialistic Republic of No. 61/1977 on forests, as well as the complementary Act of Law of the Slovak Republic of No. 100/1977 on management in forests and state forest administration, were valid in Slovakia. Both these older Acts of Law have been adjusted to contemporary needs by several amendments during recent years. However, a new Act concerning the forests has not been adapted yet. In its programme the Government has to prepare this Act concerning the forests by the year 1998.

In 1993, the Slovak Parliament approved the “Conception and Principles of the Forestry Policy”, in which a general framework of forestry development in Slovakia was defined. Since then, important changes in forest ownership have occurred and new knowledge has been obtained on methods of forest management under the new social and political conditions. This causes a need to adapt the strategy of the sector development as well as the forestry policy principles.

In August 1996, the Government of the Slovak Republic approved a general “Project of Forestry Development in Slovakia”, which could solve urgent problems within the sector. However, financial sources for efficient application of a general strategy and conception of forestry development do not exist in the country. This is caused, not only by the state budget problems connected with obstacles of economy transformation, but also by problems related to attracting domestic and foreign investors to the projects related to the development of forestry sector. Obtaining investors has not been supported so far by a suitable and sufficiently clear legal and administrative framework, nor has the institutional capacity to identify the priorities, to co-ordinate and check the investment projects of sector development been investigated. There are not enough agents able to formulate the projects attractive to potential investors, in accordance with the forestry development strategy.

In connection with the problems related to the economy in transition, it is not possible to expect a release of sufficient financial resources from the state budget for the forestry sector development in the near future. Therefore gaining out-of-budget sources by attracting convenient investors for various concrete development projects is rather urgent.

2. INTENTIONS OF FURTHER DEVELOPMENT

2.1. Forestry indicators

We do not expect dramatic changes in the basic indicators in the Slovak forests in the near future. This assumption is owing to their relatively satisfying state, as well as to the traditional character of the forestry branch.

We expect that the forest area will gradually increase through afforestation of excessive agricultural lands. The lack of resources to support this kind of afforestation will probably act against a greater increase in the forest area during the period of economic transition. It is expected that an indicator of ecologically sound timber felling (allowable cut), which is an important indication of maximum allowable felling in Slovakia, will slightly increase, also. Together with this development, also real felling, which differs from allowable cut during particular years, will obviously increase on an average.

The Slovak foresters hope that they will succeed in reducing the share of the felling trees damaged by injurious agents, of which wind, snow, bark miners, and mainly pollution are the most important. We would like to see a common European policy regarding these facts to reduce their effects.

2.2. Harmonisation of forestry policy and development of the sector; the future needs

The Slovak Republic has an association agreement with the European Union and is applying for a full membership. For this reason we are starting to update the principles of the forestry policy and prepare a new forestry law. Harmonisation of the conditions will also affect the sphere of investment conditions within the forestry sector. Apart from the domestic professionals, we are counting on the assistance from foreign experts in this work. The FAO Technical Co-operation Project entitled “Assistance in the harmonisation of legislation and strategy for development of forestry sector” (henceforth only Technical Co-operation Project) should provide the framework for assistance to the Slovak forestry. This project should start shortly after its endorsement.

2.2.1. Updating the principles of the forestry policy and the new forestry law

The work on updating the principles of forestry policy and the new forestry law have begun. The Technical Co-operation Project should help in the education of domestic

professionals in the sphere of forestry law and policy on an international level. We are planning a seminar where our professionals and foreign specialists would take part. Short-term appointments of our professionals in foreign countries and their participation in international projects relating to forestry policy, could help in the process of updating the forest policy. The goal is also to involve a wider public within domestic forestry as well as others who are involved in the formulation of these basic forestry materials.

2.2.2. Forestry sector development project

Slovakia has elaborated a general report "Project of Forestry Development in Slovakia". For its applications we need to create the necessary legal conditions to encourage investment into the development of the forestry sector. With the help of the Technical Co-operation Project we want to form an administrative framework, which could stimulate and co-ordinate the project formulation in various regions, and ensure their correspondence with the general principles of the "Project of Forestry Development in Slovakia". A Technical Co-operation project could also be useful for the education of a sufficient number of forestry professionals and specialists in economic and financial analysis, to formulate realistic and concrete projects. The experiences obtained within the framework of the Technical Co-operation Project could help to formulate new projects, which would be attractive to domestic and foreign investors alike.

3. SOME COMMON PROBLEMS OF FORESTRY POLICY IN THE EUROPEAN COUNTRIES

Countries should co-operate in solving problems related to European forestry. A classic example is the question of pollution which contributes to damages in forests regardless of the country borders. There are also other injurious agents, which are common in a great number of countries. In a wider sense, this is a question of the quality of the European environment concerning the whole area of the continent. As forests represent the most important positive aspect of our environment, we believe the foresters should play a prior role in this and not let themselves be pushed back. The future forestry policy of the European countries should reflect this reality even more than it has been doing until today.

Another area where the foresters should proceed in a co-ordinated way, is the question of timber production. As Kuusela (1994) showed, the whole increment of wood is not being felled in the European forests. In connection with the considerable support which is being provided to afforestation of excessive agricultural lands within the European Union, it is possible to expect that this increment of timber will rise in the future. Zaunbauer (1995) formulated the idea that the European Union should not substitute the agricultural surplus by forestry surplus. Several countries with timber over-production, realising this situation, have taken steps by various public relations methods to increase their timber consumption during the recent years. Simultaneously, it is necessary to find other reasons justifying the support of afforestation in the future. Therefore it will be necessary to begin

a discussion on this problem and consequently to formulate the intentions and reasons for afforestation of new plots in the forestry policy again.

We assume that one of the reasons for the improvement for forests in various countries should be, besides the environmental reasons, an appropriate water balance. Foresters know the influence of forests on the water regime and water quality. With respect to this, I think that we still have much to do for the inhabitants of Europe.

4. CONCLUSION

In my paper I have attempted to present the recent important tendencies in the Slovakian forestry policy. I also have tried to point out some problems in European forestry, which need to be addressed in the forestry policy formulation. I hope that the Slovak foresters can contribute to the solution of these questions.

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FOREST POLICY AND ITS WAY INTO MARKET ECONOMY – A HUNGARIAN CASE STUDY

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ABSTRACT

The transition of Hungary´s forest policy to a free-market economy is cobbled with many uncertainties and difficulties. This paper analyses Hungary´s present forestry organization, legislation and the foresters´ attitudes and behaviour and evaluates if they conform to the general principels of a market economy.

In Hungary, an organization to manage the state forests has been developed, of which no similar example in any other European country exists. Based on the political decision to divide strictly between sovereign administration and forest management, the department of finance is the owner of a forest area of approximately 1 mill. ha, while the management of these forests is carried out by 19 joint-stock companies.

The new Hungarian forest law passed parliament on June 18, 1996. It provides for a dense control system, which is not necessarily favourable to the development of a market economy. For example, the new law allows for extensive governmental interventions into private forest management. Thus, the economic framework is unnecessarily burdened by licencing requirements as well as governmental planning activities and regulations.

Problems may arise for private forest owners since there is no administration offering them advice. Currently, most of the restituted forests belong to persons without affinity to agriculture or forestry. This is a result of the abolishment of former rural structures during the period of communism. The best solution to meet the management and consulting requirements of private forest owners might be the joint-stock companies, as they have access to well-educated staff, experience in business management, knowledge of the economic situation, a good relationship to the rural population and a forest service network all over the country.

In the face of all the uncertanties and difficulties, a broad consensus in Hungarian forest policy can only be expected if foresters think and act in accordance with market economy structures.

The future will show what remains of current attempts to establish new structures in Hungarian forestry within a period of political transition.

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1. INTRODUCTION

In the last years market economy systems, ranging between liberalism and a more or less state-planned economy, have been established in the countries of the former Eastern bloc. In Hungary first attempts to change the system of state socialism were made in 1967 with the establishment of the so-called new economic mechanism. This new market mechanism was designed to de-centralize the economy. During the following decades, however, it became evident that it is impossible to achieve economic plurality without political plurality.

The policy of reform and the connected dissolution of the communist system, resulted in a free-market economy, which was introduced in Hungary in 1989. Evidence of change became apparent with the founding of a multi-party system, a pluralistic system of trade unions as well as civil and professional associations. Moreover, the Hungarian state began to restitute formerly private properties.

Within this context the present paper describes changes, difficulties and opportunities Hungarian forest policy has to deal with on its way to market economy in a period of political transition.

2. THE FORESTS IN HUNGARY

The Hungarian forest area is rather small and covers 1.7 mill. ha, which is 18.4 % of the total. Unlike in any other country in Western Europe, the composition of tree species is dominated by deciduous trees (85 %). The predominant trees are oaks (*Quercus petraea*, 23 %; *Quercus cerris*, 11 %), black locust (*Robinia pseudoacacia*, 20 %) and poplars (*Populus* spec, 9 %) (see Figure 1).

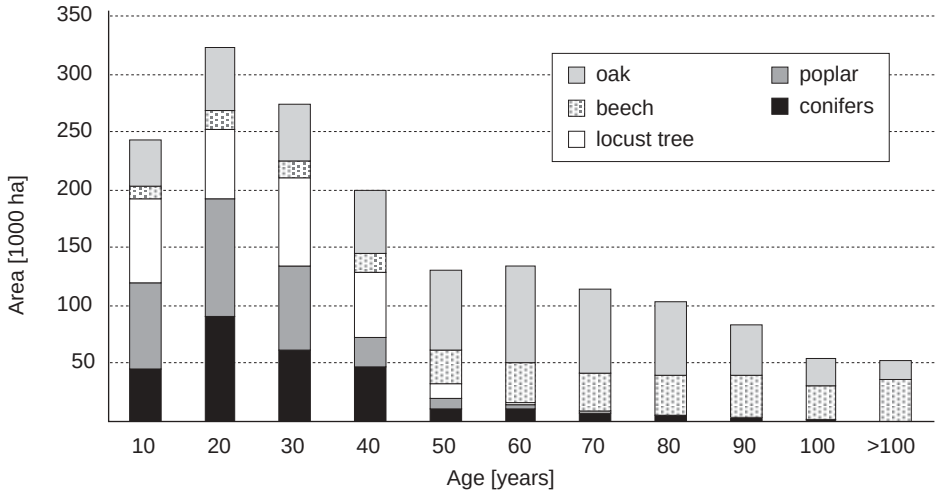

Figure 1. Age-class distribution and share of tree species in hungarian forests

Oak-hornbeam forests and oak forests are the predominant forest types to be found in Hungary, consisting primarily of the species mossy oak. In mixed growth forests, hornbeam, lime tree as well as elm can be found. Because of the low precipitation, beech forests are found on only 7 % of the country´s area. Conifers are found naturally only in the western part of the country. Approximately one third of the country´s forest consists of black locust. The locust was introduced over a hundred years ago from North America because of its ability to survive relatively dry climates.

After World War I, Hungary lost 84 % of its forests. Between 1920 und 1995 arable and agricultural land has been afforested on approximately 68 900 ha. Thus the younger age-classes are well represented in Hungarian forests. As the preferred tree species for afforestation are locust trees, poplars and conifers, there is a higher percentage of these species in younger age-classes (all figures, Baratossy et al. 1996).

3. FOREST POLICY ISSUES

Forest policy concerns are mainly affected by forest administration, forest law, forest property and attitudes and behaviour of foresters.

3.1 Forest Organization

The Hungarian forest administration is subjected to directives of the Ministry of Agriculture. Within the Ministry the forestry office is fulfilling tasks of management, administration and controlling. Actually, a total of 550 staff members work in the Hungarian forest administration.

The forest office of the ministry is responsible for sovereign as well as administrative and national economic objectives, together with the implementation of sustainable forest management. The management criteria are specified in forest management plans and controlled by the forest authorities. Furthermore, the responsibility of the forest office includes forest protection, forest improvement and national and international forest policy.

A total of 10 forest inspectorates, distributed all over the country, looks after the sovereign forest interests. These authorities are autonomous legal offices with regional authorization, directly subjected to the directives of the Ministry of Agriculture. For all interventions in the private or state-owned forests, approval of the forest supervisory authorities is requested.

The forest organization becomes efficient in the management of the state forest, the fulfillment of the forest law as well as the consultation, supervision and promotion of private forest property.

3.1.1 State Forest

In Hungary, an organization to manage the state forests has been developed, of which no similar example in any other European country exists. Based on the political decision to

divide strictly between sovereign administration and forest management, the department of finance is the owner of a forest area of approximately 1 mill. ha, while the management of these forests is carried out by 19 joint-stock companies. The joint-stock companies are directed by the APV, a privatization company similar to the *Treuhand* in Germany. The APV owns the means of production, e.g. the growing stock and the infrastructure, not including the forest land. A comparison of the joint-stock companies with other forms to administrate the state forests reveals a couple of advantages.

Due to the exclusion of forest management, the national administration is released of the well-known difficulties, which seem unavoidable in a national administration. Examples might be the personnel policy and the adaption to the prevailing market system. Furthermore, the private enterprise nature of the joint-stock companies should result in higher cost consciousness and greater orientation towards increasing profits, ensuring the economic success of the businesses. Targets of a exemplary, sustainable forest management and a consideration of nature conservation and landscape management do not have to be neglected if they are commited by society needs.

The manageable size of each of the joint-stock companies (on average 50 000 ha) and the ensuing internal flexibility enables the management to better use modern management techniques and to run their own wood-processing plants. Losses due to friction could be kept within limits since the areas covered by the joint-stock companies correspond to those formerly covered by state-owned forest enterprises. Moreover, the management is enabled to be in contact with local economic processes and to develop the responsibility which benefits true leadership. This ensures a certain positive continuity.

As a result, an advantageous position is gained in the market. However, to ensure operating joint-stock companies some preconditions have to be fulfilled. Thus for example the positions of the forest owners have to be reconciled with the joint-stock companies.

3.1.2 Forest law

The new Hungarian forest law passed parliament on June 18, 1996. It provides for a dense control system, which is not necessarily favourable for the development of a market economy in Hungarian forestry. This is due to the fact that the new law allows for extensive governmental interventions into private forest management. Thus, many aspects of the law retain the principles of an economy which is controlled centrally by the government. The economic framework is unnecessarily burdened by licence requirements as well as governmental planning activities.

The authors of the law report that the situation in private forestry and the attitude and responsibility of the new forest owners cannot be compared with conditions in Western countries. Therefore, far-reaching official intervention is necessary to ensure an appropriate, sustainable forest management of private forest properties. This objection should be taken seriously, because at present there are 200 000 private forest owners managing a total forest area of about 700 000 ha. They still lack a powerful association of forest owners (see chapter 3.1.3).

However, it would have been possible to eliminate some of the regulations without endangering an appropriate, sustainable forest management.

The state admistrations are e.g. granted considerable freedom to impose binding plans and strict guidelines. This is unparallelled in the Western countries. Moreover, the state-run joint-stock companies are subject to extensive licencing procedures which creates a double workload for highly qualified, state employed forestry officials. Willing forest owners who provide orderly forest management or the proof that they employ skilled workers have less possibilities to gain influence in the decision-making in their enterprises due to extensive restrictions on the allotment of licences by forest authorities with regard to private forests.

A forest law is a particularly important aspect in a free-market economy since forest economy is a perfect example that it is possible to put free-market economy into practice within a socially acceptable, humane and ecological framework. However, the forest law as a framework to establish political order should not provide the state with the legal handle to intervene in economic processes, impose strict guidelines on enterprises and justify a far-reaching influence of the administration. In accordance with the goals of a free-market economy a legal framework has the task of creating harmony, as far as possible, between the interests of private enterprises and those of society.

In the years to come, the application of the forest law will show whether the present formulations can be retained, and whether private forest owners will be able to avoid the strict regulations in order to be more successful economically. In the next years, experts on the issue will have to work out an agreement with regard to the implementation of the new forest law.

3.1.3 Private Forest Property

In the 20th century significant changes occured with regard to the distribution of property in Hungarian forests. In 1938, only 5 % of the total forest area were covered by state forests, whereas 89 % of the forest area were managed by private owners of small and large forest properties (Table 1).

During the reform of the agricultural system in 1946, the large areas of former private forest and the ecclesiastical forests were nationalized. Thus, the percentage of state-owned forest was increased to 70 %. Furthermore, during the sixties the former private and community forests passed into collective ownership, which resulted in an increase to 29 % of cooperative forests . In the same period, private forest property was reduced to 1 % of the total forest area. Before the political changes in 1990, 68 % of the forest area was state-owned, 31 % was cooperative property and 1 % was owned privately.

Since the political transition, approximately 700 000 ha of the forest area was restituted to their former private owners. A large part of this area (approximately 500 000 ha) was taken from cooperative forests, only a small part (approximately 200 000 ha) from state forests. As Hungarian private forest owners are not entitled to claim the total restitution of their former property, the formation of large-scale private property is prevented.

The planned property structure is composed of 55 % state forest, 1 % community forest and 44 % private forest. The transition in ownership of all areas which are to be restituted will probably take place within the next 4 to 5 years. The extension of the properties is expected to be 2-3 ha on average in private forests (45 000 owners), 4 ha

Table 1. Development of the forest property division since 1938

	1938		1946		1985		1990	
	ha	%	ha	%	ha	%	ha	%
State Forests	54864	5	826277	70	1170200	70	1170900	69
Community Forests	67474	6	24952	2	-	-	-	30
Common Forest Properties	144744	12	155005	13	484800	29	516800	-
Others	397189	33	11055	1	-	-	-	-
Private Forests	523428	44	170411	14	10100	1	9000	1
Total	1187699	100	1187699	100	1665100	100	1696700	100

in common properties (5 000 units) and 23 ha in areas with corporative forest management (25 000 units).

In connection with private forestry, organizational questions arise mainly with respect to forest sovereignity, consultation, supervision and improvement.

The forest sovereignity in private forestry is guaranteed by forest inspectorates (see 1.2.1). With regard to the criteria of stability and continuity, and in the view of many years of experience and contacts, this seems to be favourable. However, discrepancies could arise due to the fact that the forest inspectorates are responsible for the enforcement of the forest law in private forests as well as in the state forests (see chapter 1.2.2).

So far, there is no organization to give advice to and supervise private forest owners. One of the main objectives in the future will be the establishment of an organization of this kind. Problems arise as a consequence of the abolishment of former rural structures of communism. Currently, most of the restituted forests belong to persons without affinity to agriculture or forestry. Those new forest owners therefore might frequently lack the certain sensitivity to the ecological and economical demands of forests and forestry.

