

Forest Planning in Private Forests in Finland, Iceland, Norway, Scotland and Sweden

Proceedings of ELAV seminar
23-24 March 2006, Koli, Finland

Tuula Nuutinen, Leena Kärkkäinen and Leena Kettunen (eds.)



Working Papers of the Finnish Forest Research Institute publishes preliminary research results and conference proceedings.

The papers published in the series are not peer-reviewed.

The papers are published in pdf format on the Internet only.

<http://www.metla.fi/julkaisut/workingpapers/>
ISSN 1795-150X

Office

Unioninkatu 40 A
FI-00170 Helsinki
tel. +358 10 2111
fax +358 10 211 2101
e-mail julkaisutoimitus@metla.fi

Publisher

Finnish Forest Research Institute
Unioninkatu 40 A
FI-00170 Helsinki
tel. +358 10 2111
fax +358 10 211 2101
e-mail info@metla.fi
<http://www.metla.fi/>

Authors Nuutinen, Tuula, Kärkkäinen, Leena & Kettunen, Leena (eds.)			
Forest Planning in Private Forests in Finland, Iceland, Norway, Scotland and Sweden Proceedings of ELAV seminar, 23-24 March 2006, Koli, Finland			
Year 2006	Pages 88	ISBN ISBN-13: 978-951-40-2023-0 (PDF) ISBN-10: 951-40-2023-5 (PDF)	ISSN 1795-150X
Unit / Research programme / Projects Joensuu Research Unit / Safeguarding forest biodiversity - policy instruments and socio-economic impacts / 7184 Enhancing Local Activity and Values from forest land through community-led strategic planning			
Accepted by Jari Parviainen, Director of Research Unit, 17 November 2006			
Abstract ELAV (<i>Enhancing Local Activity and Values from forest land through community-led strategic planning</i>) is an international project, in which opportunities provided by forests are identified as well as ways to utilize these in order to increase the vitality of the rural communities. In March 2006, Metla organised a seminar on forest planning in the five ELAV countries (Finland, Iceland, Norway, Scotland and Sweden). In the seminar, representatives from European Forest Institute (EFI) and national institutes of ELAV countries gave an overview of forest resources, forest policy guiding the use of private forests as well as inventory and planning systems. In addition, methods and challenges related to interactive and collaborative forest planning were introduced during the seminar. Finally, ELAV partners presented the ideas and practical experiences related to their case study. This Working Paper contains presentations of the seminar.			
Keywords forest planning, private forests, interactive planning, participatory planning, collaborative planning			
Available at http://www.metla.fi/julkaisut/workingpapers/2006/mwp038.htm			
Replaces			
Is replaced by			
Contact information Tuula Nuutinen, Finnish Forest Research Institute, Yliopistokatu 6, FI-80101 Joensuu, Finland. E-mail tuula.nuutinen@metla.fi			
Other information			

Contents

Foreword	5
Tuula Nuutinen and Leena Kärkkäinen	
Forest Resources in Finland, Iceland, Norway, Sweden and the United Kingdom – a Background Note	7
Andreas Schuck	
National Forest Program in Sustainable Forest Management	14
Pekka Ollonqvist	
Forest Planning in Private Forests in Finland	28
Tuula Nuutinen	
Planning Afforestation in Iceland	32
Thröstur Eysteinnsson	
Forest Planning in Private Forests – Norway	36
Tron Eid	
Forest Planning in Private Forests in Scotland	42
Steve Smith	
Forest Management Planning for Private Forest Owners in Sweden	52
Erik Wilhelmsson	
Interactive Forest Planning with NIPF Owners	61
Jouni Pykäläinen, Mikko Kurttila & Timo Pukkala	
Purposes and Challenges of Collaborative Forest Planning	66
Leena A. Leskinen	
Interactive and Participatory Forest Planning in Koli Case Study Area	70
Leena Kärkkäinen	
Public Participation and Strategic Land Use Planning in Iceland	74
Sherry Curl	
The Norwegian ELAV-Project	78
Ove Mogård	
Interactive and Participatory Forest Planning in Forestry Commission Scotland Forest Districts	81
Malcolm Wield	
Interactive and Participatory Forest Planning in Särna and Idre parish - Case Study Area of Sweden	85
Denise Fahlander	

Foreword

ELAV (*Enhancing Local Activity and Values from forest land through community-led strategic planning*) is an international project, in which opportunities provided by forests are identified as well as ways to utilize these in order to increase the vitality of the rural communities. The main goal of the project is to develop interactive methods and procedures for forest planning that support the development of local livelihoods based on forest resources. The project is partly funded by Interreg III B Northern Periphery –programme. Sixteen partners from Finland, Sweden, Norway, Iceland and Scotland are involved in the project. Finnish partners are Finnish Forest Research Institute (Metla), Regional Forestry Center Northern Karelia and Forest Management Association Northern Karelia. Metla receives additional funding for the project from the Ministry of Agriculture and Forestry. Each country participating in the project has selected its own case study area. The experiences gained from the case study areas are shared through seminars, meetings and international exchanges. The ELAV project began in the year 2005 and will continue until the end of the year 2007.

In March 2006, Metla organised a seminar on forest planning in the five ELAV countries. In the seminar, representatives from European Forest Institute (EFI) and national institutes of ELAV countries gave an overview of forest resources, forest policy guiding the use of private forests as well as inventory and planning systems. In addition, methods and challenges related to interactive and collaborative forest planning were introduced during the seminar. Finally, ELAV partners presented the ideas and practical experiences related to their case study. This Working Paper contains presentations of the seminar.

November 17, 2006 in Joensuu

On behalf of the ELAV project

Tuula Nuutinen
National Lead Partner

Leena Kärkkäinen
Project Manager

Alkusanat

ELAV (*Enhancing Local Activity and Values from forest land through community-led strategic planning*) on kansainvälinen hanke, jossa selvitetään metsien tarjoamia mahdollisuuksia syrjäisten maaseutualueiden elinvoimaisuuden parantamiseksi. Hankkeen yleisenä tavoitteena on kehittää vuorovaikuttaisia suunnittelumenetelmiä metsän eri käyttömuotojen yhteensovittamiseksi paikallistasolla. Hanke on saanut rahoitusta Interreg III B Pohjoinen Periferia -ohjelmasta. Hankkeessa on mukana 16 osapuolta Suomesta, Ruotsista, Norjasta, Islannista ja Skotlannista. Suomesta hankkeessa ovat mukana Metsäntutkimuslaitos (Metla), Metsäkeskus Pohjois-Karjala ja Metsänhoitoyhdistys Pohjois-Karjala. Suomen osioon on saatu rahoitusta myös Maa- ja metsätalousministeriöstä. Jokaisessa osallistujamaassa on omat kohdealueensa, joilta saatuja kokemuksia vaihdetaan seminaareissa, kokouksissa ja henkilövaihtojen yhteydessä. ELAV-hanke alkoi vuonna 2005 ja se kestää vuoden 2007 loppuun asti.

Maaliskuussa 2006 Metla järjesti metsäsuunnitteluseminaarin, jossa Euroopan metsäinstituutin (EFI) ja eri osallistujamaiden edustajat esittelivät metsävaroja, yksityismetsien käyttöä ohjaavaa metsäpolitiikkaa sekä yksityismetsien inventointi- ja suunnittelujärjestelmiä ELAV-maissa. Lisäksi seminaarissa kuultiin uutta tutkimustietoa vuorovaikutteisen ja yhteistoiminnallisen metsäsuunnittelun menetelmistä ja haasteista. Lopuksi ELAV-hankkeen osapuolet esittelivät ideoita ja kokemuksia liittyen tapaustutkimuksiinsa. Seminaariesitelmät on koottu tähän työraporttiin.

Joensuussa 17.11.2006

ELAV-hankkeen puolesta

Tuula Nuutinen
Kansallinen koordinaattori

Leena Kärkkäinen
Projektipäällikkö

Working Papers of the Finnish Forest Research Institute 38: 7–13

Forest Resources in Finland, Iceland, Norway, Sweden and the United Kingdom – a Background Note

Andreas Schuck

European Forest Institute

1 Introductory remarks

In the course of the project ‘Enhancing Local Activity and Values from forest land through community-led strategic planning (ELAV)’ a seminar was held at Koli National Park in Finland during 23th & 24th of March 2006. Background information was given on the forest resources in the five countries participating in the project, namely Finland, Iceland, Norway, Sweden and the United Kingdom. In this paper the five countries will be referred to as ELAV countries. A few indicators have been selected to describe the forest resources including forest area, growing stock, ownership, production and trade, employment in the forest sector and forest protection.

2 More than 40% of the European land area is covered by forest

Forests play an important role in Europe in terms of production of timber, non-wood forest products, provision of clean water, soil stabilization, protection against natural disasters, a place for recreation, sequestration of carbon, and other economic, social and environmental functions.