There are several possibilities to organize consultation for private forest owners. For example, the forest inspectorates could take over the task of consulting private forest owners, or joint-stock companies could provide their staff of trained foresters to fulfil this function. Furthermore, a new institution with a staff of foresters could be established and entrusted with e.g. the tasks of consultation. Another solution could be the intervention of private forest engineers. Finally, a combination of all these possibilities could be elaborated.

A total integration of this advisory and supervisiory committee into the governmental forestry board does not seem advisable. Despite the fact that forest inspectorates have all the advantages of a functional organization, including manifold connections to private forest owners, it could be predicted that due to a lack of economic structures these authorities could consider private forests rather as objects of governmental administration than as profit-making enterprises.

On the other hand, private forest engineers presumably do not have the scope of influence and authority comparable to that of a large institution.

The best possibility to meet the management and consulting requirements in private forests might be the joint-stock companies. They have access to well-educated staff, experience in business management, knowledge of the economic situation, a good relationship to the rural population and a forest service network all over the country. Due to the above-mentioned subdivison of the business into a production and a service section, the costs which are created in public service can be itemized in terms of book-keeping.

Consequently, state-legitimized consultation contracts with the jont-stock companies, which leave room for the authorities to make corrections or to establish new goals, could be a possibility to ensure the consultation of private forest owners. Controls are unavoidable, especially when the supervision is linked with financial support for certain measures taken in the forest. For reasons of economy and greatest possible flexibility, the contract should be designed by the respective *local* forest inspection authority. Contracts with other institutions or persons should also be considered, especially in case of long distances between the place where consultation is needed and the joint-stock company.

The establishment of associations of forest owners and the selection of regional forest owner representatives could be conducive to a successful realization of the consultation and supervision of private forest owners. Due to their collaboration in decision-making processes, they could limit the government´s influence on the private sector and could help to integrate the activities of the private enterprises into a market economy system. Furthermore, regional forest owner representatives could influence the owners attitudes and behaviour towards the administrative institution if the latter´s activities are accepted by the associations of forest owners.

However, the essential requirement for sustainable private forestry is the development of a fundamental attitude of understanding for the forest. Beside the advisory and supervisory comittee, a quick restitution of the proprietary rights of the privatized agricultural and forest properties is necessary.

3.2 Staff policy

In connection with the reorganization of Hungarian forestry, and in view of the basic principles of a market economy, staff policy has become very important.

On one hand, within the state-run forest management the number of permanent staff has been decreased considerably. Due to the foundation of joint-stock companies the number of employees has been reduced from 40.000 to 12.000. At present, some of the dismissed employees manage to get by as entrepreneurs with the former state owned albeit obsolete, machines. But there are no exact figures concerning the rest of the former staff.

On the other hand, a free-market economy and meaningful actions within this framework can only be realized if influential parties understand, adopt and translate into action the central principles of market economy. A broad consensus on the proper Hungarian forest policy cannot be expected as long as foresters do not think and act according to the principles of free-market economy. Possibilities to accelerate this

process would be given by the establishment of a representative body for employers, employees and owners respectively. Especially the conditions and tasks of the professional associations need to be clarified in this context. Young Hungarian foresters should be given the opportunity to gather experiences in private forest enterprises in neighbouring countries, in which the private forest enterprises are organized according to the principles of business management. In order to finance these additional training periods abroad, the respective joint-stock companies could be required to contribute a part of their profits to a fund which is used for this purpose.

4. CONCLUSION

Hungary, which is mainly situated in the Carpathian basin, covers approximately 93 000 square km. The population amounts to 10.3 million, which corresponds to 118 inhabitants per square km. Hungary lies in temperate climatic zone, thus the greater part of the country is lowland with little precipitation. Only a tenth of the country is situated over four hundred meters above sea level.

In the current situation the Hungarian state can be described as an industrial country with a social market economy. Due to its rural structures and the significance of agriculture there is a relatively low annual income of USD 3 400 per capita. However, the low income rate should not hide the fact that the bad economic conditions at the beginning of the year 1989 were improved considerably in the last years. In 1989, the national debt amounted to 160 % of the annual export volume, while in 1996 it amounted to 75 % or 1.7 billion $. Improved economic conditions and a significant increase in export were conducive to this development. The positive economic development manifests itself in the fact that in recent years, Hungary had to take on lower new debts and thus managed to decrease its total national debt. In 1996, Hungary´s debts nearly reached conformity with Maastricht criteria. The new debts amounted to 3.3 % and the total national debt to 66 % of the gross national income (Maastricht criteria 3 % and 60 %) (Weyer 1997).

Hungarian economy is slowly approaching the price relations and price niveau of the world market. It can be expected that in the next years Hungary will fulfil the economic criteria which are the conditions of EU membership. Considering further the positive signals and optimistic hints given by the Western industrial nations, one can expect that Hungary will soon be integrated as a full member into the Western conferderation of states. Within that rapid development Hungary´s forestry struggles for its place.

From the point of view of forest policy, the developments of three fields are of particular importance: Forest organization, forest legislation and the behaviour of foresters.

Forest organization becomes effective in connection with the management of state forests, the implementation of the forest law and the consultation and supervision, as well as the support of private forest. Forest sovereignty in state and private forests is guaranteed by 10 forest inspectorates,which are distributed all over the country.

Of particular significance for the future management of Hungary's state forests is the political decision to separate strictly between state-run management and sovereign administration. In Hungary the management of the state forest is carried out by 19 joint-stock companies, which are steered by a privatization society.

In connection with private forest management it would be desirable to accelerate the change in ownership of privatized agricultural and forestry properties. Furthermore, there is no advisory and supervisory organization for the private forest. The establishment of such an organization will be one of the main tasks in the future.

The new Hungarian forest law passed in parliament on June 18, 1996, provides for a dense control system which is not necessarily favourable to the development of a free-market economy in Hungarian forestry. The new law allows for extensive government intervention in private forest management. The central goal in the next years will be an organized collaboration of experts to coordinate the implementation of the new forest law with ecological and economical objectives.

Due to the restructuring of Hungarian forestry, staff policy has become very important since a basic free-market can only be realized if the personnel involved understands and identifies itself with the basic assumptions of a free-market economy, and also put them into practice.

With regard to timber production, the forst management plan, the forest fund and the afforestation programme offer interesting insights into Hungarian forestry.

The forest management plan is the most important device of forest administration. The plan is drawn up by the board of forest management in the Ministry of Agriculture for a period of ten years. For the last decades, Hungarian forest management has been run according to the forest management plans.

At present, Hungary does not have modern wood processing industry. This is the reason why exports exceed imports. Higher yields could be achieved if modern wood processing industry could be successfully established in Hungary.

Another characteristic of Hungarian forestry is the forest conservation fund which serves to finance measures of forest regeneration. Should this instrument be successfully established and possibly extended beyond the preservation of forests to other fields, it could contribute significantly to the formation of a sensitivity to forest-related issues among forest owners.

The Hungarian state makes efforts to raise the relatively low percentage (currently 18 %) of forested area through intense afforestation measures. However, due to the slow formation of the new structure of forest ownership, the afforestation project is not meeting its goals.

Interest in the future development of Hungarian forests and forestry certainly extends beyond the country itself. The future will show what remains of current attempts to establish new structures in Hungarian forestry within a period of political transition.

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FOREST POLICY IN PORTUGAL: MAIN ISSUES AT STAKE

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ABSTRACT

This paper analyses forest policy in Portugal since 1981, especially the afforestation programmes and the Forest Policy Law voted by unanimity in the Parliament in 1996. This is a frame law waiting to be translated into specific application decrees, the major issues at stake being the following: design of a permanent public fund to finance sustainable forestry, measures to improve the protection of forest resources, forest management plans for sustainable forestry, collective organisation of the private forest owners, management of the communal forests, future role for the regional Forest Services, co-ordination of the public authorities dealing with the forest sector and participation of the industry, the forest owners and other stakeholders in the forest policy making process.

1. ECONOMIC IMPORTANCE OF THE FOREST SECTOR

1.1. The facts: an important but heterogeneous sector

The forest cluster (forestry, forest industries and related industries and services) has a great importance in the Portuguese economy:

- with 2.6 % of the GDP and 5.3 % of the workforce, it is one of the top three clusters in terms of value added and employment, together with textile and clothing industries, agriculture and food industries;
- with 12 % of the exports, it is the second major exporting cluster.

Being important in the aggregate, the Portuguese forest sector has a heterogeneous structure which makes difficult to co-ordinate public policy in this sector.

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1. The Portuguese forest sector has been developed around three key forest products very different from each other in terms of the market structure: pine wood and the woodworking industries (sawmilling, carpentry, panels and furniture); pulpwood and the related pulp, paper and board industries; cork production and the cork industries.
2. There are also important differences between these three components in terms of ownership structure and forest management.
3. Finally, within each segment of the forest industries there are substantial differences in terms of business structure:

   · small and medium-sized firms in sawmilling, carpentry, furniture, preparation and transformation of cork, manufacturing of paper and board products;
   · big firms in the pulp, paper and panel industries.

1.2. The issues and the public policy responses

1.2.1. Public and political awareness

Given the economic importance of the forest sector, does it get sufficient recognition in the public opinion and in the policy making process? It is fair to say that the public

Table 1. Gross value added of the forest sector in 1993 (millions of escudos)[1]

Activities	Value added
Forestry	92 468
• Roundwood	30 143
• Pulpwood	29 526
• Cork	18 774
• Non wood products	13 925
Gaming	13 140
Sawmill industry	27 626
Carpentry	19 370
Plywood industry	1 867
Particleboard industry	7 541
Furniture industry	86 239
Handicrafts of wood and cork	488
Woodworking machinery	5 180
Cork industries	38 294
Pulp industry	24 284
Paper industry	19 363
Paper and board packing products	15 437
Resin products	5 596
Shipbuilding (wooden boats)	941
Total	357 834
GDP at market prices	13 674 983

[1] Tables 1 and 2 are based on the CESE report (CESE, 1996). For some activities these estimations differ substantially from official data.

opinion in Portugal does not have a correct sense of the economic importance of the forest sector. The situation is quite similar among politicians. Forestry has been, and continues to be, a department within the Ministry of Agriculture, often neglected or underestimated in comparison to agriculture and other economic activities.

Recently, however, the forest sector is coming up to the political agenda: it was elected as one of the priorities in the economic programme of the current government and last year the Parliament voted by unanimity a Forest Policy Law.

1.2.2. Co-ordination and public participation in forest policy making

Since the forest cluster has such a heterogeneous structure, does the forest policy making process have an organised framework to ensure the co-ordination of the

Table 2. Workforce in the forest sector in 1993/95

Activities	Workforce
Logging	10 000
Cork extraction	4 000
Resin extraction	2 000
Forestry contractors	3 750
Wood transportation	2 300
Forest nurseries	1 000
Game production and management	8 000
Import and export of roundwood	770
Sawmill industry	17 800
Carpentry	14 576
Panel industry	2 000
Furniture industry	76 116
Handicrafts of cork and wood	1 000
Woodworking machinery	2 349
Furniture wholesaling	3 692
Furniture retailing	31 834
Resin industry	2 000
Cork preparation	1 800
Cork stoppers	14 000
Cork agglomerates	3 400
Corkworking machinery	158
Pulp industry	5 224
Paper and board industry	4 897
Manufacturing of paper and board packing products	5 440
Forest related services (Forest Services, other public services, fire fighting , education, research, associations)	5 288
Total workforce int the forest sector:	223 394
· Forestry, gaming and related services	21 050
· Forest industries and related services	197 056
· Other services	5 288
Total workforce (all sectors)	4 255 000

Table 3. Foreign trade in forest products in 1994

Products	Exports		Imports	
	10^6 esc.	% total	10^6 esc.	% total
1. Fuelwood	129	0.0	94	0.0
2. Roundwood	5 318	0.2	25 743	0.6
3. Sawnwood	13 890	0.5	10 701	0.2
4. Other wood products	11 104	0.4	6 047	0.1
5. Wood chips	390	0.0	1 225	0.0
6. Plywood and panels	29 822	1.0	8 200	0.2
7. Pulp	84 281	2.8	7 441	0.2
8. Paper, board and paperboard prod.	77 133	2.6	81 175	1.8
9. Furniture	32 177	1.1	18 820	0.4
10. Cork	5 932	0.2	5 559	0.1
11. Cork products	90 943	3.1	2 322	0.1
12. Honey	162	0.0	67	0.0
13. Resin products	5 679	0.2	1 364	0.0
14. Chestnuts and other forest fruits	2 957	0.1	168	0.0
15. Mushrooms	355	0.0	8	0.0
16. Total (forest products)	354 954	11.9	143 167	3.2
17. Total (all sectors)	2 975 468	100.0	4 479 491	100.0

Sources: INE: Estatísticas do Comércio Internacional, 1994; Estatísticas Agrícolas, 1994.

different sectoral policies relevant for forest development and to promote the participation of the different stakeholders involved? The answer to this question is no. The natural result is inconsistency between these policies, lack of integration and loss of complementarities. An important move to overcome this problem was brought recently by the Forest Policy Law of 1996. First, in its article 12, the law says that there is going to be a public service invested as the National Forest Authority, with the responsibility for the preparation and implementation of a national forest policy. The Directorate General of Forestry (DGF) is supposed to assume this responsibility and a tentative text for the decree regulating this matter is up for public discussion.

In its article 13, the Forest Policy Law states that, in order to improve the co-ordination of public policies relevant for forest development, there is going to be an Interministerial Commission for Forest Affairs presided by the Minister of Agriculture. The decree regulating this commission which is ready for approval by the Government says that it will include representatives of the following ministries: Finances, Internal Affairs, Equipment, Planning and Territorial Administration, Economy and Environment.

To promote participation in public policy making, the Forest Policy Law creates a Forest Consultative Council to assist the Ministry of Agriculture and the Government in this matter. This council will include representatives of the forest owners' associations, forest industries, contractors, environmental groups, forest educational and research institutions, etc.

2. FOREST OWNERSHIP AND FOREST MANAGEMENT

2.1. The facts

2.1.1. Ownership structure

In 1995, the area of forest lands in Continental Portugal (whole Portugal, except the islands of Açores and Madeira) was 3306100 ha, which is 37.2 % of the total land area. The major species are maritime pine (31 %), cork oak (22 %) and eucalyptus (21 %). 85.7 % of forest lands are under private management, the rest being almost entirely communal forests managed by the Forest Services. Behind each of the three major species can be found the four major stakeholders concerned with forestry in Portugal:

- the Forest Services managing about 1/4 of the pine forests, mostly in communal lands;
- the non-industrial private forest (NIPF) owners of North and Central Portugal, typically with small sized holdings, managing the other 3/4 of the pine forests;
- the pulp industry managing about 1/3 of the eucalyptus forests, the other 2/3 being with non-industrial private forest owners and in communal forests;
- the non-industrial private owners of the cork oak forests in the South with much larger holdings than the ones in Northern and Central Portugal.

  Data in Table 6 show the se contrasting structures between the North and the South:
- in the North, even though forest lands are usually part of farm holdings, they are not used for agricultural purposes, whereas in Alentejo most of the forest lands are part of an agro-forestry system including also agricultural crops (wheat) and livestock;
- in the North, almost 50 % of the forest lands with forest use only belong to holdings having 5 ha of agricultural land or less, and between 1.5 and 2 ha of forest land;
- in Alentejo, 93.3 % of the forest lands with agro-forestry use belong to holdings having more than 50 ha of agricultural land, and 175.5 ha of forest land on average.

The communal forests are more important in the North than in the rest of the country: in the North they represent 44.2 % of the forest lands, while in the other regions the percentage is 5.6%.

2.1.2. Forest managers

2.1.2.1. Communal forests

Communal forests are an example of “common property”: the resource has physical and social bounds and it is managed according to formal and informal rules by a well-defined group of users who are all the members of the local community which owns the

Table 4. Trends in forest lands in Continental Portugal since 1902

Species	1902	1920	1929	1939	1965/74	1982	1992	1995
Maritime pine	430200	900000	1132000	1161000	1293890	1306400	1047000	1029200
Cork oak	366002	500000	560000	690000	652540	664000	687000	720700
Holm oak	416670	400000	380000	360000	533580	464700	464700	475700
Eucalyptus	–	–	–	–	213910	385800	529000	695100
Oak	47011	108000	108000	108000	42500	112100	112100	134000
Chestnut	83988	84000	85000	80000	29730	31100	37900	40900
Others	612574	66000	67000	68000	187520	198200	198200	210400
Forest lands	1956445	2058000	2332000	2467000	2953670	3162300	3075900	3306100
Agricultural lands	3111317	3229000	3283000	3380000	4834002		3821317	2973600
Land area	8879033	8879033	8879033	8879033	8879033	8879033	8879033	8879033
Forest cover rate	22.0 %	23.2 %	26.3 %	27.8 %	33.3 %	35.6 %	34.6 %	37.2 %

Sources: CESE (1996) and DGF (1997b).

Table 5. Forest lands by types of management and by coniferous and broadleaved species in 1991/93 (1000 ha)

	Total		Coniferous species		Eucalyptus		Cork Oak		Other		Total	
	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
Public forests	86	2.6	71	5.2	0	0.0	0	0.0	15	2.2	15	0.8
Communal forests	380	11.7	360	26.5	20	3.8	0	0.0	0	0.0	20	1.1
NIPF	2 497	76.9	899	66.1	319	60.3	621	90.4	658	97.8	1 598	84.6
Industrial forests	246	7.6	30	2.2	190	35.9	26	3.8	0	0.0	216	11.4
Others	40	1.2	0	0.0	0	0.0	40	5.8	0	0.0	40	2.1
Total	3 249	100.0	1 360	100.0	529	100.0	687	100.0	673	100.0	1 889	100.0

Sources: own estimations based on data from the Forest Services and the pulp industry

Table 6. Distribution of private forest lands by size of agricultural holdings in 1993

Classes of agricultural area (ha)		Forests with agro-forestry use				Forests without agro-forestry use			
		Holdings		Forest lands		Holdings		Forest lands	
		Number	%	ha	%	Number	%	ha	%
Continental Portubal	under 1	172	1.1	63	0.0	40 516	17.7	54 738	6.3
	1-5	3 615	23.6	3 866	0.4	141 775	61.8	326 340	37.6
	5-20	4 431	29.0	21 148	2.4	38 912	17.0	197 996	22.8
	20-50	2 371	15.5	39 188	4.4	5 763	2.5	70 725	8.2
	over 50	4 703	30.8	834 812	92.9	2 520	1.1	217 535	25.1
	Total	15 292	100.0	899 077	100.0	229 486	100.0	867 334	100.0
North	under 1	30	0.8	8	0.0	13 638	14.4	14101	5.9
	1-5	1 590	44.0	1 147	4.1	57658	60.8	103 336	43.1
	5-20	1 454	40.2	2 643	9.5	20 218	21.3	73 353	30.6
	20-50	379	10.5	2 096	7.5	2 801	3.0	23 145	9.6
	over 50	161	4.5	21 891	78.8	516	0.5	26 110	10.9
	Total	3 614	100.0	27 785	100.0	94 831	100.0	240 045	100.0
Alentejo	under 1	64	0.7	45	0.0	252	7.2	4 432	5.3
	1-5	1 325	14.5	1 789	0.2	1 018	29.1	3 598	4.3
	5-20	2 257	24.8	15 919	2.2	948	27.1	10 236	12.2
	20-50	1 546	17.0	31 814	4.3	470	13.4	5 153	6.2
	over 50	3 920	43.0	688 010	93.3	811	23.2	60 403	72.1
	Total	9 112	100.0	737 577	100.0	3 499	100.0	83 822	100.0

Source: INE. Inquérito à Estrutura das Explorações Agrícolas 1993.

Table 7. Ownership of forest lands in 1995. Total land area; private forest lands and forests managed by the Forest Service

Regions	Total area	private forest lands		Public forests		Communal forests	
Northwest	340 700 ha	254 476 ha	74.7 %	143 ha	0.0 %	86 081 ha	25.3 %
Northeast	292 500 ha	98 708 ha	33.8 %	0 ha	0.0 %	193 792 ha	66.2 %
North	633 200 ha	353 184 ha	55.8 %	143 ha	0.0 %	279 873 ha	44.2 %
Others	2 672 900 ha	2 450 594 ha	91.7 %	71 748 ha	2.7 %	150 558 ha	5.6 %
Total	3 306 100 ha	2 803 778 ha	84.8 %	71 891 ha	2.2 %	430 431 ha	13.0 %

Sources: INE. Estatísticas Agrícolas 1995; DGF (1997b).

communal forest. To make decisions about the use of the commons ("baldios"), they meet in assembly, called the Assembly of Commoners ("Assembleia de Compartes"). The decisions are taken by majority rule and are implemented by a Directive Council elected by the commoners.

The legislation regulating the communal lands is the Law 68/93 of September 4, 1993, which replaced previous legislation, essentially the Decree 39/76 of January 19, 1976. Two major features of this law are the following:

- the village councils ("Juntas de Freguesia")[2] can take up the management of communal forests if this is decided by the Assembly of the Commoners;
- it becomes legally possible to sell communal lands if it is for reasons of public interest, especially those related to urban and industrial development (expansion of urban areas, creation of industrial zones, etc.).

This law facilitates a greater intervention of the local governments in the commons either by taking up the responsibility of forest management on behalf of the Assembly of Commoners, or by alienating these lands for non-forestry uses.

Forest management operations can be conducted directly by the Directive Council representing the commoners, or by the village council. The alternative regime, which is used much more frequently, is to delegate this responsibility to the Forest Services. In this case, the Forest Services have the right to keep 40 % of the revenues of the plantations they have installed, and 20 % of the revenues of the forests existing when they took up the management.

If the Assembly of Commoners manages the forests, they can still appeal to the Forest Services to take charge of afforestation and reforestation projects in which case the Forest Services will keep 20 % of the forest revenues.

The rural abandonment, the type of afforestation done by the Forest Services incompatible with the traditional sylvo-pastoral systems and the transfer of management responsibilities from the local communities to the village councils and the Forest Services eroded the secular bonds involving the local communities in the active agro-forestry use of their communal lands.

After a strong posture in the first decades of afforestation of the commons, the capacity of the Forest Services, in terms of financial and human resources, began to decline. This process culminated recently with the integration of the regional Forest Services in the regional agricultural services, loosing the autonomy they had managed to preserve for a long time. With this integration, the regional Forest Services are loosing not only a great deal of their autonomy, but also the management of the state and the communal forests which has been their major task for the last five decades.

To take over the management of these forests, the Ministry of Agriculture is going to create a public company specialised in forest management, without some of the constraints of the old Forest Services (less personnel, human resource management rules similar to the ones in the private sector, financing less dependent on transfers from the State Budget, possibilities to appeal to the financial markets and to do outsourcing to forest contractors, etc.).

[2] This is the lowest geographical level of elected local governments in Portugal.

2.1.2.2. Non-industrial private forests

2.1.2.2.1. Northern and Central Portugal

Non-industrial private forest owners in North and Central Portugal are mostly of the following types:

- small private owners who, in many cases, are small part-time or aged farmers still living near their forests;
- larger private owners usually living in the city with their lands leased out to tenants or left under-utilised.

In the past, forest lands were a necessary complement to agriculture because they provided pasture to feed the livestock and brushwood which after being used as bedding for animals was turned into manure to fertilise the land. The forests were also a free source of fuelwood and non-wood products indispensable for the subsistence of the local communities. Thus the forest lands were actively used and were managed free of charge for their owners.

Currently things are different. Modern farming uses industrial fertilisers and foodstuffs, the rural households no longer use fuelwood nor the non-timber products from the forests. Therefore, the forest owners don't people to go around their forests to collect the combustible materials for free. If they want them cut and removed, they have to hire someone, which costs more and more money as the rural population decreases. These costs are also aggravated by the difficult topography of many forest lands in the North.

Comparing three alternative options to reduce the accumulation of combustible materials in the forest, the costs are the following:

- mechanised cutting and removal from the forest: 100000 esc./ha;
- mechanised cutting without removal from the forest: 20000 to 30000 esc./ha;
- prescribed burning: 1000 to 2000 esc./ha.

The first two options fall outside the range of the willingness to pay of most forest owners. The third one is affordable, but it has many restrictions in order to be implemented correctly. Also, in spite of having its roots in traditional practices, it is still very much within the circles of forest research, lacking qualified personnel in the field to use it properly.

So because the forest maintenance costs are rising beyond the willingness to pay of private owners, because the benefits are uncertain and do not occur in the short run, and also because part of these benefits are externalities for which the private owner is not compensated, the result is that the large majority of private owners do not spend money in the maintenance of their forests. Also they do not spend money in afforestation unless it is highly subsidised. So the growth and decay of the forests is left to natural regeneration and wildfires.

When the owner decides to cut, it is not because he is following some forest management plan guided by optimal rotation principles, but because he needs cash to make ends meet. This leads to the following management practices:

- clear cut after a forest fire;
- commercial thinning removing the best trees and leaving behind the worse ones causing negative selection and lowering the productivity of the forests.

Since 1992, in the North there has been a growing movement to promote forest owners' associations. This started with the creation of a non profit organisation called FORESTIS-Associação Florestal do Norte e Centro de Portugal [Forest Association of North and Central Portugal] which is a regional development agency, grouping individual forest owners, representatives of communal forests, foresters, and other individuals interested in the forest sector. The main task of this association is to promote the creation of local forest owners' associations and provide common services to them (diffusion of technical information, publication of a periodical bulletin, training courses, forest mapping, GPS, negotiations with the Ministry of Agriculture, participation in forest events, representation of the members, etc.). So far, this work has resulted in the creation of nine local associations covering the Northwest and part of the Northeast.

Recently FORESTIS has changed its statutes in order to become more like a federation of its local associations. So far it has remained independent from the two agrarian confederations disputing the national representation of the agricultural and forest sectors. The main types of services provided by these associations are the following:

- information about the afforestation programmes (PDF and Reg. 2080/92);
- preparation of forest plans to apply for funds from those programmes;
- monitoring of forest plans and afforestation works carried out by private contractors;
- technical information about forest management operations;
- training courses for forest owners.

These associations are recent and still far from representing the majority of the forest owners in their territories even though their membership has been growing steadily. This growth is the combined result of the following driving forces:

- private owners in the upper class sizes usually living in the city with their lands leased out to tenants or under-utilised, but willing to put them in a less labour intensive productive use like forestry;
- decentralised bodies of the Public Administration willing to support regional development initiatives like this one;
- new generations of foresters more sensible to private forestry, forest extension and participation than the older generations which made their careers in the public Forest Services;
- forest contractors stimulated by the recent generations of afforestation programmes appealing to the initiative of the private sector.

To finance their activities, these associations have relied mostly on subsidies from national and regional programmes financed by the European Union, the annual membership fees making up only a small part of their income. They have not yet clearly stepped into the provision of private services to their members from where they could

collect revenues, such as the production of silvicultural services (plantings, thinnings, etc.) or the sales of forest products. Also there is no mandatory system like in Scandinavia where a percentage of the gross value of the timber sold by the members goes to some trust fund which supports this type of associations.

2.1.2.2.2. Southern Portugal

In Southern Portugal the most important forest owners are the ones who have cork oak forests. Compared with the owners in Northern and Central Portugal, they have the following advantage:

- they have much larger forest holdings;
- cork oak forests can be managed to generate an annual income;
- the topography of forest lands makes them less costly to managed than in the mountainous Northern and Central Portugal.

After these forest owners got back their lands occupied by the farm workers after the 1974 Revolution, some associations were born, especially in the good cork oak areas of the Tejo and Sado basins. These associations are the most influential group within FPFP-Federação dos Produtores Florestais de Portugal, a national federation of forest owners' associations which does not include FORESTIS and is related to one of the agrarian confederations existing in the country (CAP-Confederação dos Agricultores de Portugal).

In addition to the services mentioned in reference to the associations in the North, some in the South have already stepped into the commercial and industrial arena. Inspired by what was done in Spain by IPROCOR, some of them established a system for surveying the quality of the cork before extraction. This system has the following benefits:

- it helps the forest owner to negotiate a price for his cork based on better knowledge of the quality of his products;
- it helps the industry to anticipate the properties of the cork to be harvested;
- finally this system helps to select trees and seeds of good quality.

One association also launched the first industrial project led by forest owners in joint venture with some cork companies – a plant for the preparation of cork planks.

In spite of these ventures, the associations don't take in charge the extraction and sales of the cork from their members' holdings. So, like in the North, there is no move towards an oligpsonistic market structure.

2.1.2.3. Industrial forests

The industrial forests in the country belong almost entirely to the pulp industry. These forests where eucalyptus is, by far, the major species, are certainly among the most

carefully managed in the country, each pulp company having set up its own forest management firm to take care of these operations. These groups have also invested regularly in the prevention and fight of forest fires as well as in research and development to improve the productivity of the plantations.

About 25 % of the eucalyptus forests are reaching the fourth rotation and have to be replaced within the next ten years. The industry will probably take this opportunity to use the results of that R&D and improve the productivity of the new plantations.

The industry is also bound to take these actions because it has to face severe constraints to the expansion of eucalyptus plantations. These constraints come mostly from a package of decrees approved in 1988 and 1989 and are maintained in the current orientations of forest policy.

A major structural change promoted by the Public Administration might occur here in terms of forest management operators. In fact, the Ministry of the Economy is steering a merger of the two Portuguese paper groups (PORTUCEL and SOPORCEL) which is likely to result in the consolidation of their two forest management companies.

2.1.3. Mandatory forest management regulations

2.1.3.1. Regulations about the management of cork oak forests

Concerning the cork oak, there are regulations constraining the cutting of the trees. Also the removal of the bark is regulated by law. The first removal can only take place when the perimeter of the trunk reaches 70 cm, which is, in general, 25 years after plantation. The subsequent removals should take place at intervals of at least nine years, and always in summertime, from June to September.

Most of these rules are based on the work of Prof. Vieira Natividade carried out 40 years ago. Without questioning the merits of this work, some researchers and forest owners are claiming for a reappraisal of these rules in the light of more recent research and experience.

2.1.3.2. Regulations about the eucalyptus plantations

2.1.3.2.1. Decree 139/88

The reforestation of areas damaged by forest fires is subject to approval by three ministries if it changes the type of species which were there before the fire.

2.1.3.2.2. Decree 175/88

This decree imposes the following obligations on the afforestation with eucalyptus and other fast growing species:

- plantations with more than 50 ha are subject to approval by the Forest Services;
- projects for plantations with more than 350 ha must have an environmental impact assessment and are subject to approval by the municipalities;
- new plantations in counties which already have more than 25 % of their land with fast growing species are subject to approval by the Forest Services;
- cork oak and holm oak forests cannot be replaced by fast growing species.

2.1.3.2.3. Decree 139/89

This decree extends the approval by the municipalities to the afforestation projects with less than 50 ha.

2.1.3.2.4. Decree 528/89

This decree restricts the types of zones where eucalyptus can be planted:

- no forests can be planted in agricultural lands classified in classes A and B in the National Agricultural Reserve;
- afforestation is also restricted in the areas of the National Ecological Reserve;
- eucalyptus has to be planted at a 20-meter distance from agricultural lands and a 30-meter distance water sources and houses;
- a zoning in a 1:1000000 scale is defined for the eucalyptus plantations.

These decrees introduced three new regulators to restrain the eucalyptus plantations:

- the Ministry of Environment;
- the Ministry of Territorial Administration;
- the municipalities.

The pulp industry has been especially critical about the action of the municipalities which have used their new responsibilities mostly to collect license fees from the industry and from the other private forest owners willing to establish eucalyptus plantations.

The industry is also critical about the extension given to the National Agricultural Reserve, the National Ecological Reserve and the NATURA 2000 network.

The Forest Policy Law does not contain any specific orientation in this matter. However, in its general principles, it includes a biodiversity and multiple forest use agenda so that it is not expected to loosen up on this kind of regulations. What will probably happen is just a marginal change consolidating in a smaller number of decrees the dispersed regulations dealing with afforestation and forest management rules.

2.1.4. Voluntary forest management regulations: the Iberian initiative for eco-certification IBISUS

In Portugal and Spain there is a common initiative on eco-certification called IBISUS (Iberian Initiative for Sustainable Management) which was promoted last year as a late response to similar processes in other parts of the world. At present, this initiative consists of a joint declaration signed in January 1997 by the forest owners' associations and the forest industries' associations of Portugal and Spain. It states the commitment of the signatory parties to sustainable forest management (SFM) criteria similar to the ones adopted in the Helsinki process.

IBISUS has not yet resulted in specific indicators of SFM. Also, there are no clear steps towards an eco-certification system, the attitude of the leaders in this process being critical about this kind of system. Instead, they prefer to wait and see if this becomes a necessary step for their competitiveness. We can anticipate, however, that they might be willing to take some steps in the future based probably on the ISO 14000 template, the FSC scheme being rejected by the major leaders of this initiative.

2.2. The issues and the public policy responses

2.2.1. The future role of the Regional Forest Services and the management of the public and communal forests

Since the Forest Services have been responsible for most of the afforestation and management of the communal lands, the major issue concerning these forests is to know what is going to be the future role of these services in this regard.

Since the present government came into power two years ago, a major structural change was undertaken in the Forest Services. Their local and regional services, which before were part of a centralised structure, autonomous from the agricultural services, lost their autonomy, and were merged with the regional agricultural services. Also the purpose of the current policy-makers is to take away from the regional Forest Services the management of the public and communal forests, transferring it to a new company to be created for that purpose with public capital and private management rules.

The rationale for this institutional change is that, as a forest management operator, the regional forest services, since they are constrained by public management rules, are thought to be less efficient than a company guided by private management rules. So the future role for the Forest Services should be more one of an extension service provider rather than a forest management operator, in conjunction with the regional agricultural services, in order to promote an integrated approach to agricultural and rural development.

Assuming this new role will not be easy without proper training and good motivation for the foresters in the regional Forest Services. While this extension mission is not yet clearly under way, what is actually happening is that most of the time of these foresters is being taken by the administrative tasks of examining the applications of forest owners for public grants.

As for the project of the new public forest management company is concerned, it is an initiative promoted mostly by Directorate General of Forestry supported by the industry, but looked with suspicion by the Regional Directorates of the Ministry of Agriculture, the representatives of the communal forests and the environmentalist groups. Some people think that this is not a step in the right direction of getting the local communities more directly involved in the management of the communal forests and integrating this management with the other types of forests and activities existing in the local economies. Also there is a fear that this might be a step towards the future privatisation of some public and communal forests. Because of this fear there is some opposition against transferring the ownership of the public forests to this company as it is stated in the project presented by DGF.

The idea of this new company is appealing to the wood industry, especially the sawmills and the big firms in the panel industry which are large consumers of pine wood, the dominant species in the state and communal forests. These industries are expecting that the forest company will be more efficient in the forest management and logging operations. Also it will facilitate the procurement of wood in quantity and in quality by concentrating supply, without having to pay monopoly prices because the company is public and will not behave to the detriment of industrial competitiveness.

2.2.2. Public policy towards the forest owners' associations

Since the existing forest owners´ associations got started they have been living essentially on public subsidies. So the major issue here is to know how can they reduce this heavy dependence on public funds, and what role should be kept for this type of financing.

These associations are already making some efforts towards the provision of paid private services to their members. These efforts, however, don´t mean that they should be banned from public aid. They should continue to be entitled to public support because of their indispensable role in the provision of public goods necessary to the development of the forest sector, especially in regions of small scale forestry. In fact, one of the major roles of these associations is to promote forest projects at an efficient scale, which in regions of smale scale forestry implies heavy transactions costs required for grouping large numbers of fragmented forest holdings.

In its article 17, the Forest Policy Law claims that "the creation and technical upgrading of the forest owners' organisations is stimulated through different types of incentives". The law does not specify which type of incentives should be considered. To our knowledge there is no careful studies on the roles of these organisations, the type of support they should be given by the public sector or their financing strategies. Thus the public support might ended up to be tailored mostly to the lobbying ability of each group of associations without a clear and national policy in this matter.

An important type of public support for the forest owners' associations could come from the regional forest services. If they are going to be effectively discharged from their responsibilities in terms of the management of public and communal forests, they will have time and human resources available to be more active than before in providing technical support to these associations.