Forests cover about 1 billion ha in Europe (including the whole of the Russian Federation) which is more than 40% of its land area (Figure 1). Thus forests represent a major element of the natural landscape (MCPFE 2003, UNECE/FAO 2000). The share of forest cover varies greatly among European countries: in Iceland it is about 0.5%, while in Finland and Sweden nearly 70% are covered by forest. Finland and Sweden together comprise about 80% of the forest area in the ELAV countries (approx. 50 million ha). Between 1990 and 2005 the forest area in Europe has increased by 12 million hectares (or about 0.08% per year) while in many other regions of the world there has been a decrease in forest cover (FAO, 2005). With respect to the ELAV countries Iceland and the United Kingdom have shown a respectable increase in forest area between 1990 and 2005 (from 25,000 ha to 46000 ha and 2,61 to 2,85 million ha respectively) most of which results from afforestation activities.

3 Highest volume on one hectare is in Central Europe

When one looks at the actual growing stock in Europe the distribution does not necessarily correspond with that of the distribution of forest area. The highest growing stock besides in the Russian Federation is found in Sweden, Germany and France. The highest volume in m^3/ha occurs in the forests of Switzerland ($368 \text{ m}^3/\text{ha}$) and Austria ($300 \text{ m}^3/\text{ha}$) while the European average is at about $107 \text{ m}^3/\text{ha}$ (FAO 2006). In the ELAV countries the growing stock ranges between $65 \text{ m}^3/\text{ha}$ in Iceland and $120 \text{ m}^3/\text{ha}$ in the United Kingdom.

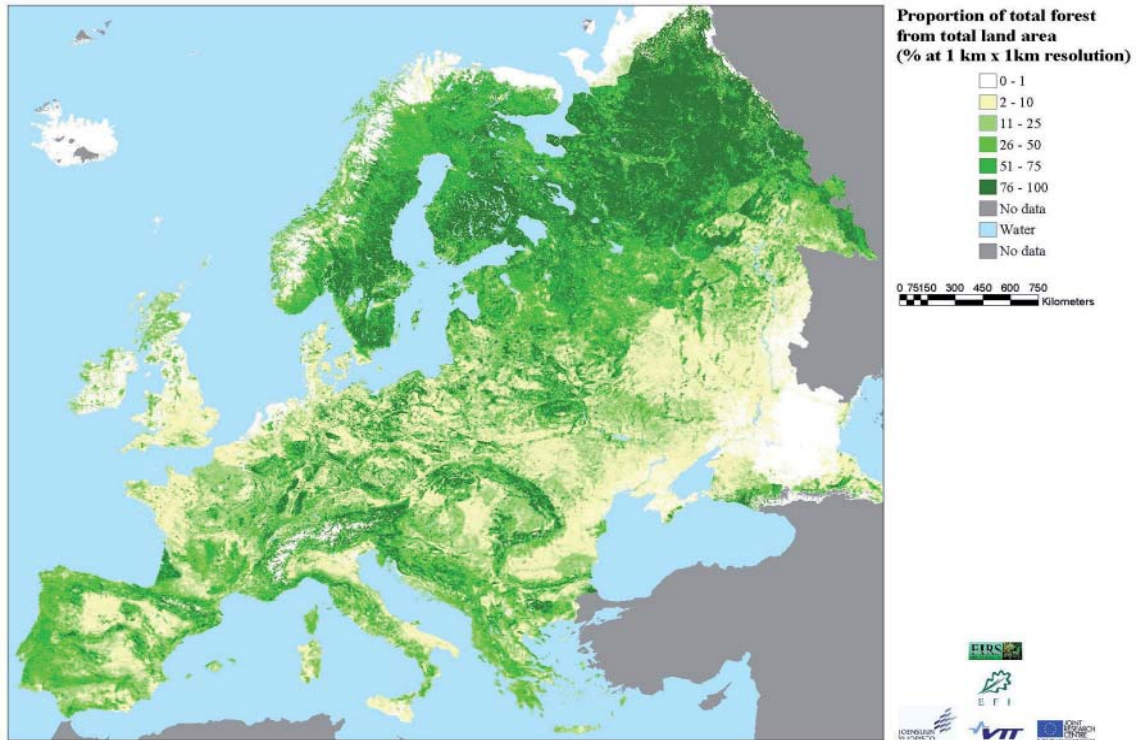


Figure 1. The distribution of forests in Europe (Päivinen et al. 2001, Schuck et al. 2003)

4 Forests are mainly in the hands of private owners

When excluding the Russian Federation, Belarus and Ukraine, where forests are still solely owned by the state, nearly 60% are in the hands of private forest owners. The number of forest owners in Europe is estimated at some 16 million according to estimates of the Confederation of European Forest Owners (<http://www.cepf-eu.org/>); and that number can be expected to further increase due to ongoing restitution processes in Eastern European countries. The average size of public holdings (excluding the Russian Federation) is on average about 1 300 ha. Private holdings have an average size of 13 ha. However, there is considerable variation among countries in the average size of holdings. The vast majority of private owners have forests with less than 3 ha in extent (MCPFE 2003).

When looking at the ownership structure in the ELAV countries about half of Iceland's forest is privately owned while in the United Kingdom and Finland it is around two thirds, 64% and 68% respectively (Figure 2). Swedish and Norwegian forest are mainly privately owned (80 and 86%).

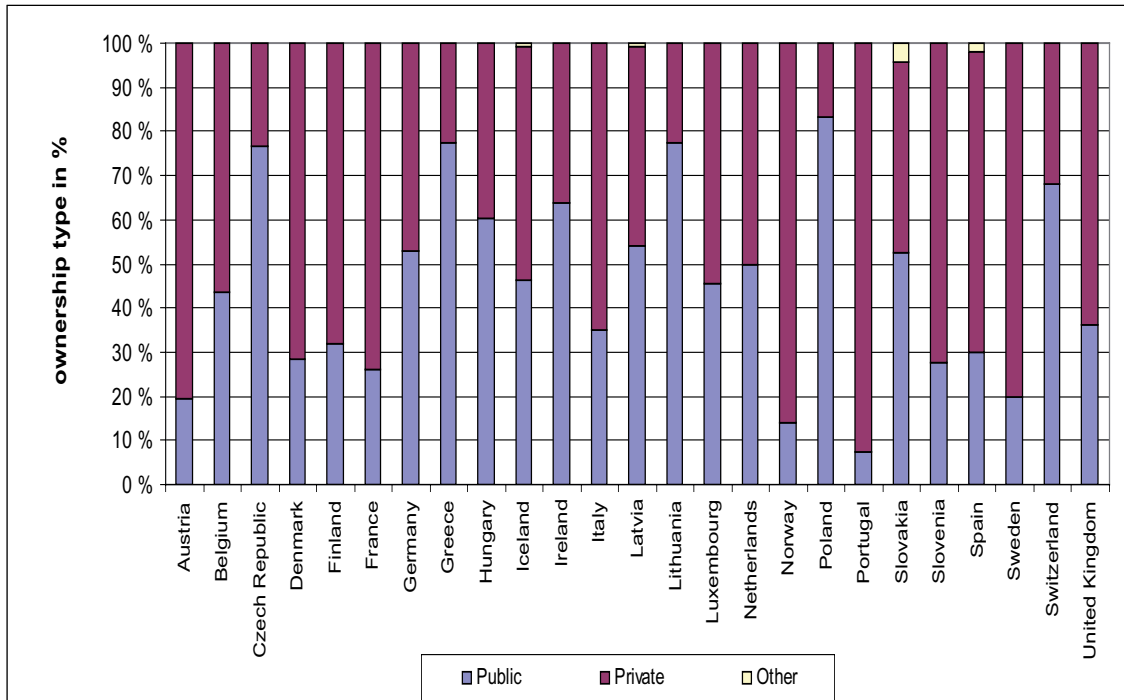


Figure 2. Ownership of forests in selected European countries (MCPFE 2003).

5 Wood production in Europe above 600 million m³

Some 640 million m³ of roundwood has been removed from European forests in 2004 thus giving Europe a share of about 19% of the world's total (FAOSTAT 2006). The Russian Federation is the country with the highest timber production in Europe (182 million m³) which has been steadily increasing since 1999 after low production rates during the 1990s. When looking at the production of the ELAV countries in comparison to the EU & EFTA countries they have produced about 35% or 138 million m³ of its roundwood in 2004 (FAOSTAT 2006) (Figure 3). The major roundwood suppliers are Sweden and Finland (67 and 54 million m³ respectively).