Besides financial and technical support from the Public Administration, the forest owners' associations should also be called to participate actively in the policy-making process. We have already mentioned that an important feature of the Forest Policy Law is the creation of a Forest Consultative Council to assist the Ministry of Agriculture and the Government in general in the matter of forest policy making. The regulation for this council will be approved by the Government soon, and among its members there will be representatives of the forest owners' associations (FPFP, FORESTIS).

2.3.3. Mandatory forest management regulations

With the application of the Forest Policy Law, all forest types will be subject to management plans. In fact, article 5 defines two types of plans:

- regional plans to be prepared by the Forest Services which are guidelines that should be respected in the management of the forest holdings in order to promote sustainable forestry;
- plans at the forest management unit level.

Only the holdings above some threshold to be defined in the regional plans will have to prepare and follow the second type of plans.

The major issue here is to know if these plans are going to be effective management tools contributing to forest development, or just some kind of desk studies. The Forest Services consider them as one of the major instruments of their future actions. However, there are some cautionary points to be made. First, the regional plans are basically land use and forest management plans of a sectoral nature which have to fit into more global land use plans, namely the municipal and regional land use plans, an area which has been the object of a new frame law recently submitted to the Parliament. So either they are prepared first, or after the more general land use regulatory mechanisms, the regional forest management plans have to be adjusted with them.

Secondly, these forest plans are essentially land use and silvicultural plans. So they lack a socio-economic component in order to be effective forest development plans.

Finally, there is a risk of the regional plans being more like a desk study carried out in the officies of the Forest Services, without a strong involvement of the forest owners' associations and other stakeholders in the forest sector. So a good idea would be to give priority to the plans made in territories covered by forest owners' associations calling upon their active participation. These associations can also be an important partner in promoting plans at the forest management unit level.

3. GROWTH IN FOREST RESOURCES

3.1. The facts: a growing resource base with further growth potential

As shown in Table 4, in spite of some decline during the 1980s, due mostly to the problem of forest fires, the forest area in Portugal has a clear growth trend in this century. This growth is the result of the following driving forces:

- the maritime pine plantations made by the Forest Services since the beginning of the century until the 1970s, first in the dunes to protect the coastal region and later in the communal lands of the mountainous areas of Northern and Central Portugal;
- the eucalyptus plantations initiated in the 60s in response to the demand from the pulp industry;
- the expansion of the cork oak forest, especially in the lands of the southern side of the Tejo and the Sado basins, after the "Wheat campaign" of the 30s which put them into farm use, and more recently with the support of the afforestation programmes financed by the European Union (PAF, PDF and Reg. 2080/92).

In spite of this growth in forest area, forest coverage can still increase substantially through afforestation of non-cultivated lands and agricultural lands unsuitable for farming or in process of abandonment.

Even though the data presented in Table 8 probably overestimate the potential forest coverage because they do not take into account socio-economic constraints and land use regulations which were came out after 1986, they still can be taken as an indication of a substantial growth potential for the Portuguese forest area, in all tree species except eucalyptus.

To this growth potential, in terms of forest area, we should add the potential in terms of increased productivity of the existing stands for all tree species, including eucalyptus.

For future reference, Table 8 also includes the targets for the total forest area and its tree species composition in a 20-year horizon advanced recently by DGF.

Table 8. Current, potential and planned forest area and their tree species composition

Species	Current		Planned		Potential	
	ha	%	ha	%	ha	%
Maritime pine	1 029 200	31.1	1 125 000	30.0	2 253 990	40.8
Eucalyptus	695 100	21.0	570 000	15.2	530 780	9.6
Cork oak	720 700	21.8	880 000	23.5	916 676	16.6
Holm oak	475 700	14.4	475 000	12.7	640 885	11.6
Other conifers	107 100	3.2	200 000	5.3	663 749	12.0
Other broadleaved	278 300	8.4	500 000	13.3	434 263	7.9
Total	3 306 100	100.0	3 750 000	100.0	5 524 631	100.0

Souces: DGF (1997b) and Alves et. al. (1986)

3.2. The issues and the public policy responses

3.2.1. Supply side: afforestation policy

3.2.1.1. The importance of the public afforestation programmes

Except for eucalyptus where afforestation is economically attractive for private forest owners without the need for public financial support, afforestation has been crucially

dependent on the availability of grants and subsidies from the public sector. Until 1981 there were three major public afforestation programmes:

- the afforestation of the dunes for the protection of the coastal regions carried out by the Forest Services;
- "Plano de Povoamento Florestal" (PPF) also carried out by the Forest Services between 1939 and 1972 in the commons of North and Central Portugal;
- the afforestation of private lands conducted by "Fundo de Fomento Florestal" (FFF) – Forestry Development Fund – a public forest service initiated in 1966 to support private forestry.

The public afforestation programmes implemented after 1981 are the following:

- the Portuguese Forest Project (PFP) financed by the World Bank which ran from 1981 to 1988;
- the Forest Action Programme – "Programa de Acção Florestal" (PAF) financed by the EEC, implemented between 1987 and 1994;
- Regulation (EEC) 2080/92 implemented since 1994;
- the Forest Development Plan – "Plano de Desenvolvimento Florestal" (PDF) – financed by the European Union within the 2.nd Common Support Framework for the period 1995-1999.

The plantings and forest improvements financed by these programmes are presented in Tables 9 and 10 taken from our contribution to the CESE report (CESE, 1996).

Since forest investment in Portugal has been very heavily dependent on public programmes co-financed by foreign sources whose priorities the country does not control, the major issue is the know if there is going to be a strong national commitment to long term financing of forest development less dependent on foreign sources, and more based on domestic sources of funds and goals set on stable consensus with the forest owners, the industry and other social groups involved in the forests sector.

3.3.1.2. The Portuguese Forest Project/World Bank

The major objective of this programme was to overcome a projected shortfall in the supply of timber to the pine-based and pulp industries through the establishment of

Table 9. Plantings and forest improvements financed by public afforestation programmes until 1981 (hectares)

Years	Total area	PPF	PPF	DGF	DGF
		Dunes	Commons		FFF
until 38	38 318	17 345	20 973		0
Total 39/65	249 348	8 255	241 093		0
1966/80	181 272	0	55 828	10 627	114 817
Total	468 938	25 600	317 894	10 627	114 817

Table 10. Plantings and forest improvements financed by public afforestation programmes since 1981 (hectares)

	Total		FFF	PFP		PAF		Reg. 797/85		Reg. 2080/92		PDF	
Years	Affor.	IES*		DGF	PORTUCEL	Affor.	IES*	Affor.	IES*	Affor.	IES*	Affor.	IES*
1981	8979	0	8979	1441	n. a.								
1982	12285	0	2837	9448	n. a.								
1983	11242	0	301	10941	n. a.								
1984	13329	0		13329	n. a.								
1985	10778	0		10778	n. a.								
1986	17382	0		17382	n. a.								
1987	15436	13435		7390	n. a.	8046	13435						
1988	13863	30719		1199	n. a.	12484	30719						
Total	164555	44154	12117	71908	60000	20530	44154						
1989	17410	52156				17410	52156						
1990	20888	41511				20888	41511						
1991	17575	20254				15320	19644	2255	610				
1992	21803	24197				16906	21948	4897	2249				
1993	17193	12306				11312	9995	5881	2311				
1994	27465	14202				6054	11480			21411	2722		
1995	55960	61308				5141	7106			40141	3000	10678	48143
1996	28000	2000								28000	2000		
Total	370849	272088	12117	71908	60000	113561	211053	13033	5170	89552	7722	10678	48143

* IES – improvement of existing stands

commercial forest plantations of conifers and eucalyptus, especially in North and Central Portugal where there was more under-utilised potential for these species. So this programme did not cover the cork oak forests in the South (Alentejo) which, by the time it was implemented, were still mostly in the farm workers' co-operatives resulting from the occupations of the latifundia after the 1974 Revolution.

Planned and implemented in a period of the Portuguese political history marked by strong public interventionism in the economy, this programme, like the previous ones, is still one where the Forest Services assumed the direct responsibility for preparing the forest plans and carrying the afforestation works not only on public lands, but also on private lands. The difference, however, is a much stronger effort than before in the afforestation of private land with the following financial schemes for the private forest owners:

- loans going up to 90 % of the total investment costs and up to 100 % in the case of burnt forests;
- repayment based on 40 % of the revenues from the fellings until the total amortisation of the loan, for no more than 60 years.

These and other components of the project, the planned targets and what was actually accomplished are summarised in Table 11.

The objectives for PORTUCEL were fully accomplished. From the 90000 ha the Forest Services were supposed to plant, only 71908 ha were established, even after extending the project horizon for three years. The option of relying on public services to plan and conduct the afforestation works instead of stimulating the initiative of private contractors explains why the implementation of this component of the project fell below the targets.

The data presented in Table 12 show that 54.5 % of the afforestation was done in the North, 85 % of which on communal lands. This marks the end of more than five decades of strong involvement of the Forest Services in the afforestation of the

Table 11. Objectives and implementation of the Portuguese Forest Project/World Bank

Afforestation (ha)	Planned 1980/85	Accomplished 1981/88
By the Forest Services		
• total area	90000	71908
• conifers	60500	50026
• eucalyptus	16000	8429
• other broadleaved forests	13500	7886
• natural regeneration	-	5586
By PORTUCEL (pulp company)		
• total area	60000	60000
• conifers	30500	n. d.
• eucalyptus	29500	n. d.
Creation of a forest extension service	X	nothing was done
Credit for co-operatives of forest owners	X	nothing was done

Table 12. Regional distribution of the area planted with the PFP

	Communal forests			Private forests			Total	
Regions	projects	ha	%	projects	ha	%	ha	%
Northwest	129	21 778	27.9	197	6 297	12.2	28 075	21.6
Northeast	212	38 442	49.3	63	4 153	8.1	42 595	32.8
North, total	341	60 220	77.3	260	10 450	20.2	70 670	54.5
Central West	124	12 488	16.0	191	4 993	9.6	17 481	13.5
Central East	34	4 954	6.4	147	14 965	28.9	19 919	15.4
Ribatejo-Oeste	1	270	0.4	155	9 503	18.3	9 773	7.5
Alentejo	0	0	0.0	281	10 455	20.2	10 455	8.1
Algarve	0	0	0.0	15	1 451	2.8	1 451	1.1
Total	500	77 932	100.0	1 049	51 817	100.0	129 749	100.0

Source: Victor Louro (1988).

commons in North and Central Portugal, most of which consisted in maritime pine plantations. As far as the pulp industry is concerned, its investment was predominantly in regions with a land ownership structure less fragmented than in the North. The forest extension services and the credit for cooperatives planned in the project were not implemented.

3.3.1.2. "Programa de Acção Florestal"

This programme came in a different political and social environment than the World Bank Project:

- the country was becoming a member of the EEC and therefore was eligible for financial support from the structural funds;
- while the industrial demands behind the World Bank Project were still very important, new demands were emerging in the Portuguese society, namely the environmentalist pressure against fast growing species and the rise of land use planning regulations where the municipalities were major stakeholders;
- the latifundia in the South were returned to their previous owners who in many cases were willing to improve their cork oak forests left aside in the World Bank Project;
- the aggravation of forest fires and the rise of environmental awareness put in question the type of afforestation done before, based on monospecific plantations, and called for more attention to broadleaved species and to protection and improvement of the existing stands;
- the state interventionism started to regress, with privatisations of nationalized companies and a growing appeal to the private sector.

So PAF was the first public afforestation programme to be supported by the EEC. Also the role of the state towards private forestry turned from one of direct interventionism

like in the World Bank Project to one of substantial facilitation Jessop, 1983) through attractive subsidies, leaving to the forest owners and private contractors the responsibility for preparing the forest plans and conducting the afforestation works. The components of this programme, the planned targets and what was actually accomplished are summarised in Table 13.

The first thing to note is that again the implementation fell below the targets. The objectives were set to high, given the experience of the previous afforestation programme, and were not supported by enough funds from the State Budget to match the EEC financing. Again, like in the World Bank Project, the provision of forest extension services was not implemented. This programme introduced some changes relatively to the World Bank Project.

1. Instead of loans to be repaid with the revenue from the fellings, the financial incentives to the forest owners consisted of subsidies varying between 30 and 100 % of the total cost.
2. The public afforestation programmes started to support not only afforestation, but also improvement of the existing stands (restocking, reconstitution of damaged woodland, protection, forest roads, etc.) .
3. The favourable treatment received by the eucalyptus plantations in the World Bank project disappeared: they were restricted by new regulations which came out in 1988-89, the rate of subsidy was reduced and finally disappeared in 1991.
4. The public support to afforestation became less concentrated on eucalyptus and maritime pine, and began favouring other species, especially the cork oak forests.
5. The Forest Services started to withdraw from a direct intervention in the preparation and implementation of afforestation projects, appealing more than before to the private initiative of forest owners and contractors: 70.2 % of the total investment supported by PAF was for private forestry. From the remaining 29.8 %, more than half was for public projects in the North. These projects, however, represented only 17.4 % of the total investment supported by PAF which is much lower than what happened in the World Bank Project.

Table 13. Objectives and implementation of PAF

Time horizon	Planned 1987/94	Accomplished 1987/94
Afforestation (ha)	400 000	108 420
Improvement of existing stands (ha)	400 000	200 888
Establishment of grazing areas (ha)	100 000	0
Forest roads (km)	7 700	6 690
Divisional roads (km)	3 400	2 903
Dams	400	1 053
Forest extension services	X	nothing was done
Total cost of the programme in 1000 escudos	62 939 400	32 553 020
• Private projects		22 214 235
• Public projects		10 338 785

Table 14. Regional distribution of the plantings and improvements supported by PFP and PAF

Regions	PFP		PAF					
			Afforestation		Stand improvement		Total	
	ha	%	ha	%	ha	%	ha	%
North	70 670	54.5	40 443	35.6	28 671	13.6	69 114	21.3
Centre	37 400	28.8	29 137	25.7	33 395	15.8	62 532	19.3
Lisbon & Tejo Valley	9 773	7.5	13 137	11.6	43 823	20.8	56 960	17.6
Alentejo	10 455	8.1	13 861	12.2	88 395	41.9	102 256	31.5
Algarve	1 451	1.1	16 984	15.0	16 720	7.9	33 704	10.4
Total	129 749	100.0	113 561	100.0	211 054	100.0	324 615	100.0

Source: Instituto Florestal

Table 15. Tree species composition of the plantings and forest improvements supported by PFP and PAF

Species	PFP		PAF					
			Afforestation		Stand improvement		Total	
	ha	%	ha	%	ha	%	ha	%
Maritime pine	65 083	49.9	46 938	41.3	63 180	29.9	110 118	33.9
Eucalyptus	37 929	28.8	10 375	9.1	5 107	2.4	15 482	4.8
Cork oak	1 809	1.4	22 307	19.6	94 534	44.8	116 841	36.0
Others	27 087	20.5	33 941	29.9	48 233	22.9	82 174	25.3
Total	131 908	100.0	113 561	100.0	211 054	100.0	324 615	100.0

Source: Instituto Florestal

These orientations contributed to a major shift in the regional incidence of the forest policy: while in the World Bank Project 54.5 % of the plantations were in the North, with PAF this percentage fell to 21.3 %.

To this shift also contributed the fact that nothing was done in the World Bank Project and in the PAF to establish a Forest Extension Service and to support the organisation of forest owners' associations. So without this kind of capacity building, the owners with larger forest holdings, located mostly in the South, were naturally more effective in getting the bigger share of the public support.

3.3.1.3. Regulation (EEC) 2080/92 and "Plano de Desenvolvimento Florestal"

Regulation (EEC) 2080/92 is a EU policy measure not specific to Portugal supporting the afforestation of agricultural lands. The PDF, on the other hand, is a programme specific to Portugal, financed by the EU within the Common Support Framework for the period 1994/99. This programme supports the following types of actions:

- afforestation;
- improvement of existing stands and reforestation, including the case of woodlands damaged by fires less than 5 years ago;
- maintenance costs of the plantations for 5 years after the first restocking;
- installation and amelioration of forest nurseries;
- selection and production of good quality seeds and seedlings;
- construction and amelioration of forest roads and water reservoirs;
- multiple use of forest lands (grazing lands, apiculture, gaming, aromatic and medicinal plants, etc.).

This programme also has the following specific features:

- it favours grouped projects consisting of, at least, 5 contiguous, forest holdings;
- it does not support plantations with fast growing species.

PDF pursued the orientations initiated with PAF, taking these new steps further:

- financial support for forest nurseries;
- stronger support for multiple use of forest lands;
- financial support for maintenance costs for 5 years after the first restocking;
- tighter restrictions for eucalyptus plantations and other fast growing species;
- more incentives for other broadleaved species.

The main features of these two programmes are the following:

- they pursue the orientation started with PAF towards a stronger role for the private initiative of forest owners – in the first campaign of PDF and the first two campaigns of Reg. 2080/92, 83.7 % of the investment was in private projects whereas with PAF this share was 70.2 %;
- with Reg. 2080/92 cork oak in the south is getting much more support than in previous afforestation programmes;

Table 16. Regional distribution of the forest investment supported by PAF

	Public projects			Private projects		
Regions	projects	1000 escudos	%	projects	1000 escudos	%
Northwest	88	2 335 368	31.6	183	1 228 478	7.1
Northeast	120	1 977 833	26.7	166	3 761 323	21.6
North, total	208	4 313 201	58.3	349	4 989 801	28.9
Central West	125	1 657 909	22.4	181	1 115 790	6.4
Central East	24	623 791	8.4	215	3 460 266	19.9
Ribatejo Oeste	26	340 268	4.6	303	1 876 481	10.8
Alentejo	20	249 756	3.4	437	3 046 302	17.5
Algarve	5	214 978	2.9	246	2 909 979	16.7
Total	408	7 399 903	100.0	1 731	17 398 619	100.0

Source: IFADAP

Table 17. Regional distribution of the investment supported by PAF, PDF and Reg. 2080/92

Regions	PAF		PDF		Reg. 2080/92		PDF+2080/92	
	1000 esc.	%	1000 esc	%	1000 esc.	%	1000 esc.	%
Northwest	5 102 294	15.6	1 118 434	12.1	249 515	2.2	1 367 949	6.7
Northeast	7 342 143	22.6	1 122 252	12.1	1 860 203	16.7	2 982 455	14.6
North, total	12 444 437	38.2	2 240 686	24.2	2 109 718	18.9	4 350 404	21.3
Central West	3 664 463	11.3	1 098 589	11.9	144 307	1.3	1 242 896	6.1
Central East	5 102 701	15.7	2 647 562	28.6	1 473 633	13.2	4 121 195	20.2
Ribatejo Oeste	3 004 529	9.2	1 377 920	14.9	956 090	8.6	2 334 010	11.4
Alentejo	4 349 086	13.4	983 895	10.6	5 229 913	46.9	6 213 808	30.5
Algarve	3 987 802	12.3	903 965	9.8	1 233 117	11.1	2 137 082	10.5
Total	32 553 020	100.0	9 252 615	100.0	11 146 778	100.0	20 399 393	100.0

Source: Instituto Florestal

- Reg. 2080/92 also introduced a very attractive financial incentive which did not exist before – the prime to compensate the loss of agricultural income for 20 years;
- considering this regulation together with PDF, the support to the eucalyptus and maritime pine plantations was drastically reduced to the benefit of multiple use forest management and broadleaved species;
- these orientations reinforce the shift in the regional distribution of the forest investment detrimental to the North which started with PAF – now the North represents less than one fourth (21.3 %) of the total investment supported by PDF and Reg. 2080/92 whereas with PAF its share was more than one third (38.2%);
- the North would be lagging further behind if there weren't the public projects on communal lands which represent almost half (47.9 %) of the national investment in public projects supported by the first campaign of PDF – in the North these public projects make up 70.9 % of the investment supported by the first campaign of PDF, and 36.5 % of the investment supported by PDF and Reg. 2080/92 together, whereas in other regions these shares are respectively 32.7 % and 10.8 %.