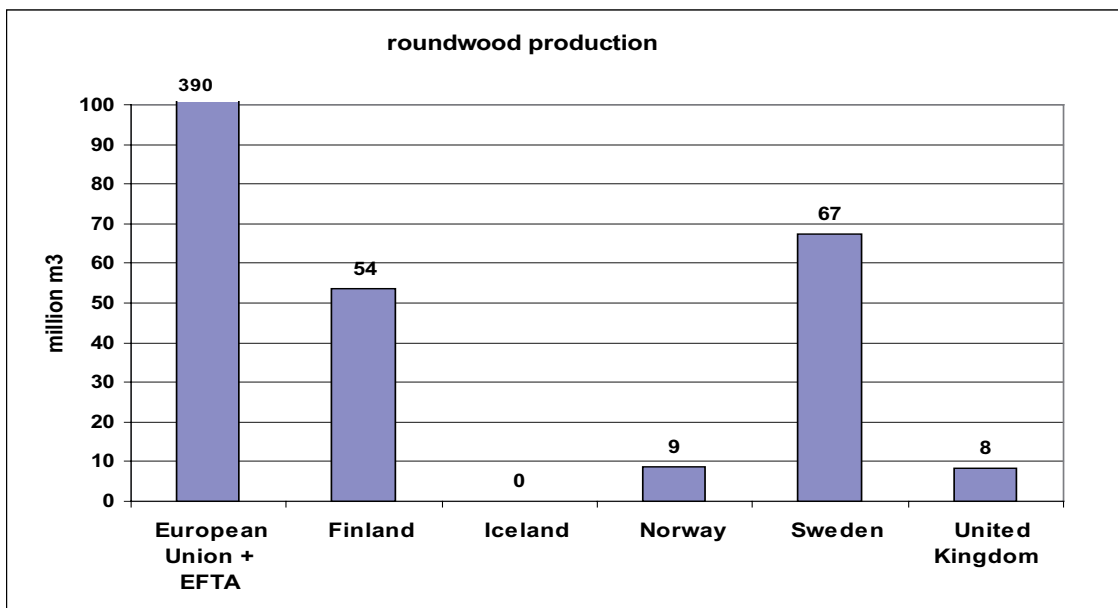


Figure 3. Roundwood production in the EU & EFTA countries in comparison to ELAV countries.

6 Imports, exports and trading partners

The ELAV countries account for about 20% (12 billion US\$) of all forest products imports of the EU & EFTA (reference year 2003; FAOSTAT 2006). They export about 35% of all EU & EFTA products representing about 31 billion US\$. When looking at the four main product groups it can be seen that the emphasis lies strongly on export activities (Table 1). This is to be expected as Finland and Sweden are main producers of forest products in particular paper & paperboard. They exported paper & paperboard at a value of about 18 billion US\$ in 2003. The United Kingdom is a net importer of all forest products in particular of sawnwood and paper & paperboard.

Table 1. Import and export % of main product groups from/to EU & EFTA by ELAV countries (reference year 2003; based on FAOSTAT 2006).

<i>Product group</i>	<i>Import (%)</i>	<i>Export (%)</i>
sawnwood	24	44
wood-based panels	23	11
wood pulp	13	62
paper & paperboard	1	40

The main trading partners of the ELAV countries are Sweden, Finland, Russia and Germany (Table 2). Russia for example mainly exports large quantities of roundwood to Finland which represent nearly half of all its exports to Europe. A general observation is that trade does to a great extent occur between neighboring countries which is quite obvious due to transports costs and more localized markets.

Table 2. Main trading partners of ELAV countries (most important trading partners are underlined) (FAOSTAT 2006).

Year 2003	Export to		Import from	
	Countries	Value in mill. US\$; (total Europe)	Countries	Value in mill. US\$; (total Europe)
FIN	BEL, FRA, <u>GER</u> , ITA, NED, ESP, SWE, UK	5717 (7795)	<u>RUS</u>	546 (1228)
ISL	<u>AUT</u> , SWE	1.9 (2.4)	FIN, LAT, NOR, <u>SWE</u>	40 (67)
NOR	GER, SWE, <u>UK</u>	882 (1459)	FIN, <u>SWE</u>	510 (811)
SWE	DEN, FRA, <u>GER</u> , ITA, NED, UK	5165 (8226)	<u>FIN</u> , GER, NED	917 (1760)
UK	BEL, FRA, <u>GER</u> , <u>IRE</u> , NED	1217 (1730)	BEL, FIN, FRA, <u>GER</u> , NED, NOR, SWE	4941 (6750)

7 Employment in the forestry sector is decreasing

Employment provided by the forestry sector is an important contribution to the socio-economic benefits generated by forests, especially for sustainable rural development. An adequate workforce in terms of numbers and qualifications is a critical component to sustainable forest management. In Europe's forest sector total employment in full-time equivalents (FTE) is 1.36 million persons. Turkey has the highest number of employees (472 408 FTE), followed by the Russian Federation (239 300 FTE), Poland (64 400 FTE) and Germany (61 520 FTE) (UNECE/FAO 2002, MCPFE 2003). Overall, however, the employment in the forest sector has been decreasing in many European countries over the last decade mainly due to rapid increases in mechanization. Between 1990 and 2000 the workforce in Europe has been declining in the sectors 'forestry' (ISIC/NACE 02.0) by 22%, 'wood industries' (ISIC/NACE 21) by 16% and 'pulp and paper' (ISIC/NACE 22) by 8%. The ELAV countries show a similar trend. With a decrease of 35% of the workforce in forestry and 19% in 'pulp and paper' between 1990 and 2000 the ELAV countries lie above the European trend not so however in 'wood industries' (-3%). Employment in the sector 'forestry' per 1000 ha of forest area has the highest concentration of employees in South-eastern and Eastern European countries. Examples are Turkey (47 FTE/1000 ha), the Czech Republic (13 FTE/1000 ha) and the Slovak Republic (12 FTE/1000 ha). Norway and Sweden have less than one FTE employed per 1000 ha of forest area. Finland employs 1 FTE/1000 ha of forest. The low employment in relation to the forest area in northern European countries reflects the high level of mechanization and good working conditions. The figures, however, are certainly influenced by the large area of forests and a low population density.

8 Protected forests

In this final chapter the status of forests and other wooded land which are under protection are presented. Guidelines for data collection had been elaborated for the Ministerial Conference on the Protection in Europe (MCPFE) 2003. They distinguish the classes:

Class 1: Main management objective 'biodiversity':

- 1.1:* no active intervention
- 1.2:* minimum intervention
- 1.3:* conservation through active management

Class 2: Main management objective 'protection of landscapes & scenic natural elements'

Class 3 addresses protective forest. This class is not included in this overview.

As can be seen from Figure 4 most of the protected forests belong to class 2. Only in the alpine and adjacent regions of Central Europe and Northern Europe forest areas are found which show no intervention or minimum intervention. The amount of protected forest from Class 1 and 2 varies from more than 60% of the forest and other wooded land area in Germany to no more than 1% in Ireland. The percentages in the ELAV countries range between 4% in Norway and 29% in the United Kingdom. When taking into account only the more strict protection classes 1.1 and 1.2 Liechtenstein (27%), Sweden (9%) and Finland (6%) show the highest share of protection. The United Kingdom does not have any forest in the two strict protection classes, Iceland has 4% while Norway constitutes 4%.