It is sound economic policy to appeal to the private initiative of forest owners instead of relying mostly on the Forest Services in regions where the forest lands are predominantly private. The problem is that, before having engaged in this policy shift, the Forest Services should have used the resources put forward by the World Bank Project and PAF to provide extension services and support to the establishment of forest owners' associations, especially in North and Central Portugal where ownership is more fragmented. We have already seen that little was done in this matter. So it is understandable that when the afforestation policy starts to appeal to the private initiative of forest owners, the ones who are quicker to apply for the grants and get most of the public support, are the bigger landowners in the south.

3.3.1.4. Future targets for afforestation policy

In a recent document (DGF 1997b) which is important because it is the first quantified statement of the current administration in terms of forest policy, DGF set the targets for afforestation for the next 20 years. These targets are presented in Tables 8, 22 and 23.

These targets were established at levels considered to be sufficient to meet the needs of the existing forest industries. They involve the reversal of two current trends: the decline in the area of maritime pine forests and the expansion in the eucalyptus plantations. They stress two other current trends, the growth in the cork oak and broadleaved forest area.

The annual acreage of afforestation and stand improvement needed to meet these targets are presented in Table 23 which does not include the eucalyptus.

These targets are less optimistic and more realistic than the ones proposed in the plan presented recently to the Prime Minister by the paper and panel industries. Comparing with the implementation of Reg. 2080/92 and PDF and assuming an increased effort by the state and the private forest owners, it might be possible to reach the target of 64500 ha of afforestation per year, but 87000 ha per year of stand improvement seems more

Table 18. Regional distribution of the forest investment supported by PDF

Regions	Public projects		Private projects	
	1000 esc.	%	1000 esc.	%
Northwest	672 533	20.3	445 901	7.5
Northeast	915 901	27.6	206 351	3.5
North, total	1 588 434	47.9	652 252	11.0
Central West	829 152	25.0	269 437	4.5
Central East	572 320	17.3	2 075 242	35.0
Ribatejo Oeste	73 378	2.2	1 304 541	22.0
Alentejo	114 852	3.5	869 043	14.6
Algarve	138 790	4.2	765 175	12.9
Total	3 316 924	100.0	5 935 690	100.0

Source: Instituto Florestal

Table 19. Tree species composition of the plantings and forest improvements supported by PAF, PDF (1.st campaign) and Reg. 2080/92 (2 first campaigns)

Species	PAF		PDF		Reg. 2080		PDF+Reg. 2080	
	ha	%	ha	%	ha	%	ha	%
Maritime pine	46 938	41.3	12 278	56.2	1 989	3.3	14 267	17.8
Eucalyptus	10 375	9.1	0	0.0	168	0.3	168	0.2
Cork oak	22 307	19.6	3 595	16.4	25 084	41.0	28 679	34.5
Chestnut	4 625	4.1	880	4.0	3 272	5.3	4 152	5.0
Others	29 316	25.8	5 108	23.4	30 734	50.2	35 842	43.1
Total	113 561	100.0	21 861	100.0	61 247	100.0	83 108	100.0

Source: Instituto Florestal

Table 20. Area of projects financed during the first two campaigns of Reg. 2080/92

Regions	Afforestation		Stand improvement		Total	
	ha	%	ha	%	ha	%
Northwest	914	1.5	13	0.5	927	1.4
Northeast	7 482	12.2	0	0.0	7 482	11.6
North total	8 396	13.6	13	0.5	8 409	13.1
Central West	666	1.1	7	0.3	673	1.1
Central East	9 304	15.1	454	16.7	9 758	14.5
Ribatejo Oeste	5 385	8.8	1 736	63.3	7 121	11.1
Alentejo	30 847	50.1	502	18.4	31 349	48.8
Algarve	6 953	11.3	8	0.3	6 961	10.8
Total	61 552	100.0	2 723	100.0	64 275	100.0

Source: Instituto Florestal

Table 21. Area of projects financed during the first campaign of PDF

Regions	Reforestation and stand improvement				Afforestation		Total	
	Burnt forests		Other lands					
	ha	%	ha	%	ha	%	ha	%
Northwest	1 230.5	11.0	3 971.5	8.1	389.7	4.0	5 591.6	7.8
Northeast	1 089.5	9.7	1 096.0	2.2	2 458.0	25.5	4 643.5	6.6
North, total	2 320.0	20.7	5 067.5	10.3	2 847.7	29.5	10 235.1	14.6
Central West	1 692.6	15.1	4 659.9	9.5	536.0	5.6	6 898.8	9.9
Central East	4 620.4	41.3	10 771.8	21.9	2 583.8	26.8	17 976.0	25.7
Ribatejo Oeste	2 209.6	19.8	11 819.1	24.0	746.3	7.7	14 775.0	21.1
Alentejo	191.1	1.7	12 106.4	24.6	708.7	7.4	13 006.2	18.6
Algarve	151.5	1.4	4 750.0	9.7	2 213.2	22.9	7 114.6	10.2
Total	11 185.2	100.0	49 174.2	100.0	9 645.9	100.0	70 005.7	100.0

Source: Instituto Florestal

Table 22. Planned changes in the forest area (20 years horizon)

Species	Rate of change (%)	Total net change in forest area (ha)	Annual net change in forest area (ha)
Maritime pine	+9.8	95 800	4 790
Eucalyptus	-18.0	-125 100	-6 255
Cork oak	+22.1	159 300	7 965
Holm oak	0.0	-700	-35
Other conifers	+86.7	92 900	4 645
Other broadleaved	+79.7	221 700	11 085
Total	+13.4	443 900	22 195

Source: DGf (1997b)

Table 23. Annual areas of afforestation and stand improvement (ha)

Species	Afforestation/ reforestation	Stand improvement	Natural regeneration
Maritime pine	30 000	45 000	15 000
Cork oak	10 000	40 000	
Holm oak		20 000	
Other conifers	5 000	2 000	
Other broadleaved	19 500		
Total	64 500	107 000	15 000

Source: DGF (1997 b)

difficult to accomplish. Also we should take into account the fact that the recent level of afforestation has been very much animated by the plantings of cork oaks in the large farm estates of Southern Portugal under Reg. 2080/92 whose continuity is out of the control of national forest policy. It will be more difficult to meet the targets for maritime pine than for cork oak:

- they are far ahead of the current rhythms of afforestation and stand improvement with this species;
- they have to be met in the context of the small scale forestry of North and Central Portugal;
- they have against them the high risk of wildfires.

To meet the targets for maritime pine, the Ministry of Agriculture is probably counting on the new forestry company to be created with public capital to manage the state and the communal forests.

3.3.1.5. The public finance of afforestation and the Forest Policy Law

Crucial for meeting the planned targets for afforestation will be the type of financial incentives provided to private forestry. From the previous analysis we can draw the following conclusions about the past experiences:

- since 1981 the afforestation in Portugal has relied essentially in programmes co-financed by foreign sources, the World Bank first, and EEC after, without a permanent fund fed basically by national sources;
- the priorities of the public afforestation programmes have changed substantially since 1981: after the World Bank Project, whose almost exclusive goal was to plant pine and eucalyptus forests to respond to the needs of the forest industries, other programmes came up much more favourable to cork oak and multifunctional forestry, practically banning eucalyptus from the support of public policy;
- in the same period, substantial changes took place in the type of actors privileged by the public afforestation programmes: in the World Bank Project the major players were the pulp industry and the Forest Services, whereas in the subsequent programmes the priority turned to the forest owners and the private contractors;
- the types of financial incentives to private forestry changed substantially in a relatively short period of time from long-term loans repaid with the revenues from fellings like in the World Bank Project to very high subsidies decoupled from the results of forest management like in PAF, PDF or Reg. 2080/92.

We think that the Portuguese forest sector needs a different type of public finance based on the following principles.

1. Afforestation programmes should not be subject to frequent changes in priorities, incentives and sources of funds. Instead they should be supported by a permanent fund oriented by a national forest programme with long-term goals.

2. To contribute to this national commitment to long-term forest development, a greater role should be given to domestic sources of funds, reducing the strong dependence on foreign funds whose permanence and objectives the country cannot control.

3. In the domestic sources of funds there should be some regular transfers from the State Budget compensating forestry for its positive externalities. Sometime ago we suggested (Mendes, 1997) that there is a case for these transfers to be based on the consignment of the tax receipts on gas, fuel and automobiles, the argument being that forests are an important carbon sink contributing to reduce the "greenhouse effect" generated by those products. A consignment of those taxes with a percentage equal to the share of the forest sector in the GDP would provide annually enough funds to finance all the afforestation needed to respond to the demands from the forest industries existing in the country.

   Without this kind of consignment mechanism, given the heterogeneity and weak lobbying power of the Portuguese forest sector, the insufficient public awareness for its economic and social importance and the high time discount rate of political actors, there is always a risk for a macrodecoupling (Wolf, Jr. 1993) where the majority of the population benefits from the public goods and positive externalities from forestry without paying for that.

4. Also it is not good to continue with the current misallocation of objectives and policy instruments and the microdecoupling (Wolf, Jr. 1993) in the public subsidies to private forestry which only loosely commit the beneficiaries to an active forest management. Subsidies and grants should be allocated to the provision of public goods and the internalisation of positive externalities (extension services, general training, research and development, fire control, conservation and incentives to biodiversity, etc.), subject to the verification of good stewardship of the forest resources by the beneficiaries. Commercial plantations should be supported with long-term loans (possibly at subsidised rates to compensate for some provision of public goods and positive externalities) with amortisation schemes adapted to the time profile of costs and revenues of the different species and stands. The repayment of these loans would contribute to refurnish the permanent fund.

5. The system should also appeal to private savings, namely through fiscal incentives.

The Forest Policy Law in its Article 18 claims that a public "permanent financial fund" is going to be created to support the following actions:

- afforestation, reforestation and improvement of existing stands;
- forest nurseries and genetic improvement of forest plants and seeds;
- infra-structures to protect forest lands;
- training and technical counselling for forest owners and forest operators;
- compensation to forest owners for constraints imposed on their lands by conservation regulations;
- low interest loans for forest operations with negative cash flows in the short run;
- low interest loans for forest land consolidation;
- research and development.

The law does not specify the sources of funds to support these actions. Also the list above confuses actions with different economic nature: commercial forestry, provision of public goods and internalisation of externalities. So the regulation of Article 18 has to specify the following elements:

- the sources of funds;
- the types of instruments aimed at each type of action supported by the fund;
- the institutional framework to manage the fund.

We have already stated our opinion on the sources of funds and the proper allocation of objectives and policy instruments. About the institutional framework, it should be more flexible, more decentralised and more integrated than it is today. To improve its flexibility, the fund should consist in a set of accounts for each type of action, these accounts being opened and closed according to evolution in the objectives of forest policy (an idea presented by Dr. Luís Constantino from the World Bank).

In terms of decentralisation and integration, the fund should have among its major instruments global grants with a territorial basis, awarded to regional integrated plans for sustainable forestry proposed by consortia of forest owners' associations, forest industries, municipalities and other stakeholders in the forest sector.

3.3.2. Demand side: afforestation and competitiveness of forest industries

3.3.2.1. Wood-based industries

The issue here is to know if the growth in forest resources has responded adequately to the demand from the forest industries. The current situation is that timber supply is not keeping up with this demand, leading to a rise in stumpage prices. This shortage is illustrated by the balances between growth and fellings we estimated for the CESE report (CESE 1996) which are presented in Tables 24 and 25. It is fair to say that the momentum for Forest Policy Law of last year came, to a large extent, from the pressure by the forest industries to increase the public effort on afforestation.

In the short run, to loosen the pressure on domestic resources, the pulp mills are increasing their imports. For the longer run, these companies and other bigger groups in the forest industry are building strategies to make them less vulnerable to the shortages in domestic timber supply:

- pulp mills are evolving towards a greater vertical integration with paper production;
- the leading group in the panel industry (SONAE) has a multinational strategy involving investments abroad, in regions richer in wood resources (Zimbabwe and Brazil).

3.3.2.2. Cork industries

The data about the supply and domestic demand of cork presented in Tables 26 and 27 show a decline in production during the 80s and 90s. This is probably due to the fact that between 1939 and 1974 the area of cork oak forests decreased from 690000 ha to 652540 ha. Also because of drought and other factors not well understood yet, some oak trees have been dying. However, with PAF and the current afforestation programmes the area of cork oak forests has been growing, so that in 30 years from now the production will increase again.

The fact that since the beginning of the eighties there is a shortfall in the domestic production of cork to meet the industrial demand has not been necessarily a bad thing. The positive effects of this situation are the following:

- the Portuguese cork industry became an industrial platform transforming not only the domestic production, but also a important part of the production from neighbouring countries;

Table 24. Net annual increment and fellings of pine wood (1000 m^3 over bark)

Year	1975	1976	1977	1978	1979	1980
Net annual increment	6 852.7	6 852.7	6 852.7	6 852.7	7 164.4	7 164.4
Fellings	5 017.8	4 877.8	6 014.1	6 135.4	6 279.1	6 480.7
Domestic uses	4 944.3	4 806.6	5 928.0	5 989.2	6 045.4	6 324.4
Pulpwood	1 181.4	1 042.9	982.9	964.3	810.0	875.7
Particleboard	259.7	399.0	390.4	357.0	457.1	531.5
Plywood	1.4	41.4	7.1	7.1	17.1	37.1
Furniture	34.0	22.4	55.0	47.4	37.8	66.0
Sawnwood	3 371.4	3 192.9	4 365.7	4 457.1	4 538.6	4 652.9
Carpentry	96.4	108.0	126.9	156.3	184.8	161.2
Exports	73.5	71.2	86.1	146.2	233.7	156.3
Balance (net increment-fellings)	1 834.9	1 974.9	838.6	717.3	885.3	683.7

Year	1981	1982	1983	1984	1985	1986
Net annual increment	7 164.4	7 079.6	6 950.0	6 820.4	6 690.8	6 561.2
Fellings	6 259.9	5 768.3	5 513.8	6 409.0	6 745.5	6 168.0
Domestic uses	6 124.9	5 701.8	5 471.1	6 364.7	6 712.0	6 144.9
Pulpwood	914.3	876.0	744.0	1071.0	1104.0	777.0
Particleboard	572.1	544.3	470.3	535.4	573.8	794.7
Plywood	41.4	34.3	31.4	45.7	27.1	52.9
Furniture	56.2	33.3	54.1	53.1	83.7	72.4
Sawnwood	4 425.7	4 057.1	4 042.9	4 534.3	4 787.1	5 055.7
Carpentry	115.2	156.8	128.4	125.2	136.3	169.2
Exports	135.0	66.5	42.7	44.3	33.5	23.1
Balance (net increment-fellings)	904.5	1 3113	1 436.2	411.4	-54.7	393.2

Year	1987	1988	1989	1990	1991	1992	1993
Net annual increment	6 432	6 302	6 172	6 043	5 913	5 783	5 654
Fellings	6 241	6 495	6 610	6 833	6 960	6 299	5 458
Domestic uses	6 241	6 495	6 590	6 813	6 916	6 174	5 378
Sawnwood	5 143	5 300	5 419	5 706	5 563	4 703	4 240
Pulpwood	731	803	730	671	932	1 057	730
Other industrial uses	182	207	256	251	236	229	223
Fuelwood	185	185	185	185	185	185	185
Exports	0	0	20	20	44	125	80
Balance (net increment-fellings)	191	-193	-438	-790	-1 047	-516	196

Table 25. Net annual increment and fellings of eucalyptus wood (1000 m^3 over bark)

	1975	1976	1977	1978	1979	1980
Net annual increment	1 733.6	1 733.6	1 733.6	1 733.6	2 500.0	2 500.0
Fellings	1 577.9	1 535.7	1 734.4	1 900.3	2 639.9	3 193.6
Domestic uses	1 575.6	1 500.0	1 678.0	1 661.0	2 079.3	2 680.5
Pulpwood	1 319.5	1 280.5	1 443.9	1 424.4	1 835.4	2 364.6
Sawnwood	256.1	219.5	234.1	236.6	243.9	315.9
Exports	2.3	35.7	56.4	239.3	560.6	513.1
Balance (net increment-fellings)	155.7	197.9	-0.8	-166.7	-139.9	-693.6

	1981	1982	1983	1984	1985	1986
Net annual increment	2 838.1	3 456.6	4 075.1	4 693.6	5 312.1	5 930.7
Fellings	2 850.7	2 711.2	3 202.4	4 377.0	4 988.2	4 485.1
Domestic uses	2 651.2	2 499.9	3 027.1	4 009.1	4 291.8	3 950.1
Pulpwood	2 358.5	2 256.0	2 732.0	3 625.0	3 865.0	3 566.0
Sawnwood	292.7	243.9	295.1	384.1	426.8	384.1
Exports	199.5	211.3	175.3	367.9	696.4	535.0
Balance (net increment-fellings)	-12.6	745.4	872.7	316.6	323.9	1 445.6

	1987	1988	1989	1990	1991	1992	1993
Net annual increment	5 742	5 553	5 364	5 175	4 986	4 796	4 796
Fellings	4 734	5 273	4 953	4 513	4 978	5 708	5 320
Domestic uses	4 162	5 273	4 706	4 408	4 475	5 179	5 020
Pulpwood	3 760	4 792	4 247	3 958	4 044	4 760	4 611
Sawnwood and plywood	397	472	449	440	422	410	400
Other industrial uses	5	9	10	10	9	9	9
Exports	602	600	750	405	503	555	300
Imports	30	600	503	300	0	26	0
Balance (net increment-fellings)	1 008	280	411	662	8	-912	-524

Table 26. Cork production (tons)

Years	Total	"Virgem"	"Amadia" and "secundeira"
Average 43/51	170 000	44 000	126 000
Average 52/60	188 000	58 000	130 000
Average 61/69	221 000	78 000	143 000
Average 70/78	197 000	51 000	146 000
Average 79/87	161 100	34 900	126 200
Average 88/96	153 250	n.a	n.a

Sources: CESE (1996); D. R. Sousa L.da.