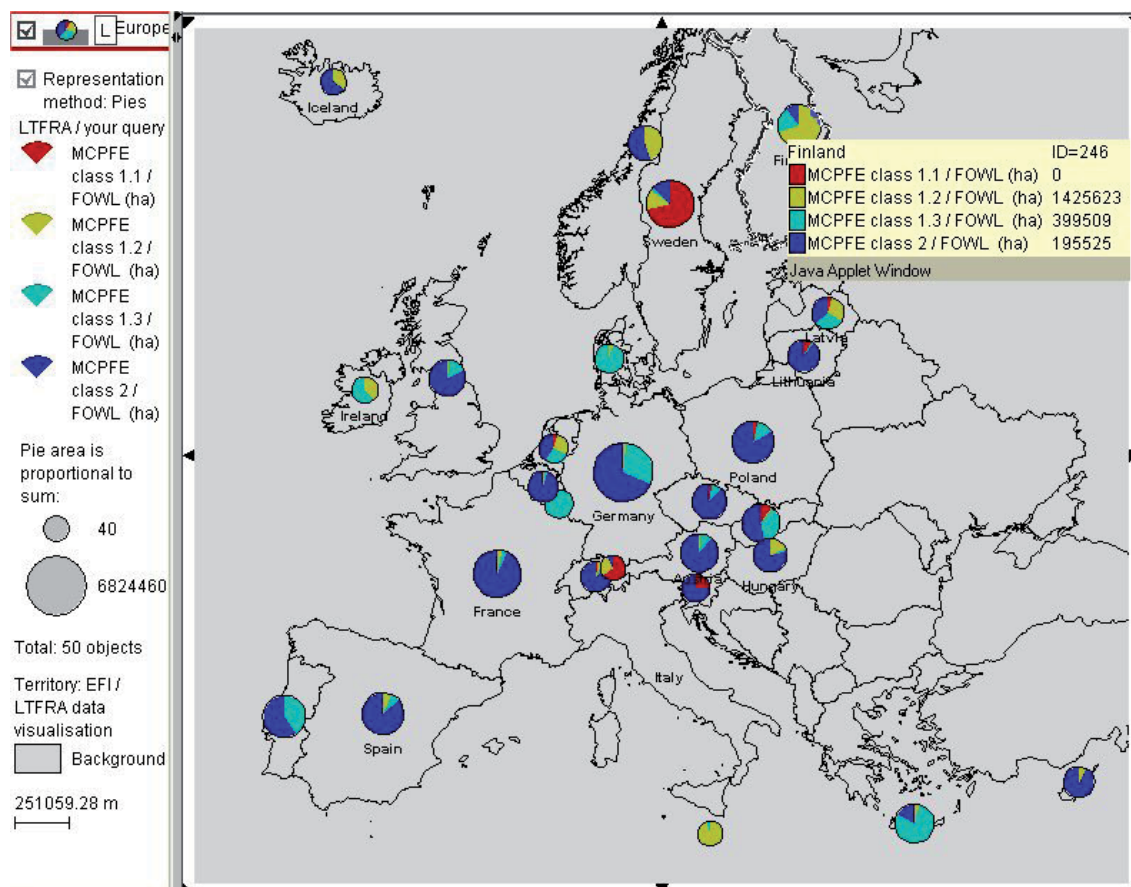


Figure 4. Protected forests in the EU and EFTA countries (MCPFE 2003). No data available for Italy and Estonia.

9 Final remark

This paper as stated in the introductory remarks was produced for the ELAV seminar to give a general overview of forest resources, forest products production and trade as well as socio-economic and biodiversity related information on Europe with special emphasis on Finland, Iceland, Norway, Sweden and the United Kingdom. Additional information or more detail on the indicators described above can be found in the publications and databases of the FAO, UNECE/FAO and the MCPFE. A number of main sources of information on forest resources in Europe are listed in the references below.

References

- FAO. 2006. Global Forest resources assessment 2005 – Progress towards sustainable forest management. FAO Forestry Paper 147. Rome, 2006. 320 p.
- FAOSTAT. 2006. FAO on-line and multilingual database. <http://faostat.fao.org/>. Database on Forestry. Reference date: March 2006.
- MCPFE. 2003. MCPFE, 2003. The state of Europe's forests 2003. The MCPFE report on sustainable forest

management in Europe. Jointly prepared by the MCPFE Liaison Unit Vienna and UNECE/FAO. 126 p.

- Päivinen R., Lehtikoinen, M., Schuck, A., Häme, T., Väättäinen, S., Kennedy, P. & Folving, S. 2001. Combining Earth Observation Data and Forest Statistics. EFI Research Report 14. EFI/Joint Research Centre-European Commission, 2001. 101 p.
- Schuck, A., Päivinen, R., Häme, T., Van Brusselen, J., Kennedy, P., Folving, S. 2003. Compilation of a European forest map from Portugal to the Ural mountains based on earth observation data and forest statistics. Forest Policy and Economics. Elsevier Vol.5, issue 2, July 2003. 187-202.
- UNECE/FAO. 2002. EFSOS; Employment Trends and Prospects in the European Forest Sector. Timber and Forest Discussion Papers. ECE/TIM/DP/32. United Nations, New York and Geneva.
- UNECE/FAO. 2000. Forest Resources of Europe, CIS, North America, Australia, Japan and New Zealand: Main Report. Geneva Timber and Forest Study Papers, No. 17. 445 p.

Working Papers of the Finnish Forest Research Institute 38: 14–27

National Forest Program in Sustainable Forest Management

Pekka Ollonqvist

Finnish Forest Research Institute, Joensuu Research Unit

1 Introduction

This paper discusses the forest policy agenda, National Forest Program (NFP), developed through an international process from 1992 on, towards a transparent national forest policy formation for Sustainable Forest Management (SFM). This new policy agenda “a generic expression for a wide range of approaches to the process of planning, programming, and implementing forest activities in countries” (UN-IPF 1996) has been introduced towards the formation of SFM policy replacing Progressive Timber Management (PTM) policy through the adoption of a new agenda (dimensions of NFP agenda, see Eggestad 1999).

There was a wide spectrum of national solutions on legislation and regulations applied in the use of forest resources under PTM objective. The legal rights of forest management, both restrictive and supportive, were traditionally formulated through hierarchical, top-down policy agendas. Policy instruments included a) positive incentives for forest users to promote the economics in forest resource utilization and b) negative sanctions for behaviors jeopardizing PTM targets. The norms, ranging from outright private holdings up to sole public ownership (by means of various kinds of lease and tenure arrangements) constituted the foundations for the administration and supervising principles in industrialized countries. These top down processes have produced relatively simple rules for towards a progressive timber production eg. by defining strict separation between forest conservation and management through land classifications. The classic policy instruments of subsidies, taxation, regulations and education were mainly used to govern economic actions. The preservation of ecological sustainability was an issue restricted to the lands of conserved forests. The use of these instruments in forestry required extensive administration resources.

The new sustainable development challenges to policy outcomes during the past fifteen years made the principles of PTM outdated. The new challenges, faced by the international community of policy stakeholders, related to the management of commonly owned resources and factors external to industrial societies on a global scale. The new foundations of political systems, constituting solutions on sovereignty, the division of power between parliament and government and the independence of the judiciary have challenged the fundamental principles of forest management. The principle of transferring the costs of global forest conservation while enjoying the short-term

benefits of unsustainable resource extraction has become untenable.

Policy agenda towards Sustainable Forest Management

Forests were formally identified as global commons through inter-governmental negotiations towards an international forest policy regime from the mid 1980s. A formal agreement on non-legally binding statements for a global consensus on the management, conservation and sustainable development of all types of forests, “Statement of Forest Principles”, was achieved at the UN Conference on Environment and Development (UNCED) in 1992 in Rio. The UNCED agreement was the first step towards a new model for international forest policy agenda. The new agenda, covering the principles of sustainable management, conservation and sustainability of all forests, encouraged international deliberations, the Intergovernmental Panel on Forests (IPF)(1995 – 1998), the International Forum on Forests (IFF) (1998 – 2002) and the ongoing UN Forum on Forests (since 2003). <http://www.un.org/esa/forests/>. The proposals from IPF and IFF are being implemented and are internationally monitored and reported through subsequent joint meetings (the 6th session 2/2006 see:<http://www.un.org/esa/forests/session.html>).

The key principle, to manage and conserve forest resources in a sustainable way, has also been stated formally:

Stewardship and use of forests and forest lands in 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 ecosystems¹.

Forest policy actions towards SFM can be identified on three levels:

- Global/transnational: Global Forest Conventions (IPF/IFF Proposals for Action) and inter-governmental processes (e.g., the Montreal Process, the Central American Initiative and the Ministerial Conference on the Protection of Forestry in Europe MCPFE).
- National: National Forest Programs (NFP) (2003 MCPFE Vienna Resolution) and Criteria and Indicators (C&Is) for the evaluation of national policy targets and their implementation.
- Local/individual tenure: Forest Certification covering certification of forest (PFCC, FSC) and timber (ISO standards) management. Standards of NFP are domestically determined whereas C&Is and certification (PFCC, FSC) schemes follow principles allowing international monitoring.

The new international policy agenda implies the formulation of C&Is to monitor and evaluate the fulfillment of SFM targets.

The national solutions to achieve the principles of SFM, as well as those covering the NFP targets in national forest policy have been unique. The key issues, capacities and conflicting interests, are discussed next.

2 Empowerment to participation through National Forest Programs

NFP as a policy agenda introduce new approach into a) the governance of forest resources and b) policy instrument formulation towards SFM (Gluck 2004). The grave deficiencies in the implementation of Tropical Forestry Action Plans (TFAPs), have provided lessons for the NFP agenda

¹ Second Ministerial Conference on the Protection of Forests in Europe. 16-17 June 1993, Helsinki/Finland

formation. Lessons cover the deficiencies caused by the lack of concern of local populations in the IPF process. NFP was adopted as an umbrella to provide wide ranging agenda solutions within different countries, to be applied at national and sub-national levels.

The principles adopted in the NFP agenda are:

- appropriate participatory mechanisms to involve all interested parties;
- decentralization, where applicable, and empowerment of regional and local government structures;

- recognition and respect for traditional and customary rights of, i.e. indigenous groups, local communities, forest dwellers and forest owners;
- secure land tenure arrangements; and
- the establishment of effective coordination mechanisms and conflict-resolution schemes.

The NFP agenda challenges the prior policy paradigms applied when promoting inter- sectoral approaches at all stages of policy development, including the formulation of policies, strategies and plans of action, as well as their implementation, monitoring and evaluation. These participatory mechanisms are intended to substitute the prior networks for policy formation in forest sector. These networks were frequently characterized by discriminatory features (see: clientelism, Hogl 1998 and corporatism, Ollonqvist 2002). The essential novelty related to NFPs, include the enlarged definition of SFM, new mode of governance (networking, co-ordination, including all policy means), communication and trust among major policy actors, and the adoption of open-ended iterative processes) (Glück et.al.2005).

The international forest policy dialogue has put much effort into the viable solutions of NFPs to meet these policy targets. NFPs are intended to be implemented within the context of each country's socio-economic and political environment and should be integrated into wider programmes for sustainable land use (Yudego 2002).

The NFP agenda is especially challenging for nations having forest resources and sector within the major contributors of national economy position. The typical features applied in prior solutions of forest policy governance can be classified through the mental capacities among the public sector and key Non-Governmental Organizations (NGOs) respectively (Rayner & Howlett 2004).

TABLE 1 Modes of Policy Agenda based on capacities. Rayner, J & Howlett, M. 2004. National Forest Programmes as vehicles for next generation regulation. In: D. Humpreys (ed.) Forests for the future – National forest programmes in Europe. COST Action E19. Luxembourg p. 49

		Public capacity	
Capacity of NGOs		<i>High</i>	<i>Low</i>
<i>High</i>		Self regulation with public rationing	Self regulation NGO Dominated
<i>Low</i>		Public interventions	Public interferes

The feasibility of the NFP agenda depends, in addition to the capacities among government and main NGO's respectively, on 1) financial resources to cover the transaction costs originating from forestry practice transformations to meet the conditions of SFM, 2) the capacities where the governance can be delegated (when these resources can not be provided by the central government and 3) the political strength of a government and/or NGO's with major economic interests challenged.

Forest policy agenda in countries with high public and NGO capacities has frequently followed the institutional management approach i.e. high self-regulation supervised by public authorities (the corporatist solution in Finland: Ollonqvist 2003). The role of NGOs can become dominating when public governance capacity remains low and favors the self-regulation of major NGOs. Traditional top- down public policy agenda has been applied in countries with weak NGO structures. The basic solution between the public intervention and interference depends on the public capacity available.

NFP in policy planning

The NFP agenda has challenged the traditional top down policy formulation approach (characterized by extensive expert knowledge use and co-operation arrangements among the major forest sector stakeholder experts). The self-regulation approach, based on policy networks instead of hierarchy, relies on a new understanding of policy planning (Rayner & Howlett 2004). Participation, involving all relevant actors into the process, expands the sphere of knowledge and influence and emphasizes expert knowledge empowerment among the new stakeholders. The comprehensive ("holistic") and inter- sectoral co-ordination among the actors towards internalizing the externalities is challenging because of the expert knowledge deficiencies.

TABLE 2 Modes of NFP Outcome. Rayner, J & Howlett, M. 2004. National Forest Programmes as vehicles for next generation regulation. In: D. Humpreys (ed.) Forests for the future – National forest programmes in Europe. COST Action E19. Luxembourg p. 52

	NFP Policy Process	
NFP Outcome	<i>Formal</i>	<i>Informal</i>
<i>Substantive</i>	Classical NFP	Equivalent NFP
<i>Symbolic</i>	Failed	Rhetoric NFP

The mode of participation is among the key variables identifying the NFP outcome categories. The formal policy processes can produce substantive policy outcome (Classical NFP) if open access to participation and adequate institutional arrangements are available. Equivalent NFP relates to policy cultures covering the major features of NFP agenda what concerns participation and institutions but without formal status. Groups with low financial resource base run the risk of being unheard in the latter phases of the process. Actors will invest more time and effort if they can assume their input will have impacts on the outcome. The outcome can be equivalent NFP when stakeholders with internal participatory capacity carry out the process with the relevant public stakeholders. However, the likelihood of substantive agreements seems to increase with

an expanded representation among the actors of the process. If some of the participants have no clear mandate, the probability of substantive agreements decreases. Rhetoric NFP is the outcome from a process characterized by limited capacity and resources involved into the policy formation process. NFP outcome is symbolic if the essential modes of policy process cannot be fulfilled. Substantive NFP implies actors who are well endowed with resources with high empowerment on process management.

National Forest Programs in Europe

There was an immediate reaction in the European forest policy context to the Rio resolutions. The processes towards realizing NFPs were taken into the agenda of the second Ministerial Conference PFE in Helsinki 1993. The agenda was further elaborated in Lisbon 1998 and formally adopted in Vienna 2003. Vienna Resolution 1 explicitly dedicated to NFPs with its own NFP approach:

*Strengthen Synergies for SFM in Europe through Cross- Sectoral Co-Operation and National Forest Programmes*²

Recent European research efforts³, for analyzing the formulation and implementation of NFPs, have delivered more insight into the preconditions of substantive NFPs from which ongoing or future NFP processes may benefit. Findings from four countries Finland, Norway, Sweden and UK are discussed and compared next.

3 Forest Policy Formation in Finland, Norway, Sweden and UK

The initiation of NFP-processes can be traced to the late 1990's in Finland, Norway and UK respectively (Zimmermann & Mauderli 2001). There has so far not arranged any formal NFP-process in Sweden (Svensson 2002). The initiation towards NFP process came from NGOs in Norway and from public authorities in Finland and UK. Formal initiation was launched by the Ministry of Agriculture and Forestry in Finland and Norway but Forestry Committee in UK. The major drivers to initiate NFP process came from the challenges of international commitments in Finland and Norway whereas in UK there was an internal need for a new policy agenda. The multi- sectoral NFP agenda was adopted in Finland and Norway but covered forestry agents in UK. There was a formal commitment in Finland and Norway but not in UK. Forest scientists, the stakeholders of forest industry and relevant NGOs (including NIPFO) as well as forest related interest groups participated to policy process in Finland, Norway and UK. In addition there were regional authorities from municipality level among the participants in Norway and UK. The arrangements to mobilize regional participation were formal in Finland but active also in Norway and UK. The NFP has legally binding status in Norway and UK but not in Finland. The included financial forest management incentives are the core elements in Finland and Norway whereas the program is only persuasive in UK. NFP includes environmental commitments in Finland, Norway, and UK but formal targets towards the promotion of forest industries only in Norway.

²The fourth Ministerial Conference on the Protection of Forests in Europe. 28 – 30 April 2003 in Vienna/Austria

³The comparative evaluation apply the findings in COST E19 Action "National Forest Programmes in a European Context" (2000-2003) <http://www.metla.fi/eu/cost/e19/>

And the prior actions: EFI Seminar in Freiburg (1998), MCPFE Workshop in Tulln (1999)

The participants of the COST E19 process identified several impeding factors related to NFP process (Zimmermann & Mauderli 2001). Conservative productivist viewpoint were identified in Finland, Norway and UK. Forestry has a low priority in UK when compared with biodiversity and landscape issues in rural spaces.

TABLE 3 NFP Outcomes . Rayner, J & Howlett, M. 2004. National Forest Programmes as vehicles for next generation regulation. In: D. Humpreys (ed.) Forests for the future – National forest programmes in Europe. COST Action E19. Luxembourg p. 52

NFP Policy Process		
NFP Outcome	<i>Formal</i>	<i>Informal</i>
<i>Substantive</i>	Classical FINLAND	Equivalent NORWAY, SWEDEN, UK
<i>Symbolic</i>	Failed	Rhetoric

National Solutions to NFP Agenda

The country surveys below are based on the National reporting to UNFF 4 (Switzerland 2004, www.iisd.ca/forestry/unff/unff4) and UNFF 5 (New York 2005 www.iisd.ca/forestry/unff/unff5) of the countries concerned in addition to the specific references.