Table 27. Domestic production and industrial consumption of cork (1000 t)

	1980	1981	1982	1983	1984
Production	162 00	150 80	157 50	167 60	140 60
Consumption	161 50	141 60	122 50	129 40	134 10
	1985	1986	1987	1988	1989
Production	131 00	198 40	179 00	145 00	146 00
Consumption	129 75	126 73	122 20	n. a.	n. a.
	1990	1991	1992	1993	1994
Production	168 00	175 00	154 00	143 00	n. a.
Consumption	194 00	199 00	164 00	150 00	137 00

Source: CESE (1996)

- the shortages in cork supply have been an incentive for the industry to invest in new products able to make a more complete and valuable use of the cork.

3.3.3. New demands for non-wood products

The major issues here are the following:

- in addition to timber supply, which is crucial to keep the important industrial base generated by the forest sector, are there any new solvable demands emerging for non-wood products which could contribute to forest development, such as gaming and recreation?
- is the development of these activities constrained by the fuzziness in property rights?

Recreation and hunting are the most important new demands for forest lands. To be sources of income for forest owners some property rights problems have to be resolved.

Table 28. Hunting zones under the special regime in 1997

Types of zones	Number of zones	Area (ha)
Associative	1 183	1 704 433
Touristic	603	857 447
Social	16	67 135
National	20	44 711
Total	1 822	2 673 726

Source: DGF (1997b)

Concerning hunting, the current law distinguishes two regimes: the special regime and the general regime. The special regime covers 2 673 726 ha, which is about 30 % of the land area of Continental Portugal. It includes situations of common property and private property. Common property exists when a group of hunters join together to get the agreement of the landowners of a certain area to restrict the hunting rights to the members of their club, paying rent to the landowners in return. These are called the "associative hunting zones". Besides paying rent to the landowners, the hunting club also has to follow a management plan to improve the gaming resources and hire guards to protect them.

This type of regime was criticised because the procedure to get the landowners' agreement did not require their written consent. It was enough for the hunting club to post a public notice about the proposal to create a hunting zone and then wait for some time to see if some landowners were opposed to that. Thus some people's property was included in this kind of hunting zones without their knowledge, just because they were not there when the notice was posted. These regulations have been changed so that currently a written consent is required from all the landowners included in these associative hunting zones.

Another situation fitting in the special regime is the case of the "touristic hunting zones". Here gaming is managed as private property directly by the landowner or by some company which is leasing land for this purpose. So access to these zones is not restricted to the members of hunting clubs. Any hunter can access the lands as long as he can afford to pay the access fees and the prices for the pieces of game he gets. These areas are already a big business in Portugal, especially in the extensive farm estates of Southern Portugal (Alentejo), being one of the very few economic opportunities available in the innermost parts of this region.

The general regime is the land of the "res nullis" with features not far from an "open access" system. Here anyone with a hunting licence can hunt during the hunting season, the access to private property being free, as long as it is not an area under the special regime.

Hunters in the associative and in the general regime have been in conflict since the former was allowed by law because each associative zone that is created is taken away from the territory left open to the general regime. The Ministry of Agriculture has tried to manage this conflict, but since it is a politically sensitive issue, the public interventions have been fearful of clearly steering the process in the direction of the substantial reduction of the general regime in favour of the common property regimes.

As far as recreation is concerned, it is not yet as important as hunting in terms of the economic returns it can have for private landowners. Access to forests on motor vehicles or on foot is not regulated. Only when the land is especially organised for recreational use such as camping will the access be restricted and private property rights be enacted to generate positive returns for the landowner.

4. PROTECTION OF FOREST RESOURCES

4.1. The facts: the problem of wildfires

The problem of forest fires keeps getting worse since the 1960s, and was especially devastating between 1985 and 1991. This problem affects mostly the pine forests of North and Central Portugal where they have been responsible for most of the decrease in the area of this species occurred in the last decades.

Forest fire fighting is the responsibility of the fire departments which, in Portugal, are mostly made of volunteers. In 1995, there were 38 243 firemen, 35 074 being volunteers, and a total of 444 fire departments, 400 being associations of volunteers.

Table 29. Annual averages of burnt forests (ha)

Years	Forest stands	Shrublands	Total
1968/69	8 532	8 165	16 697
1970/74	15 349	8 601	23 950
1975/79	46 292	17 637	63 929
1980/84	35 862	19 279	55 141
1985/89	67 259	42 404	109 663
1990/94	56 413	44 394	100 807
1995	85 246	81 084	166 330

Source: DGF

Table 30. Change in the area of maritime pine between 1982 and 1995

Regions	Area in 1982 (1000 ha)	Area in 1995 (1000 ha)	Change (1000 ha)	Rate of change (%)
Northwest	235.21	138.90	-96.31	-41
Northeast	122.12	120.40	-1.72	-1
Central West	441.45	350.70	-90.75	-21
Central East	268.36	246.20	-22.16	-8
Ribatejo Oeste	134.10	111.40	-22.70	-17
Alentejo	45.55	55.30	9.75	21
Algarve	5.51	6.30	0.79	14
Total	1 252.30	1 029.20	-223.10	-18

Source: DGF (1997b)

The co-ordination of the fire departments, including the fight of forest fires, belongs to the Ministry of Internal Affairs. The Ministry of Agriculture and more specifically, the Forest Services, have no saying in the training and co-ordination of the fire fighters when it comes to forest fires. The Ministry of Internal Affairs has another type of intervention in this field. Through one of its departments called CNEFF ("Comissão Nacional Especializada de Fogos Florestais"), this ministry grants financial aid to forest fire prevention. Most of these funds have been going to the municipalities to build forest roads and other types of infra-structures to support fire fighting, but sometimes they lack a clear linkage to fire prevention and to the forest improvements financed by the afforestation programmes managed by the Ministry of Agriculture. The role of this ministry is in the detection and reporting of forest fires which is done by the Forest Services with a network of surveillance checkpoints distributed throughout the major forest regions.

4.2. The issues and the public policy responses

This escalation in the wildfire problem has to do with the following factors:

- the characteristics of the plantations made by the Forest Services in North and Central Portugal between 1939 and 1972 (monospecific stands of maritime pine established without respect for the traditional sylvo-pastoral systems);
- the economic and social changes in rural areas, especially emigration and technological change in the farm and domestic production systems.

Table 31. Public funds allocated to fire control (1000 escudos)

		Prevention				
			Investments subsidised by Reg. (EEC) 2158/92			
Year	Subsidies to firemen and other fighters	Subsidies from CNEFF	Public projects	Private projects	Other investm.	Total
1987	n. a..	86 000			364 000	450 000
1988	2 000 000	365 000			87 000	452 000
1989	2 500 000	290 000			349 000	639 000
1990	3 000 000	298 000			605 000	903 000
1991	n. a.	205 000			1 025 000	1 230 000
1992	3 640 725	762 000	459 000	49 568		1 270 568
1993	3 188 479	743 000	374 000	303 941		1 420 941
1994	3 418 911	1 286 000	490 000	429 480		2 205 480
1995	4 386 745	2 150 000	341 400	440 548		2 931 948
1996	4 774 000	2 342 500	424 000	576 166		3 342 666
1997	4 230 000	2 490 000	n. a.	n. a.		

Sources: CESE (1996), DGF (1997a) and CNEFF.

Since wildfires are mostly a problem of the small scale forests of North and Central Portugal with a large number of private owners involved, and because fire control generates positive externalities, reducing the risk of forest fires faces very high "transaction costs" which cannot be overcome by the individual efforts of the forest owners. This needs their collective organisation with a strong support from public policy. Therefore the major issue here is to see whether or not public policy has been active and effective in supporting the establishment of forest owners' associations and in promoting effective linkages between these associations and the institutions in charge of wildfire prevention, detection and fight.

We have already seen that, for a long time, forest policy has neglected this kind of support. Forest owners' associations appeared recently and, in the matter of forest fires, public policy has given priority to fire extinction over fire prevention, as we can see with the data presented in Table 31. Recently, however, there are signs of a small inflection in the priority of fire extinction over fire prevention. In its Article 10, the Forest Policy Law 33/96 of August 17, 1996 states that there is going to be "a national, regional and sub-regional structure to plan and coordinate the prevention and detection of forest fires and to collaborate in its fighting". This phrasing does not specify under which umbrella this system will be put: the Ministry of Agriculture or the Ministry of Internal Affairs. The feeling we get is that the Ministry of Agriculture is not pushing things to the point of taking the control of the forest fire fighting away from the Ministry of Internal Affairs. This move would generate fierce resistance not only from this Ministry, but also from the corporations of volunteer firemen. However, the Ministry of Agriculture will probably push for a stronger co-ordination between prevention, detection and fire fighting, through interministerial agencies at the national and regional level, and interdepartmental agencies at the operational level (regional and sub-regional). The aim of this structures would be to improve the connections between the detection network operated by the Forest Services and the Operational Commands of the Fire Departments. In addition to this new institutional framework, the Ministry of Agriculture will probably push for a better training of the fire-fighters to deal with forest fires.

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FORMAL ASPECTS OF THE NEAR FUTURE DEVELOPMENT OF THE "VIRTUAL" EUROPEAN FORESTRY POLICY

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ABSTRACT

The European forestry policy carried out by the EU member countries within the European Union is a kind of a "virtual" policy. When secondary European law for the forestry sector already exists and the need for a coherent forestry strategy has been expressed by the Commission and the European Parliament, a common forestry policy on the EU level is impossible for legal reasons. The same countries asking for pan-European agreements concerning the forestry sector within the Ministry Conferences (Strasbourg 1990, Helsinki 1993) are not able to install the basis for an EU-wide coherent forestry action program. The author proposes few and very small formal changes within the Commission's organisation that could help to overcome the principal problems, blocking activities to maintain a healthy forest and forest industries sector within the EU.

1. EUROPEAN FORESTRY POLICY AND POLITICAL CORRECTNESS

The title of this Conference is "Future Forest Policies in Europe". The organisers are quite right in making clear with this title that there are many different kinds of forestry policies in Europe. This is in line with the legal situation in the European Union and anybody who would try to discuss this matter on any other basis would be suspect – especially as a representative of European forest owners.

Nevertheless, I should like to focus my remarks on European forestry policy (singular) that means on the policy of the European Union institutions which relates directly to forests and forestry. What we are dealing with here is a policy area which to date is not even based on a consensus as to its language – not to speak of a consensus as to its content.

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Efforts have been made to avoid the term of common forestry policy because it conjures up an association with the scary scenario of the presently existing Common Agricultural Policy. Legislative measures of the EU institutions which have a direct impact on the forestry sector have been officially recorded under the heading of agricultural policy or environmental policy. Unofficially, attempts were made to classify the activities under Community or coordinated forestry policies.

These attempts have been ongoing up to the present time. Thus, the EP on 30 January 1997 made a request to the Commission asking that a legislative proposal on European policy entitled "Forestry strategy" be drawn up within two years. While this choice of words may be in conformity with political correctness, it does not alter the fact that common and coherent action by the Commission in the forestry sector is being called for – in other words, a European forestry policy.

Political correctness notwithstanding, the EU institutions should learn to articulate this term for the reason that whoever cannot say what he means, seldom means what he says.

Transparency and clarity are of importance, especially for forest owners who are to implement the European forestry strategy (or forestry policy) on the field level – or who at worst are only the parties affected.

There is no doubt that in Brussels, however, a characterised kind of forestry policy is being conducted. Only with difficulty can its legal basis be determined. It is even more difficult to locate the parties with responsibility in this matter, and it is almost impossible to identify their objectives. The policy is being made and does not exist at the same time. It is an apparent or virtual forestry policy of which, in many instances, note is taken only when its consequences – whether good or bad – become noticeable.

Forest owners do not intend to resign themselves to this unsatisfactory situation which makes it difficult to develop strategies for the efficient representation of their interests. A discussion of European forestry policy is therefore being conducted which goes beyond the pros and cons of the matter. The central topic is the future development of European forestry policy – in this case also taking into account the institutional aspects.

2. EUROPEAN FORESTRY POLICY – REALITY OR NOT?

First, however, let us take a quick look at three apparently paradoxical features of this virtual European forestry policy.

> ***First contradiction:*** *There should not be a European forestry policy, and yet there is one.*

Of fundamental importance is the lack of provision for forestry in the Treaty establishing the European Community, on the one hand, and the resulting justification of a limitation on action by the EU institutions in the field of forestry on the other. Despite this basic fact deriving from the Treaty law, however, there are almost a dozen norms under secondary legislation (directives, regulations, decisions) which relate directly to forests or forestry. They are summed up in a Community forestry action programme.

On closer examination, this action programme turns out to be either a correction programme designed to counteract outside negative influences on the forestry sector (protection of forests against fire and air pollution) or an aid programme for the fulfilment of common objectives within the framework of common policies (reafforestation of agricultural areas). Primary forestry policy objectives are not the basis of this programme.

Second contradiction: *Nobody has responsibility for forestry policy, but everybody is dealing with it.*

Up until now, European forestry has been dealt with, to some extent, in a contradictory manner: at one time it was relegated to the status of a waxworks, at another time it was in the forward-planning division of Directorate-General VI of the European Commission. However, the situation has now clearly changed, as the European Parliament this year was able to score a success with the previously mentioned request to the Commission to draw up a forestry strategy.

Forests and forestry are not only on the agenda of the European Parliament. In May of this year, the Economic and Social Committee of the European Communities intervened in the discussion with an own-initiative opinion on European forestry policy. The Committee of the Regions will soon follow with a report on forestry.

During the next few years, European forestry policy will appear more frequently on various agendas.

The question of competence or responsibility has still not been settled. Neither the Commissioner with responsibility for agriculture nor any of his other colleagues would have been able to adopt forestry policy as their own. However, some of them want to conduct it, and the competition for the forestry sector and forests which is taking place between the three front runners DG VI, III and XI is being closely watched by the relevant interest groups in Brussels. But one has the feeling that the question of responsibility will not be sufficiently resolved.

Third contradiction: *Nobody wants European forestry policy but everybody is calling for close international cooperation.*

A European forestry policy – as the Council of Ministers probably agrees – is not wanted, at least not within the EU or with the instruments available to it. At a pan-European level, however, the same Ministers strongly support a pan-European forestry policy based on international agreements. They could not demonstrate their conviction better as to the urgency of forestry policy measures than in the continuing process of the Ministerial Conference on the protection of European forests.

The six Strassbourg resolutions adopted in 1990 and the four Helsinki resolutions of 1993 are of strong political importance – within Europe as well as on a global level. As part of the so-called follow-up process to the Ministerial Conference, the European guidelines for forest management at the operating level are already being discussed at the expert level (Forest Management Unit Level Guidelines).

The political issue of how to handle the question of forests and forestry has never been so topical in Europe as it is today.

However, before one can develop the content of European forestry policy, in other words, the content of the European Union's forestry policy, the three contradictions referred to previously have to be resolved.

The approaches involved can vary a great deal and will be only briefly commented on here in the light of the current political mood.

3. SECTORAL POLICY OR INTEGRATED APPROACH?

3.1 Sectoral approach

The ideal approach would be an amendment to the EU Treaty. The forestry sector would be included as the last primary sector of the economy in Article 3 letter e) of the EC Treaty. All contradictions would be resolved in this way. There would be a list of objectives for the forestry sector and a package of forestry policy instruments and the question of responsibility would be settled.

This kind of solution is not likely to occur. There is room for discussion about the reasons and it seems that two of them are important.

1st *As a sector of the economy, forestry is still much too healthy for systematic intervention by the EC to appear necessary*. Certain structural improvements in the forestry sector and protection of forests against environmental influences do not justify an independent forestry policy.

2nd *The lack of an independent forestry policy at a national level.* In the EU, forestry policy in the Member States is within the jurisdiction of either the Ministry of the Environment, the Ministry of Trade and Industry or the Ministry of Agriculture. An agricultural policy, economy policy and an environmental policy already exist at a European level. A sectoral European forestry policy with its own Directorate-General would lack a national institutional counterpart.

Result: Neither the objective nor institutional foundations exist for a sectoral policy approach as regards implementing forestry policy objectives.

It is all the more surprising that in its 1997 resolution on a forestry strategy the European Parliament chose precisely this sectoral policy approach. An amendment of the European Treaty was not proposed, and as a result only few cosmetic improvements can be obtained as regards the Community's current forestry action programme.

3.2 Integrative approach

The preconditions for this kind of approach appear to be more favourable. Forests, along with the forestry and timber sector, and their social, economic and environmental importance have already attracted the interest of several Directorates-General of the European Commission. Advisory committees are being prepared in the DG VI

(Agriculture) and the DG III (Industry), and forestry sector interest groups will be represented in these. They will advise the Commission on policy. Alongside these the DG XI (Environment) is also dealing quite intensively with the topic of forests.

Their intentions are to examine closely the impact of the common policies on the forestry sector. It is open to question whether forestry interests will be taken into account from the outset in the formulation of policy in the relevant Directorates-General. This would be equivalent to the integration of forestry policy into the common EC policies.

In the worst case, only the tolerance of the forestry and timber sector will be tested as to how far the objectives of the common policies can be achieved by placing the burden on the forestry and timber sector.