Finland pioneered with formal NFP process

The Government of Finland decided to initiate the drafting of Finland's National Forest Program (FNFP) in 1998 with a wider scope than earlier programmes and specifically designed to take into account the relevant international documents and commitments (Hänninen et al. 2004). The program outcome was reported in 1999 and expressed as the first process outcome, subject to revision. The first follow-up report was published already in 2000 and process has continued thereafter (http://www.mmm.fi/kmo/toteutus_seuranta/Liitteen1bliite.rtf)

Forest policy was comprehensively revised in Finland during the mid-1990s prior to NFP process. Parks and Forest Services Law initiated this revision in 1993 and it was culminated by the passing of the Forest Act and the Nature Conservation Act in 1997. One major objective of the revision was the wish to bring Finnish forest policy in line with international agreements and political commitments. The first set of Criteria and Indicators for SFM was agreed 1998 and their regular revision was adopted into the agenda. First 13 Regional Forest Programs (RFPs) were completed in the same year and these RFPs cover the whole country. The first Finnish solutions to European Forest Certification system were implemented in 1999 (Mäntyranta 2002). There was an arrangement for public participation to FNFP process via Internet. This participation channel was available throughout the program process. The transparency of the policy process was continued also after the formal acceptance of FNFP. The subsequent FNFP documents have been available in Internet pages in 4 different languages <http://www.mmm.fi/english/forestry/program.htm>

FNFP outcome put special interest into the development of forest industries (products, processes and business structures), combined with a sustainable management of forests as well as to options to expand aggregate income generation. The preservation of traditional forms of forest utilization as well as new challenges related to the issues of social sustainability are taken into account. Program contains eight main objectives developed with some further measures. These objectives accentuate production and forest improvement, environment, social uses, research and education, as well as international forest policies. Strong importance is given to the wood input needs in forest industry, other uses of wood and productive forest management (objectives 2, 3 and 5). Many of the actions are oriented to increase the competitiveness of Finnish forest industry, profitability of timber management, viability of biodiversity issues and sustainable development (Objectives 1 and 4). In addition the issues related to the social sustainability of rural communities (Objective 6) are included by adding eg. the issues of recreation and environmental tourism. The objectives in research innovation and education (Objective 7) are involved and the final one focuses on the active participation into international agreements and forest policies (Objective 8).

Norway applied equivalent NFP process

The process towards NFP in Norway can be traced to the “Living Forests” Project carried out during 1995-1998. Forest policy agenda was thereby broadened through the program towards sustainable forest management. The development of a set of performance level standards was among the main challenges related to the Living Forests project. The consensus among all involved stakeholders on 23 performance level standards for sustainable forest management was achieved in 1998. This consensus enlarged forest policy agenda on environmental issues, e.g. within the market, as well as the desire within Norwegian forestry to practice responsible forest management in a long-term perspective. The Living Forest Standards were based on the Pan-European Criteria for Sustainable Forest Management, and the corresponding indicators were included among the 95 Living Forest Indicators. All of these indicators have not yet been fully implemented in the context of national forest policy. The impacts of Living Forest Standards into the actual forestry measures were evaluated and consequently revised to the Living Forest Indicators. The Living Forest Standards constitute the basis for the forest certification applied in Norway. Large parts of the Norwegian forests are certified in connection with the ISO 14001 environmental management system, in accordance with the Living Forest Standards.

The White Paper on Norwegian Forestry and Forest Policy, endorsed by the Parliament in 1999 preceded the policy process towards the consensus on the Living Forest Standards. Expert committee started to prepare Norwegian legislation changes towards biodiversity protection thereafter and the outcome was a survey: protected forest areas in Norway, that were published in 2002. Ministry of Agriculture started NFP process next year and the preparation of a new Forest Act is on going.

Policy process characterized by limited participation and adaptive approach can be considered the major shortcomings making Norwegian NFP process equivalent. Participation approach used was considered valid for conflict resolution instead in technical issues because resources available to the stakeholders may not reflect the legitimacy of their claims (Tromborg & Lindstad 2004). Inter- sectoral coordination is challenging in Norway due to the competition among the Ministries. Major forest resource use implies inter- sectoral communication by their features (eg. Ministries of Agriculture, Energy and Environment are concerned in use of biomass in energy production). Inter- sectoral coordination implies hierarchy of processes and consequent consistencies to be

able to preserve the consistency with sector specific policy characteristics (Tromborg op.cit.).

Sweden applies fully equivalent NFP process

Increased regionalization and expanded autonomy among Non Industrial Private Forest (NIPF) owners were the major forest policy reforms in Sweden during the late 1990's to meet the international forest policy commitments and challenges. The Swedish agenda with a strong emphasis on stakeholder involvement when developing forest-sector objectives satisfies many of the requirements of NFPs without indicating the specific measures to be taken. These forest-sector objectives are considered to meet the essential components of NFP concerning Sweden (<http://www.svo.se/minskog/templates/Page.asp?id=18033>).

The extensive forestry campaign "A Richer Forest", carried out in Sweden during 1987-94, initiated forest policy reforms. This campaign was designed to increase awareness of biodiversity issues especially in NIPFs before the Forest policy reformation (1992-93) was implemented. Environmental and timber production goals achieved parallel portion in the policy agenda. The major outcomes from the policy reforms were a) the removal of the silvicultural fees among NIPFs and b) transfer of all public subsidies from timber management to environmental benefits. The implementation of the new Nature Conservation Act (e.g. protection of key habitats) in 1994 was promoted by the "Preservation of Cultural Heritage in the Forest" – campaign. In 2001 the Swedish Parliament decided upon the environmental objectives for all sectors and these were synchronized with forest sector objectives

The Swedish Forest Agency formally adopted a set of objectives for the nation's forest sector in 2005. These objectives cover the overall policy reform and thirteen quantitative targets to be fulfilled within a specified time. Approval of the objectives in The parliament of Sweden culminated in a development process involving the Forest Agency and a wide range of interests within the forest sector. The similarities between the forest-sector objectives in Sweden and C&Is adopted by the Ministerial Conference on the Protection of Forests in Europe (MCPFE) can be traced. Sweden adopted the international forest certification system (FSC) in 1998, contrary to numerous EU countries applying PFCC certification.

The political culture in Sweden applies the approach of mutual understanding and consensus related to the existing problem solutions. The principles of equality and agreement reached by applying local support and bottom up approaches are favored in the agenda (Svensson 2004). The essential communications related to forestry issues are based on direct communication between a single relevant government authority and individual NGOs providing opportunities to avoid bureaucratic overplay and duplication (Humphreys 2004). The large regional autonomy applied support this principle. Regional Advisory groups, attached to Regional Forestry Boards, provide a joint platform for the main authorities and NGOs, with the exception of some environmental NGOs. The Life-Environment project, "Urban Woods for People", introduced in 2001, promotes improved recreation utilities for the general public in urban woodlands. Swedish Parliament decided upon the environmental objectives covering forestry in 2001 and the National Board of Forestry (NBF) implemented these objectives. The process was participatory including stakeholders from industry, forest owners, Saami-people, environmental and social NGOs, research organizations and other pertinent government agencies. Progress will be monitored using the indicators developed for the project. Sweden has actively participated to IUFRO's European Forum on Urban Forestry, that provide an annual meeting place for urban forestry policymakers, practitioners

and scientists.

UK – three separate interdependent NFP processes

The constitutional change in 1999 expanded the governance responsibilities in Wales and Scotland. NFP has been seen as a part of the ordinary forest-policy of those regions in UK. England, Scotland and Wales, have each developed their own strategy towards SFM. Regional and country level advisory panels, appointed by the Forestry Commission & Development Agencies, have been assisted through comprehensive iterative consultations. The creation of assemblies in Scotland and Wales became an important institutional driver of these changes (Humphreys 2004).

NFP of UK, adopted in 2002 covers: 1) Forestry Standard & Environmental guidelines, 2) Partnership for Action (forest certification, restoration, protection and use of timber in sustainable construction), 3) Indicators of Sustainable Forestry (40 indicators) and 4) full versions of the forestry strategies for England (England Forestry Strategy), Scotland (The Scottish Forestry Strategy) and Wales (Woodlands for Wales) and the consultation document for Northern Ireland. NFP is seen as a part of the ordinary forest-policy. The arrangements on public participation are based on communities that are defined territorially in terms of shared interests or identity. Local people have an opportunity to add input in planning and managing of local woodlands and the needs of local business and contractors are included in forest planning and management (Sangster 2004).

Public participation is a cross-cutting issue in the policy agenda in the UK, applied extensively in the public policy and linking rural development into policies concerned with social inclusion, rural governance, environmental justice and community development. It also applies the broad aspects of devolution, regional and local approaches to policy development. Participatory democratic processes cover forest policy issues as well. A further potential for involvement is the UK Forest Partnership for Action. The Partnership, including forest and wood processing industries, Government departments, devolved administrations and environmental NGOs, is the main platform for making commitments in forestry, as far as the UK is concerned (www.ukforestpartnership.org.uk). Forest Enterprise (FE), the Executive Agency managing the FC's forests, develops and expands community involvement, both in towns and in the countryside based on the blueprints set out for staff and local communities "Working with Communities in Britain: how to get involved" in 1999. FE engages an increasing number of partnerships. They involve local communities and other stakeholders in a wide range of innovative projects, in addition to the more routine aspects of forest planning and operational activities.

Forest strategy:

-for England, published in 1998, focuses on forestry for rural development, for recreation, access and tourism, for economic regeneration and for environment and conservation.

-for Scotland, developed and published in 2000, applies the forestry strategies created by Scottish Parliament.