Of not inconsiderable importance is the fine distinction drawn between a one-dimensional and multidimensional integration of forestry policy into the common policies of the EC.

In Brussels there is something in the air about competition for the leadership role in the forestry sector. The various Directorates-General are developing activities designed to demonstrate their expertise and fitness to take over the function of *primus inter paris* in forestry matters. If one particular Directorate-General should in fact succeed in playing a leadership role accepted by all the others, one could speak of a one-dimensional integration of forestry policy. Up to now the DG VI has occupied this position.

This was justified for as long as agricultural and forestry- holding structures in Europe were such that this could be maintained without difficulty as long as agricultural policy and forestry policy belonged together. But mixed agricultural and forestry enterprises continue to decline in terms of both numbers and area. Instead, the vertical interpenetration of forestry and the processing industry has increased in importance. The importance of DG III is therefore increasing to the same extent.

4. INSTITUTIONAL CHANGES NEEDED TO FACILITATE THE EXISTING EU FORESTRY POLICY

A multidimensional integration of forestry policy, i.e., one taking account of forestry questions in as many EC policy areas as possible should be given priority. For this kind of policy to function properly there are four requirements to be met, which can be classified as follows on the basis of political feasibility:

1. Amalgamation of the previously planned Advisory Committees on Forestry Sector carried out by individual Directorates-General into one single Advisory Committee.
2. Transfer of responsibility for coordinating cooperation between the departments of the Commission in forestry matters to the President of the Commission.
3. Preparation of a scheme of forestry policy objectives by the Standing Forestry Committee of the European Community by agreement with the Commission's Advisory Committee on Forestry as a benchmark for a "forestry policy impact assessment" within the framework of the EC common policies.

4. Renaming the misleadingly described EC forestry action programme to read: “Forestry-related measures within the European common policies”.

If these requirements were met, a basis would be created which, as is undoubtedly necessary, would improve the possibilities of taking into account forestry interests within the EC policies. The principle of subsidiaries and the spheres of competence of the Member States in the field of forestry would remain untouched. Taking account of the interests of the social groups linked with the forestry sector would also be facilitated. Efficiency and transparency could be enhanced.

We should discuss the content of a European forestry policy only when it is certain that the content can also be taken into account in a suitable way, i.e., within the framework of the common policies.

A solution to this formal institutional problem on the EU-level is required at the same time, if national forestry policies in the EU are to have a future at all.

POLITICAL ECONOMY OF FARM FORESTRY IN FINLAND

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ABSTRACT

The purpose of this study was to examine the objectives and means of relevant public policies concerning agriculture and forestry, and to identify what kind of policy decisions influence the farmers' decisions. Agricultural and forest policies, in particular, were under scrutiny, but the general political economy framework affecting farm forestry in Finland was also assessed. In the rural areas of Finland, a substantial share of income is derived from private farm forests. As forestry is a very integral part of Finnish farms and administered by the same Ministry of Agriculture and Forestry (MAF), our *normative starting point* was that farm forestry ought to be incorporated more closely in the policies of the MAF in order to properly respond to the close practical interaction of agricultural and forestry activities on Finnish farms. The methodology of this study included both a political economy analysis and a survey of 1 000 Finnish farms. The survey data were analysed by discriminant analysis.

The **results** show that, in spite of its significance for farms and rural regions, forestry has not been taken adequately into account in the policy planning. Usually it has primarily been seen as a way to reduce the overproduction in agriculture, e.g. by afforestation. Although forestry can offer earnings and job opportunities for farms and rural regions, only in the 1990s this aspect has been more emphasised through a better defined rural policy. This lack of attention to farm forestry in the pursued policies is also evident in the results of the study as farmers perceive that there have been no specific political instruments to promote the integration of agriculture and forestry. This is sort of a *policy failure*: recommendations of the policy committees have outlined means of agriculture and means of forestry, but hardly anything to promote the integration of them. But the results also showed some strengths and opportunities for agriculture and forestry, in particular the farmers' reliance on their own professional skills is encouraging. Strengths should be utilised more efficiently by better targeted policy instruments, e.g., in education, extension and research, but also by the farmers' own actions. In the changing economic environment farm forestry is one of the rare

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comparative advantages in the Finnish countryside. Farm forestry, its several functions from timber supplier to a public goods provider (e.g. landscape, biodiversity), has to be better taken into account in agricultural, forest, rural and environmental policy planning. It is a sensible, and a sustainable, way to enhance local, and thereby the entire society's welfare.

1. INTRODUCTION

Membership in the European Union impairs the possibilities of Finnish agriculture as a whole, and seems to have quite different effects on different regions (e.g. Kettunen 1996). Because of these national and international changes, it is important for farms to search for alternative ways to earn a living. One way to accomplish this is to strengthen the advantages of the synergy between agriculture and forestry (Huovinen 1995). In practice, agriculture and forestry have always been closely connected on farms through the use of production factors. Instead, policy, research, education, and extension services have differentiated between them. Joint policies or projects have been rare. Hence, there is a clear and present need that in examination of the effects of national and international changes on farm enterprises and the countryside agriculture and forestry should be considered more often as one entity.

The purpose of the study is, firstly, to examine the political economy and the objectives and means of agricultural policy in agriculture and forestry. Secondly, the aim is to identify what kind of policy programmes have had and would have an influence on the farmers' decisions (Sihvola 1996). In section 2 the purpose is to describe farm forestry in Finnish countryside, and how the CAP is expected to affect farm forestry. The general political economy framework affecting the Finnish farm forestry is described in section 3. Section 4 presents the empirical study consisting of a policy planning analysis and a survey to farmers. Finally, section 5 provides conclusions and policy recommendations.

This article represents one product from the larger research project "Integrated farming and forestry in changing economic environment" (Hyttinen et al. 1993), carried out in 1994-96 and funded by the Finnish Academy of Sciences.

2. PUBLIC POLICY AND FARM FORESTRY

2.1. Farm forests in the Finnish countryside

Forests are the "green gold" of Finland. About three quarters of the land area in Finland is forest. The share of agricultural land is less than 10%. Forests are very significant to the whole national economy, to rural regions, and to farms. Although forest income is only about 10% of the total income of farms, the share of the forest income is very important especially in the north-eastern Finland, and also on some individual farms in other regions.

A typical Finnish farm comprises of only 13 hectares of agricultural land, but 49 hectares of forest. The production structure of agriculture is predominated by animal production. In 1993, over 70% of the sales income originated from animal production, and almost half of this from dairy products. The number of farms has declined drastically and production has become regionally concentrated. In 1993 the total number of all farms was 192 000, of which only some 60% were actively producing farms. The average age of farmers was 52 years (Farm Register 1994). Around 58% of Finns live in the countryside, which covers 98,5% of the area in Finland. Finland is a very sparsely populated country (15 inhabitants/km^2) ranking second, after Norway, among the provincial countries in Western Europe (OECD 1995). Threats in rural regions are the decline in the number of jobs, and the migration of young people to the cities. The economic structure is also quite one-sided. In certain areas of Middle and Eastern Finland the share of agriculture and forestry together is 15-20% of the labour force. Nationally, the share is 9%, of which agriculture alone is 7%. In 1994, their share of the GDP was about 5%.

Finland's exploitable forest resources, 19.5 mill. ha, are 22.5% of the EU's exploitable forests. In 1993 Finnish farmers owned 8.9 mill. ha forest land (Farm Register 1994). Over 90% of the farms have forests. Farmers own 56% of all privately owned forest land (Ihalainen 1992). Although the farmers' share is still high in acreage, the number of non-farmer, and often also non-rural, private forest owners has rapidly increased. Järveläinen and Torvelainen (1993) expect it to be over 60% by 2000. This

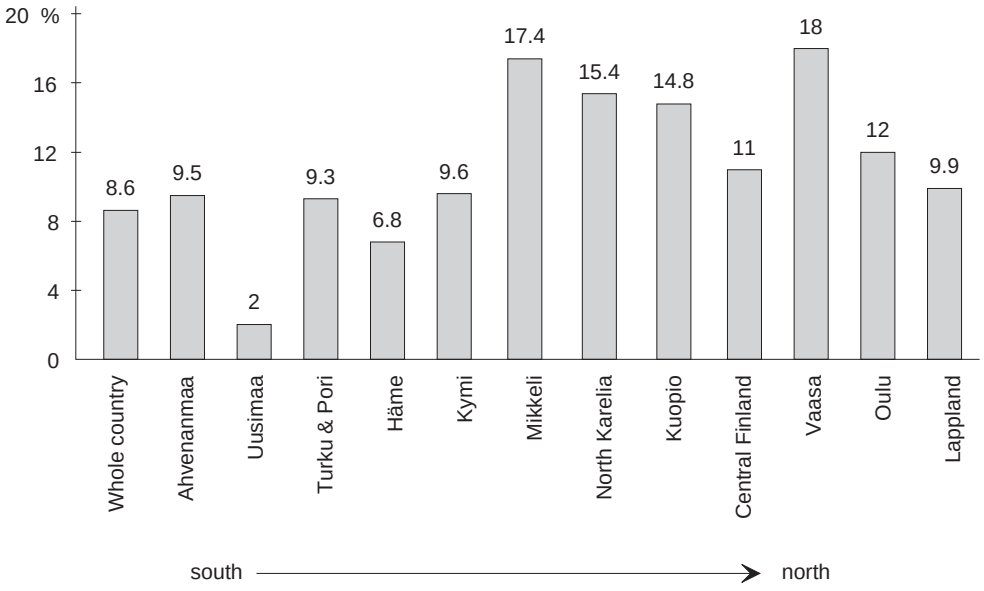

Figure 1. The share of agriculture and forestry of the labour force in different regions in Finland.

development implies a shift of income flows and consequent economic activity from rural economy to urban areas. Farmers are important forest owners, because they sell wood regularly and their forests are in good condition with respect to the production of wood. The biggest Finnish forest company, UPM-Kymmene, is also the second largest by output in the world, after the International Paper, USA.

For the farms' total income from agriculture and forestry, pure income from forests accounts for only 6%. The pure income was the highest in Eastern and Middle Finland, and the lowest in Western and Northern Finland. In 1988-1990 the net stumpage earnings and income from the forest owners' work in delivery sales in private forests were about FIM 6 billion yearly. In relation to the presumption that there is no difference in cuttings between farmers and other private forest owners, the forest net income of farmers has been about FIM 3.4 billion yearly, which is about 30 per cent of the total net income from agriculture and forestry (Huovinen 1995: 1).

Synergy between agriculture and forestry is best accomplished by the use of labour. Synergy is the greatest on farms, in which there is no working alternatives nearby (Huovinen 1995). Forestry and agriculture reduce the production costs of each other, but the savings by synergy will be limited due to restrictions of agricultural policy on the expansion of the production capacity of agriculture, at both the farm and national levels in the CAP.

2.2. CAP effects on farm forestry

For the moment, forestry matters are not decided commonly within the EU. This is because the Rome Treaty does not include forestry. A common forestry policy has not been developed since the countries in Europe differ to a fairly large extent in matters related to forests and the forest industry. Instead, most of the members in the EU only want to improve the co-ordination in forestry matters. The membership of Austria, Finland, and Sweden made the EU self-sufficient in forest industry products. The membership of Finland and Sweden alone doubled the forest land area in the EU.

The aims of some support measures that also concern forestry in the EU relate more directly to environmental, agricultural, or regional policy purposes than to forestry development proper (Hyttinen and Kola 1995). Decisions affecting forestry are made mainly in the DG VI, which is the directorate of agriculture. The support measures concerning forestry in the EU are: (a) support to activities in forests, e.g. afforestation and forest improvements; (b) support to improve the livelihood of forestry; (c) investment aids to process and market forest products; (d) environmental support of agriculture.

One of the objectives of the EU's CAP is to reduce over-production. The afforestation programs are one way to do this. In Finland the afforestation programs have been used since the 1960s. The amount of afforestation was highest in 1993, when almost 18 000 hectares of field land was afforested. In the EU, a farmer can receive support to cover the costs of field afforestation, premiums for taking care of the afforested areas and compensation for the loss of income caused by afforestation during the next 10 years. Considering all the premiums and compensations, the support for afforestation might rise to significantly high a level in 10 years, even to about FIM 30 000 per hectare. The

consequence of this might be that the price of land remains at a high level and the supply of land at a low level. Consequently, the structural development of agriculture may be hindered.

3. POLITICAL ECONOMY DEVELOPMENTS AFFECTING FARM FORESTRY IN FINLAND

The origins and development of the new political economy can be traced back to the works by Downs (1957), Olson (1965), Stigler (1971), Krueger (1974), Buchanan and Tullock (1975), and Bhagwati (1982). Later the political economists have formalised, combined, and applied one or more of these theories and tried to justify them empirically (see Swinnen and van der Zee 1993). Johnson (1991), in turn, provides a text book description on the issue.

With respect to the objective of this study it is essential to identify two features (Kola 1995). Firstly, Finnish agriculture was before the EU-membership heavily administered and subsidised by numerous government interventions and policy programs. Now agriculture faces the EU's administration, and effects of the CAP. Although forestry also faced earlier and faces also in the EU some government control (see Chap. 2.2), it as a sector and industry has been more open and market-oriented. Secondly, forestry has remained quite separate from agriculture in policy planning and making in Finland, although it is so integral part of Finnish farms and directed by the same Ministry of Agriculture and Forestry.

The key question here is: *why agricultural policy as such has gained a major interest and has persisted without any major changes for decades in Finland?* Only EU accession forced changes, although the society had changed and economic significance of agriculture diminished in the course of time also in Finland, and also prior to EU membership. On the contrary, forestry and forest industry has maintained its key economic position in the society, especially in terms of net export earnings.

As agricultural policy, especially the CAP in the EU, has become extremely complicated and controlled, there are only few specialists who can master the subject. Consumers do not know real effects and costs of agricultural policy (*cognitive limitations*). Politicians should forward the issues of their primary constituency of consumers, but often they are advocating diverse private and local policies as if they were public policies of common interest. The bias is sometimes explained by ambiguous positive externalities and perceived public goods of these policies. In agriculture, the public goods often referred to are rural livelihood and landscape, food security, and the family farm structure.

Often, the decision has to be made between a large but heterogeneous group, e.g. consumers, taxpayers or environmentally concerned voters, and a small, but well-organised, homogeneous group, e.g. farmers, whose *collective action* is very efficient. Politicians, who usually perform cost-benefit calculations for potential votes, often favour the well-organised farm interest groups, and governments tend to correct market failures by favouring the politically powerful (Becker 1983). This is evident also in Finland (Kola 1993).

In spite of their decreasing number, farmers' political behaviour is very active and concentrated by the one and only producer organisation, the Central Union of Agricultural and Forest Producers MTK (note: only in 1992 the name was extended to include also *forest*). MTK enjoys of a high degree of membership (70%), close linkages to the agribusiness co-operatives of a high market share, and good connections to certain political parties, especially the Center Party. In fact, the structure of *politics and political power*, i.e. the consensus policy, has led to a relatively stable official decision making process also in agricultural policy (Kola 1993: 32).

4. ANALYSIS AND RESULTS

4.1. The role of farm forestry in policy planning

Since the 1950s Finnish agriculture has been developed according to the guidelines provided by various committees and working groups. Yet, no official goals of agricultural policy, e.g. comparable to the CAP principles and objectives set in the Rome Treaty, has not been set. In spite of general consensus policy, different opinions between agricultural and other interest groups have emerged when the time has come to set specific goals or choose means and reserve funds to achieve the generally accepted goals. The gradual shaping of the means of a policy without a comprehensive programme has led to a uncoordinated, even contradictory composition of means. In this complicated system, the linkage between reasons and consequences, objectives and means has become unclear.

Forestry as a part of agriculture and forestry was taken into account quite well in the first, professor Nils Westermarck's, agricultural committee (1958-1962). However, usually forestry has been seen primarily as a way to reduce the overproduction of agriculture, for instance by afforestation. Forestry has also been considered as a source of earnings and job opportunities on farms, but the committee work has included no proposals for any active improvement of farm forestry. At the same time, similar aspects, i.e. increasing the profit from forestry and large-scale afforestation, were also emphasized in the forest policy committees. Instead, only in the 1990s the *rural policy approach* has put a stronger emphasis on forestry as a part of a living countryside, the strength of which is diversified economic activities. The rural policy aspect emphasizes stronger utilisation of forestry by eg. processing wood to create more jobs (eg. Toimiva maaseutu 1996).

4.2. Farmers perceptions on effects of agricultural policy: a survey

A survey of 1 000 Finnish farms was used to find out farmers' views on pursued policy. The survey was a part of a larger project "Integrated agriculture and forestry in the changing economic environment" (Hyttinen et al. 1993). The questionnaire provided information on, *inter alia*: (a) what kind of farms have plans to change their production; (b) possible differences in production changes between farms with forests and other

farms; (c) how much of the changes will be financed with forest income; and (d) what kind of political instruments can affect farmers decisions. Here, we concentrate on how integrated agriculture and forestry can influence farms' adjustment in changing conditions, and what kind of agricultural policies can affect farmers' reactions.

The sample was collected from the farm register. The farms were divided to four groups by the amount of forest and arable land. Sub-groups of the stratified random sampling are:

1. Farms with arable land < 15 ha and forest < 50 ha;
2. Farms with arable land ³ 15 ha and forest < 50 ha;
3. Farms with arable land < 15 ha and forest ³ 50 ha, but below 1000 ha; and
4. Farms with arable land ³ 15 ha and forest ³ 50 ha, but below 1000 ha.

The response rate was 44.5%. A discriminant analysis was employed to explore how farms with different **sizes** and in different **regions** differ from each other by selected variables, for instance by the meaning of forests, the use of forest income, and the farmers' reactions to different policy actions.

The results of the discriminant analysis showed that clear political instruments, which would promote the integration of agriculture and forestry, do not exist according to the farmers' own experience. Moreover, there is no homogeneous farm group in which specific political means would promote this development. As the farmers see it, recommendations of the policy committees have outlined the means of agriculture and forestry separately, but hardly anything has been done to promote their integration. Yet, the results also showed some strengths and opportunities for agriculture and forestry. These are, for instance, professional skills and the location near the agricultural markets.