-for Wales the Strategy was published in 2001, after a consultation exercise.

The **England Forestry Strategy** contains a brief introduction and comments about the policy framework. The Strategy is based on four key programmes containing some information about the current as well as former situation without tables, graphs or detailed technical information. The final point contains actions structured in 4 different objectives not directly correlated with the key programmes. The English Strategy is composed of four key items, rural development, eco-

conomic regeneration, recreation, access and tourism and environment, and conservation. Society and recreational aspects are also well developed in the third point, with focus on access and education. The environmental point focuses on the preservation of native or semi-natural forest. In this last point, cultural heritage preservation is mentioned. The Strategy tend to increase the role of forestry in the rural economy, and the areas of woodland but environmental values are also important.

The **Scotland Forestry Strategy** includes an introduction to Scottish forest and current policy framework in Scotland with tables, graphs and pictures. The proposals are presented in five Strategic Directions with relevant priorities. The Scottish Strategy emphasizes the need to maximize the value of wood earned to the Scottish economy. In this point is recognized the necessity of having a diverse forest and to take care of the non-timber products market. Other targets are the same as in England and Wales, such as access to forest, social importance and recreation, and environmental contribution. Aspects of research and education are less developed than in other NFPs.

The **Wales Forestry Strategy** contains an introduction and guiding principles, and develops five strategic objectives with key priorities for action without tables, graphs, or pictures. The Wales Strategy includes five objectives; woodlands for people (from a social point of view), woodland management, forest industries and timber production, environmental and diversity issues and tourism and recreation. These objectives are derived from the reality of Wales, a country with a low forestry cover but with economic potentials and an important area of public land. Great importance is given to increment of the woodland cover, with different functions: landscape with environmental and social objectives, and improve access to those woodlands. Strategy is focused on the support to the existing timber industry, and on generating better marketing and trading strategies.

4 Summary findings

The success of the NFP process depends on internal procedural aspects but on external factors constituting the environment of agenda implementation. There are supporting and impeding factors on NFP agenda, depending on the specific characteristics of the political system in a country. Procedural aspects of NFP, referring to goal setting and the principles applied in the policy process are to be covered in the process documentation to make NFP Classical. This kind of documentation is a necessary condition for iterative collaborative processes between the multiple stakeholders. Otherwise policy processes are apt to take a symbolic mode without reaching substantial targets and inducing leading policy stakeholders to withdraw from the process.

The necessary conditions on the Classical NFP to be achieved can be divided into:

- *Institutional consistency* covering a) the constitutional and legal framework of the country and b) international agreements and related national commitments. In addition NFP must recognize and respect customary and traditional rights of indigenous peoples and local communities respectively and secure land tenure arrangements
- *Managerial consistency* meaning a) the inclusion of integrated ecosystem approach towards conserving biological diversity and maintaining sustainable use of biological resources, b) the provision and valuation of forest goods and services and c) the statements detailing the political commitment to sustainable forest development as a contribution to sustainable development.

- *An adequate NFP process* involving sector review as an assessment of the forest sector and its interrelationships with other sectors covering political, legal and institutional reforms within and outside the forest sector as well as objectives and strategies for the forest sector, including a financing strategy for sustainable development
- *Process and participation empowerment* covering arrangements a) to the partnership and participation of all interested parties in the NFP process, b) a holistic, cross-sectoral approach to forest development and conservation.

The NFP agenda is a long-term, iterative process of planning, implementation and monitoring. Its aim is to decentralize power to regional and local levels applying national sovereignty and country leadership in its formulation and implementation (see eg. BMZ 2004:7, Glück et.al. 1999).

Supporting and impeding factors for NFP process in the political culture⁴

Close co-operation between government and a selected number of employers' and employees' interest groups is an impeding factor what concerns participation, co-ordination and conflict resolution capacities in the NFP process. This approach impedes the involvement of actors outside a narrow policy network (Ollonqvist & Hänninen 2004). A neo-corporatist mode of governance is an impeding factor, whereas a proactive and consensus-seeking policy style of the government can be considered supportive. By contrast, clientele capture of forest administration often impedes inter-sectoral co-ordination, but must not be taken as unalterable. A legally binding framework of an NFP would support the institutionalization of an adaptive, continuous co-ordination process.

The leadership of forest administration for the NFP process and participation focusing on the traditional clientele (forestry and forest industry) tend to impede inter-sectoral co-ordination in an NFP process.

The political culture securing rights of participation, apply adequate conflict resolution and adaptiveness supports the NFP process. Government's anticipatory and active approach to problem solving and its tendency to make decisions through achieving agreement between interested parties is typical in all countries concerned and that is also a supporting factor for NFPs.

If the political culture of a country is such that it delivers government designed forest programmes, this will likely lead to moderate or low participation, low inter-sectoral co-ordination and low conflict resolution capacities as well as "command and control" policy instruments. However the findings are contradictory in the Finish case. Finland had a prior top down culture in forest policy, but open access participation into NFP process turned out to be supportive.

Capacities to meet the participation costs can become an impeding factor to the NFP process. High capacity available among government and the key NGO's can challenge the arrangements for proper participation if additional resources are not available. The adequate agenda determination and process arrangements require resources that can become a barrier to the participation among the stakeholders without adequate financial resources. Countries with strong interest groups having important privileges challenged by the NFP process, must have arrange enough resources /capacities to establish the parallel policy process to re-evaluate /change the existing structures. (see the supporting and impeding factors in Glück et. al. 2005).

⁴ A comprehensive list of supporting and impeding factors in the political culture for NFP process has been stated and discussed in COST E 19 homepage COST E 19 <http://www.metla.fi/eu/cost/e19>

Comparisons between countries

The relative magnitude of forest sector inside GNP explains inter -sectoral participation in NFP Process. Finland has extensive forest sector and strong forest related policy stakeholders with

corresponding political and macroeconomic influence. The corporatist policy structure of the country has in the prior policy accentuated the relative importance of forest sector policy stakeholders. The recently identified shortages in the silvicultural management outcomes among NIPFOs during the late 1990's called for the new public initiatives towards preserving public financial support for forestry investments. The formal NFP process in Finland, preceded by the consensus on environmental issues dealt with from 1994 to 1998, appears to be prepared for an international audience (Rayner & Howlett 2004). The major target, the preservation of public subsidies on timber production investments was achieved in NFP Outcome and is intended to be preserved in the second NFP in Finland (FNFP 2015) that is in the preparation stage. There has been a continuous process to adapt FNFP 2010 Outcome⁵.

The forest sector has a minor relative economic importance in Norway what concerns GNP share. Norway was among the early adaptors to meet the UNCED/IFP/IFF minimum requirements. The removal of all direct subsidies for silvicultural investments beginning in 2003 can be derived from the general political trend in the country towards reduced availability of sector specific public policy instruments into commercially viable value chains (Ollonqvist & Hänninen 2004). This accentuated the policy agenda formation towards inclusion of ecological sustainability into the forest policy agenda of Norway.

All direct public subsidies to silvicultural investments were removed in Sweden in 1993 parallel with Norway and the adopted emphasis on ecological sustainability issues in the forest policy agenda (Ollonqvist & Hänninen 2004). The outstanding consensus target to be reached by extensive campaigns and participation characterizes the common policy agenda traditions in Sweden. This partly explain the passive reactions in Sweden what concerns the UNCED, IFP and IFF proposals. Growing shortages in regeneration and thinning of seedling and juvenile stands was shown in the evaluations of 2001, proposing policy reenactment related to economic sustainability in forestry.

Consensus aimed extensive participatory traditions in the political cultures of Norway and Sweden respectively challenge the open access policy formulation initials. Early Forest Certification has provided sufficient solutions for forest industry and forest owners to keep foreign consumers satisfied. The NIPFOs do not view NFP as an instrument for regaining government subsidies to public timber management investments.

NFP agenda in Scotland, England and Wales appears to be oriented towards the current needs of the general audience but not necessarily linked to the specific needs of forest sector development. UK Forestry Standard indicates the extent of UK policy and practices to fit with international understanding and commitments on SFM.