5. CONCLUSIONS

Although the share of agriculture and forestry of the gross domestic product and labour has declined drastically since the 1960s, the farmers' collective action and political power has successfully been managed and concentrated by the farmers' union MTK. Its political weight has conventionally benefited from close linkages to the agribusiness co-operatives and certain political parties, but also from a strategically significant factor, i.e., the large forest resources owned by farmers. In these circumstances heterogeneous, inefficient groups of consumers and taxpayers have been no match for the homogenous, well-organised group of farmers. In addition, this has been secured by the consensus policy typical for Finland, especially in the 1970s and early 1980s. In the 1990s the stable situation changed due to the severe economic recession and the EU membership.

In spite of its significance for farms and rural regions, forestry has not been taken adequately into account in the policy planning. Only in the first agricultural committee (1958-1962) it was paid reasonable attention to. But usually it has primarily been seen as a way to reduce the overproduction of agriculture, e.g., by afforestation. Although forestry can offer earnings and job opportunities for farms and rural regions, the

committee work has included no proposals for any active improvement of integrated farm forestry. Only in the 1990s this aspect has been emphasised more through a better defined rural policy.

This lack of attention to farm forestry is also evident in the results of the study as farmers perceive that there have been no specific political instruments to promote the integration of agriculture and forestry. This is sort of a policy failure: recommendations of the policy committees have outlined the means of agriculture and forestry individually, but hardly anything to promote the integration of these two. But the results also showed some strengths and opportunities for agriculture and forestry, in particular, the farmers' reliance on their own professional skills is encouraging. Strengths should be utilised more efficiently by better targeted policy instruments, for example, in education, extension and research, but also through the farmers' own actions. In the changing economic environment, the farm forestry is one of the rare comparative advantages in the Finnish countryside. Farm forestry, its several functions from a timber supplier to a public goods provider, has to be better taken into account in both agricultural, forest, rural and environmental policy planning in order to properly respond to the close practical interaction of agricultural and forestry activities on Finnish farms. It is a sensible way to enhance the society's welfare.

Finally, as further research is becoming increasingly important, we should take into account the "new" effects of a wider socio-economic sphere of positive externalities which are produced by the small-scale farm forestry (Kola 1995). These include, for example, securing biodiversity and rural landscape and livelihood. Järveläinen et al. (1997) have published very recent study in this field concerning forest biodiversity and its economic impacts in Finland.

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CONCLUDING REMARKS BY THE CHAIRMAN

Tim Peck

European Forest Institute

As I said at the opening of the Forum, it was basically intended to provide an occasion for researchers and those involved in policy making to come together and discuss ideas and opinions, with particular emphasis on future research needs. It was never intended that the Forum itself should draw up and agree on a set of conclusions and recommendations. There has been no time to prepare a list of the major issues and research needs which have emerged during the discussions of the past two and a half days. The best I can do, therefore, is to give some brief impressions which my fellow Moderators have very kindly provided me with, to which I shall try to add my own comments on this morning's session.

It has been my general impression that the Forum has been of value to participants and has been successful in achieving the organisers' objectives of stimulating useful exchanges of opinions and information. It has approached the problem of trying to balance economic and ecological demands from a broad perspective, leaving open the need for further more detailed discussions on more specific problem areas. These might be the topics for similar Forums in the future.

The following is a synthesis of a few of the main points developed during the five sessions:

Session 1: What are the most crucial socio-economic and ecological trends facing the forest and forest industries sector in Europe? (Moderator: Ilpo Tikkanen)

1. Speakers and interlocutors drew attention to the fact that the forest and forest industries (FFI) sector is being increasingly influenced by:

- Various socio-economic trends outside the sector, such as general economic conditions and changing social values related to the environment;
- Other sectoral policies, such as economic policy and agricultural policy, at both the national and international levels, the latter including various European policy processes;

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- Trends inside the FFI sector as well as related policy processes, national and international, such as the pan-European process, IPF, CSD, UNGASS.

2. As a consequence, intensified and expanded research efforts are needed to:

- analyse these underlying socio-economic and other trends, as well as the "external" policies influencing the FFI sector;
- contribute to the development of national policies to balance the socio-economic demands on the forest with the ecological ones, i.e. to improve the information basis for policy making and decision taking.

Session 2: Policy research needs following the Fourth Intergovernmental Panel on Forests (IPF IV) (Moderator: Birger Solberg)

3. The increasing globalisation of environmental and economic issues and its influence on forest policy matters was emphasised by several speakers.

4. Regarding certification, one vital issue is to what extent third party independence is necessary to secure credibility.

5. The following were among the issues which were mentioned as especially important for research: land tenure issues, approaches to effective cross-sectorial policy harmonisation, different forest management alternatives' impacts on biodiversity, policy analysis on the impact of different policy instruments for securing forest sustainability, and impact of different types of certification schemes.

Session 3: What is the role of criteria and indicators in balancing ecological and socio-economic aspects of sustainable forest management? (Moderator: Hans Essmann)

6. International discussion about criteria and indicators helps to develop a better understanding of what "sustainable forest management" (SFM) means, whether or not there will ever be international agreement on binding rules or regulations on SFM standards.

7. A system of registration of forests that are internationally recognised as being under sustainable management could serve as a basis for an internationally accepted ecocertification scheme for forest products entering international trade.

8. There is a great need for information about the socio-economic and sociological aspects of forests and forestry. The gap could be closed by collecting relevant "soft" data by means of opinion polls aimed at identifying what society needs of its forests. One positive side effect would be that of public participation, insofar as opinion polls are an instrument for including the interests of as many people as possible in the process of formulating criteria and indicators describing SFM.

9. There is clearly great demand for changes to existing forest policies at the national and international levels. Policy formulation is dependent on information regarding indicator values, particularly their spatial distribution.

10. Links between criteria and indicators at the national level and those applicable at the sub-national and operational levels will vary from country to country.

11. Criteria and indicators play an important role in identifying relevant forest policy issues and are a pre-requisite for the preparation and monitoring of National Forest Programmes.

Session 4: Ecocertification – impacts on forest product markets and forest management? (Moderator: Peter Glück)

12. Ecocertification of forests and forest products is but one of many policy tools to promote SFM. Research needs: impacts and outcomes of ecocertification and other policy tools for ensuring SFM.

13. Ecocertification may have adverse effects for the market participants:

    - Large companies may try to gain market share by offering intangible benefits, e.g. timber from SFM;
    - Small companies are afraid of taking on additional costs: they react by providing labels of origin to try to convince the consumers;
    - Ecocertification may result in non-tariff trade barriers unless the same standards are applied to forest products markets worldwide.
    - Research is needed in order to overcome potentially adverse effects of ecocertification by disseminating and using the increasing experience with it, including that in other sectors of the economy.

14. The acid test of ecocertification is: how do consumers react to certified timber products? The limited number of research projects in this field needs to be extended.

15. Ecocertification is a hot topic today because there are many prejudices based on conflicting interests and relatively few hard facts. Research and conflict

resolution: meetings like the present one can constructively contribute to conflict resolution by resolving misunderstandings and finding common denominators, e.g. the Helsinki Process guidelines.

Session 5: Challenges and alternatives for forest policy development in Europe, (Moderator and Forum Chairman: Tim Peck)

16. Many important issues have already been covered in the previous sessions. Given below are first, some personal comments on questions that arose during this morning's discussions; and second, a list of some of the points that emerged during the session that seem to deserve further consideration. Several of them repeat points raised during earlier sessions.

17. Even amongst a reasonably homogeneous group of people, such as those attending the Forum, it seems that misunderstandings or misinterpretations of what was said may sometimes occur. This underlines the need to have a sound factual basis for any statements made publicly on issues as sensitive as those treated at the Forum and for them to be expressed in clear and unequivocal language. Researchers have a special responsibility to provide scientifically-based and objective information and to present it in language comprehensible to the non-expert.

18. Related to that, it was pointed out that the forest and forest industries sector has entered "a new ballgame", meaning that its members are having to cope with situations outside their previous experience, for example close and critical scrutiny of their actions by the media, special interest groups, politicians and the public. On top of this, a new terminology has sprung up – sustainability and biodiversity are two examples – and the terms employed are often without commonly agreed definitions. A given term means different things to different people. There is an urgent need to find common ground on terminology, a task to which researchers can usefully contribute.

19. There has been a temptation in certain circles to create what some speakers called "artificial crisis scenarios" of the FFI sector. No doubt there are some very serious problems, starting with tropical deforestation, but few if any are unsolvable. The tendency often is to underestimate in the first place the adaptability and flexibility of nature to recover from unfavourable situations; and secondly the ingenuity of man and the possibilities of technology to find solutions. The challenge is to channel these creative forces in the right directions.

20. Among the points noted during the present session are:

- The need to give greater attention to the social functions of forestry, in particular its potential to contribute to the alleviation of the widespread unemployment in Europe as well as to rural development;
- The need to integrate policies for the FFI sector with those for related sectors, notably agriculture, rural development, the environment, energy and social welfare. As a starting point, clearer distribution of responsibility for the FFI sector and others amongst the competent ministries and agencies needs to be made. As one participant noted "no one seems to have overall responsibility for policy for the FFI sector, but everybody has a hand in it";
- Changes in policy direction may often need to be accompanied by institutional and legislative changes that ensure that the new policies will be effectively implemented;
- Members of the FFI community have been playing a declining role in the shaping of policy towards the FFI sector. They could start reversing the trend by making others involved more aware of the knowledge and experience which they can contribute to the policy debate. Otherewise a continuation of the trend is likely to be to the detriment of the FFI sector in the long run;
- There is a need to raise the awareness of the public of the contribution which the FFI sector does and could make to people's material and non-material well-being. This implies both a strengthening of the information base about the sector and of public relations and communications skills to disseminate information more effectively;
- Of the factors of production, capital is by far the most mobile. Accordingly, particular attention needs to be paid to creating the right conditions for attracting investment in the FFI sector. This applies to all European countries, but particularly so to those in the process of transition to a market economy. Especially in those countries, the role of direct foreign investment will continue to be important;
- Issues relating to forest ownership deserve greater attention from researchers and in policy debates. Different types of owners have different aspirations and motivations: those of private owners may be quite different to national policy objectives. Owners associations could play an increasingly important role in strengthening the FFI sector as a whole as well as improving benefits to their members;
- The role of forests and forestry in ensuring the regularity and quality of water supply, which is becoming of increasing public concern, deserves greater attention from researchers and policy makers;
- The well-documented increase in the volume of growing stock in most European countries in recent decades, perhaps partly associated with the acceleration in increment reported in a recent EFI study (Spiecker *et al.*, 1996), is raising

questions about future directions of policies relating to felling regimes, development of additional wood-processing capacity, forest health and vitality, increased dangers from fire, storms, pollution, insects and diseases, etc. The issues involved require intensified policy-oriented research.

21. In conclusion, it was striking the number of times that the global and regional dimensions of the problems and challenges facing national policy makers and individual decision takers were evoked during the discussions at the Forum. Forestry matters figure prominently on the agendas of many international meetings, the G7 (G8) meeting in Denver, UNGASS and the European Parliament being recent examples. Preparations are in hand for the Third Ministerial Conference on the Protection of Forests in Europe, which will be held in Lisbon, Portugal in 1998. This high-level political interest presents a tremendous challenge and opportunity for the FFI community and calls for greatly intensified cooperation amongst European countries and the different partners within the FFI sector, including research institutions.

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FUTURE FOREST POLICIES IN EUROPE – BALANCING ECONOMIC AND ECOLOGICAL DEMANDS

Joensuu, Finland
15-18 June, 1997

Sunday 15 June

18.00 - 21.00 **European Forest Institute**, Torikatu 34
Ice-breaker

Monday 16 June

8.00 - 9.00 Registration (University, Auditorium M1, Yliopistokatu 5)

9.00 Official welcome and opening of the conference,
Conference chairman: *Mr. Tim Peck, Chairman of the Board, European Forest Institute*

Session 1: **What are the most crucial socio-economic and ecological trends facing the forest and forest industry sector in Europe?**

Moderator: Mr. Ilpo Tikkanen, Senior researcher, European Forest Institute

9.10 Regional mechanisms for promoting joint policies and strategies for forestry development
Mr. Manuel Paveri-Anziani , UN-FAO Italy*

9.40 Main socio-economic and ecological factors influencing the forest sector of Europe and implications for forest policies
Prof. Dr. Birger Solberg, ACCN/NISK, Norway

Ilpo Tikkanen and Brita Pajari (eds.)
Future Forest Policies in Europe – Balancing Economic and Ecological Demands
EFI Proceedings No. 22, 1998

10.10 Conflicts among German forestry in critical times – an analysis of the present forest-political discussion
Prof. Dr. Hans Eßmann, University of Freiburg, Germany

11.00 Sustainable Management of Russian Forests and the European market of forest products
Dr. Valentin V. Strakhov, All-Russian Research & Information Center for Forest Resources, Russia

11.30 Forestry Fulfilling Diverse Needs in Society
Mr. Anders Portin, Ministry of Agriculture and Forestry, Finland

Session 2: Policy research related to international and national forest policy development

Moderator: Prof. Dr. Birger Solberg, IUFRO S6-12, ACCN/NISK, Norway

13.30 Development of international forest policies and related policy research needs
Mr. Jan Heino, Ministry of Agriculture and Forestry, Forest Department, Finland*

14.00 European forest politics in progress
Prof. Dr. Peter Glück, Universität für Bodenkultur Wien, Austria

14.30 An environmental NGO's view on the role of European governments and the EU in the development of sustainable forest management through the Pan-European Process
Mr. Stefan Leiner, WWF, European Policy Office, Belgium

15.00 Some critical remarks on the present situation of EU-forest policy
Dr. Eduardo Rojas-Briales, University of Lleida, Spain

Session 3: Environmental values and economic aspects in securing sustainable forest management

Moderator: Prof. Dr. Birger Solberg, IUFRO S6-12, ACCN/NISK, Norway

15.50 Forests for the future
Mr. Ola Ullsten, WCFSD, Switzerland*

16.20 Sustainability of forest sector management a dynamic approach considering Finland
Mr. Heikki Seppälä, Finnish Forest Research Institute, Finland

16.50 Preserving biodiversity in private forests of Finland – a case study of economic effects on woodlot-level
Mr. Jukka Torvelainen, University of Helsinki, Finland

17.35 A stepwise procedure for cost benefit analysis (CBA) of forestry and soil/moisture conservation investments (applications to Mediterranean watersheds)
Dr. Luca Cesaro, University of Padova, Italy

18.05 Possible international projects on estimating carbon in the forest ecosystems of the Republic of Mari El
Dr. Eldar Kurbanov, Mari State University, Russia

Tuesday 17 June

Session 4: **What is the role of criteria and indicators in balancing ecological and socio-economic aspects of sustainable forest management?**

Moderator: Prof. Dr. Hans Eßmann, IUFRO S6-12, *University of Freiburg, Germany*

9.00 Criteria and indicators as tools for sustainable forest management
Counsellor Pekka Patosaari, Embassy of Finland, Great Britain*

9.30 Operationalising international forestry co-operation: selected EU and global level implications
Dr. Jean-Pierre Kiekens, University of Brussels, Belgium

10.00 Challenges facing Swiss forest policy formulation: integrating new demands into traditional systems
Ms. Evelyn Coleman Brantschen, Swiss Forest Agency, Switzerland

10.30 The spatial dimension to sustainability. The importance of geographic distribution of indicator values for sustainability assessment
Dr. Andreas Ottitsch, Universität für Bodenkultur Wien, Austria

11.20 Criteria for sustainable forest management and the considerations in the Turkish forestry
Prof. Özden Görücü, University of Kahramanmaras Sütcü Imam, Turkey

11.45 Global, regional and national forest policy from European perspective
Prof. Dr. Kazimierz Rykowski, Forest Research Institute, Poland

12.10 Commentary notes on criteria, indicators and ecocertification
Mr. Steve Bass, IIED, United Kingdom

Session 5: **Ecocertification – impacts on forest product markets and forest management?**

Moderator: Prof. Dr. Peter Glück, IUFRO S6-12, Universität für Bodenkultur Wien, Austria

14.00 The theory of relativity of eco-certification
Mr. Jeremy Wall, European Commission, DGIII, Belgium*

14.30 Forest certification as an instrument of forest policy
Mr. Chris Elliott, WWF International, Switzerland

15.00 Certification of sustainable family forestry as a marketing tool in Europe
Mr. Martin Lillandt, Central Union of Agricultural Producers and Forest Owners, Finland

15.30 Multi-stakeholder processes (MSP) as key elements of forest and forest product certification: considerations from an urban forestry perspective
Mr. Cecil Konijnendijk, EFI

16.30 Forest management ecocertification – Polish experience and questions
Dr. Piotr Paschalis, Warsaw Agricultural University, Poland

17.00 Does the European forest products market support the introduction of eco-certification schemes? How much do we know?
Mr. Ewald Rametsteiner, Universität für Bodenkultur Wien, Austria

17.30 Does forest certification promise more than it delivers?
Mr. Bruce Ross, Business Environment Europe, Belgium

Wednesday 18 June

Session 6: **Challenges and alternatives for forest policy development in Europe**

Conference chairman: Mr. Tim Peck, Chairman of the Board, European Forest Institute

9.00 Challenges and alternatives for forest policy development in Europe
Dr. Paul Weissenberg, European Commission, DGIII, Cabinet of Commissioner Bangeman*

9.30 The new policy of Swedish forestry: A policy towards practical fulfilment of sustainable forestry, or merely “The Emperor’s new clothes”?
Ms. Marie Appelstrand, Lund University, Sweden

10.00	Forest policy in Latvia: Problems of balancing ecological and socio-economic aspects *Prof. Henn Tuherm, Latvia University of Agriculture, Latvia*
11.00	Harmonisation of forestry legislation and strategy for forestry sector development in Slovakia *Mr. Stanislav Hatiar, Forest Research Institute, Slovakia*
11.25	Forest policy and its way into market economy – a Hungarian case study *Dr. Klaus Böswald, University of Freiburg, Germany*
11.50	Forest policy in Portugal: main issues at stake *Mr. Américo M.S. Carvalho Mendes, Universidade Católica Portuguesa, Portugal*
12.20	Aspects of future development of European forest policy discussed within the CEPF *Mr. Frank Flasche, CEPF, Belgium*
12.50	Closing the conference *Chairman of the Conference, Mr. Tim Peck, EFI*
14.30	Excursion Political economy of farm forestry in Finland *Dr. Pentti Hyttinen, Forestry Centre of North-Karelia, Finland*

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