⁵ 2000 revision of 13 RFPs, 2001 the first follow-up report (next ones in 2002, 2004), 2003 the first evaluation of the NFP, 2003 the Future Forum on Forests, 2002-7 METSO - the Forest Biodiversity Programme for Southern Finland

References

- BMZ (Federal Ministry for Economic Cooperation and Development). 2004. National forest programmes – instruments for improving sector governance? Experiences of German development cooperation. BMZ. Information Material No. 129. Bonn.
<http://www.bmz.de/de/service/infothek/fach/materialien/materialie129.pdf>
- Egestad, P. 1999. National Forest Programmes in Clear Terms. in Glück, P. & Oesten, G. & Schanz, H. & Vold K. eds. Formulation and Implementation of National Forest Programmes vol.1 Theoretical Aspects . EFI Proceedings No. 30. p. 11- 23
- Glück, P. 2004. Conceptual Framework of COST E 19 National Forest Programmes in a European Context. in Glück, P. and Voitleithner, J.(eds.). NFP Research: Its Retrospect and Prospect.. Publication Series of the Institute of Forest Sector Policy and Economics. BOKU. Volume 52. Vienna. p. 11-20
- & Rayner, J. & Cashore, B. 2005. Changes in the Governance of Forest Resources in Mery., G. et. Al. eds. Forests in the Global Balance- Changing Paradigms. IUFRO World Series. vol. 17. p 51-74
- Hogl, K 1999 National Forest Programmes- A Request for Inter- Sectoral and Multi- Level Coordination Some Actor Focused Considerations. in Glück, P. & Oesten, G. & Schanz, H. & Vold K. eds. Formulation and Implementation of National Forest Programmes vol.1 Theoretical Aspects . EFI Proceedings No. 30. p. 163-183
- Humphreys D. National Forest Programmes in Europe: Generating policy relevant propositions for formulation and implementation. In. Humphreys, D. ed. Forests for the future – National forest programmes in Europe. COST Action E19. Luxembourg. P. 13-43.
- Hänninen, H. & Ollonqvist, P. & Saastamoinen, O. 2004. Finland: Sustainable welfare via forest diversity. In. Humphreys, D.ed. Forests for the future – National forest programmes in Europe. COST Action E19. Luxembourg. P. 87-99
- Mäntyranta, H. 2002. Forest certification - An ideal that became absolute. Vammala.
- Ollonqvist, P. 2002. Collaboration in the Forest Policy Arena in Finland – from Neo Corporatist Planning to Participatory Program Preparation. in Gislerud, O. & Neven, I. Eds. National Forest Programmes in a European Context. EFI Proceedings No. 44. p. 27-47
- 2004. Political Culture and Forest Programmes in Finland in. Glück, P. and Voitleithner, J. eds. NFP Research: Its Retrospect and Prospect. Publication Series of the Institute of Forest Sector Policy and Economics. BOKU. Volume 52. Vienna. p.115-128.
- & Hänninen, H. 2004. National Forest Programmes in Scandinavian Political Culture. in: Pajuoja, H. & Karppinen, H. eds. Scandinavian Forest Economics. No 40, p.189-200. <http://www.metla.fi/tapahtumat/2004/ssfe/proceedings-SSFE-2004-Jarvenpaa.pdf>
- Tromborg, E. & Lindstad, B. 2004. Norway: Achieving a NFP through an adaptive strategy. In: Humphreys, D. ed. Forests for the future – National forest programmes in Europe. COST Action E19. Luxembourg. p. 207-218.
- Rayner, J. and Howlett, M. 2004. National Forest Programmes as Vehicles for Next-Generation Regulation: Lessons from Canadian and European Experiences. in. Glück, P. and Voitleithner, J. eds. NFP Research: Its Retrospect and Prospect. Publication Series of the Institute of Forest Sector Policy and Economics.

BOKU. Volume 52. Vienna. p. 159-182.

— & Howlett, M. 2004. National Forest Programmes as vehicles for next generation regulation. In: Humpreys, D. ed. Forests for the future – National forest programmes in Europe. COST Action E19. Luxembourg . p. 45 - 62.

Sangster, M. 2004. United Kingdom: A tradition of consensus in forest planning and regulation. In: Humpreys, D. ed. Forests for the future – National forest programmes in Europe. COST Action E19. Luxembourg. p. 295- 310.

Svensson, S. 2004. Sweden: Meeting the IPF requirements without a formal National Forest Programme. In: Humpreys, D. ed. Forests for the future – National forest programmes in Europe. COST Action E19. Luxembourg p. 265- 276.

Yudego, B. 2002. A comparison between National Forest Programmes of some EU-member states. Sweden's National Board of Forestry. Rapport 10. Jönköping. 25 p.

Zimmermann, W. & Mauderli, U. 2001. National Forest Programs in European countries - An initial overview based on a quick survey in countries participating the COST E-19 Action. mimeo.

National reporting to UNFF 4 (Switzerland 2004, www.iisd.ca/forestry/unff/unff4) and UNFF 5 (New York 2005 www.iisd.ca/forestry/unff/unff5) <http://www.un.org/esa/forests/>

Finland

- National Report to the Fourth Session of the United Nations Forum on Forests
- National Report to the Fifth Session of the United Nations Forum on Forests

Norway

- National Report to the Fourth Session of the United Nations Forum on Forests
- National Report to the Fifth Session of the United Nations Forum on Forests

Sweden

- National Report to the Fourth Session of the United Nations Forum on Forests
- National Report to the Fifth Session of the United Nations Forum on Forests

United Kingdom of Great Britain and Northern Ireland

- National Report to the Fourth Session of the United Nations Forum on Forests
- National Report to the Fifth Session of the United Nations Forum on Forests

UK National Forest Programme

<http://www.forestserviceni.gov.uk/press/2003/uk%20national%20forest%20programme.pdf>

FNFP

http://www.mmm.fi/kmo/toteutus_seuranta/Liitteen1bliite.rtf

<http://www.mmm.fi/metso/international/index.html>,

http://www.mmm.fi/metso/international/MOSSE_english.html

Working Papers of the Finnish Forest Research Institute 38: 28–31

Forest Planning in Private Forests in Finland

Tuula Nuutinen

Finnish Forest Research Institute, Joensuu Research Unit

1 The role of forest planning

In Finland, approximately 52 % of forestry land (totalling 13,8 million hectares) and 67 % of growing stock (totalling approximately 1,4 billion m³) is owned by non-industrial private forest owners (NIPF, see Metsätaloustollinen... 2005). Individual forest owners make their own decisions concerning cutting and silvicultural operations that consequently affect the supply of timber and forest conditions for all citizens.

Modified 28.05.2008 In Finland, approximately 52 % of forestry land (totalling 13,8 million hectares) and 67 % of growing stock (totalling approximately 1,4 billion m³) is owned by non-industrial private forest owners (NIPF, see Metsätaloustollinen... 2005).

Since the World War II, forestry and the forest industry have been playing an important role in the Finnish national economy. Therefore, different forest policy measures have been defined to encourage intensive forest utilisation and management of private forests to provide raw material for the forest industry on both a short and long term basis. Policy measures include strategic forest planning at the national level co-ordinated by the Ministry of Agriculture and Forestry (MAF) as well as regional and property level forest planning for NIPF carried out by regional forest centres (RFC).

Strategic forest planning at the national level covers forests in all ownership categories (NIPF, company, state and other) and is supported by calculations based on sample plot and tree data from the national forest inventory (NFI) begun in Finland as early as the 1920s. Planning at the national level has resulted forest programmes reacting to different pressures in different decades. After World War II, forest financing programmes (e.g. HKLN, Teho, MERA I-III) were designed to support intensive work in forest management and improvement. The timescale of these programmes was several decades. Since the 1980s, the Forest 2000 Programme and its successors such as the National Forest Programmes (NFP) supported by Regional Forest Programmes (RFP) have had wider interests in forests and forestry than solely timber production. For this purpose, the Finnish MELA system as a forestry model has been used in the analyses of wood production possibilities and consequences of different management alternatives. Usually, timescale of the MELA analyses has been 50 years. The first National Forest Programme (NFP for the period 2000-2010) was published in 1999 (Ministry...1999).

For NIPF, regional level forest planning including standwise inventories to support the preparation of property level plans dates back to 1960s. These inventories are based on the delineation of stands on aerial photographs and a field check of each stand is carried out on a 10–15 year interval by regions (e.g. villages) whose size varies (2000–5000 hectares). The role of property level forest planning is to support forest owners in their own decision making for the coming 10-year period.

2 Forest inventory and planning system in private forests

Since 1980s inventory data are collected into computerised database and mapping systems. The first system was called TASO and it was based on Nalle mapping system. The current Luotsi – originally referred to as Solmu – is based on Tforest mapping system. Luotsi - as its predecessor TASO - contains the Finnish MELA system as a decision support system to provide estimates of wood production possibilities and future development of forests under different management alternatives.

In 1990s the planning system of RFCs was re-designed to collect forest data applicable for continuous updating of forest data and its utilisation in operational planning between field checks. However, only a part (less than 75 %) of the Luotsi data are used to prepare property level management plans for forest owners, and an even smaller portion of the data are stored in operational information systems of Forest Management Associations (FMA) or forest companies for continuous updating and operational planning (Figure 1). The rest of the Luotsi data are used only in regional forest centres for their own work, but not kept up-to-date after cutting or other silvicultural operations that are frequent in Finland due to the high utilisation rate of forests.

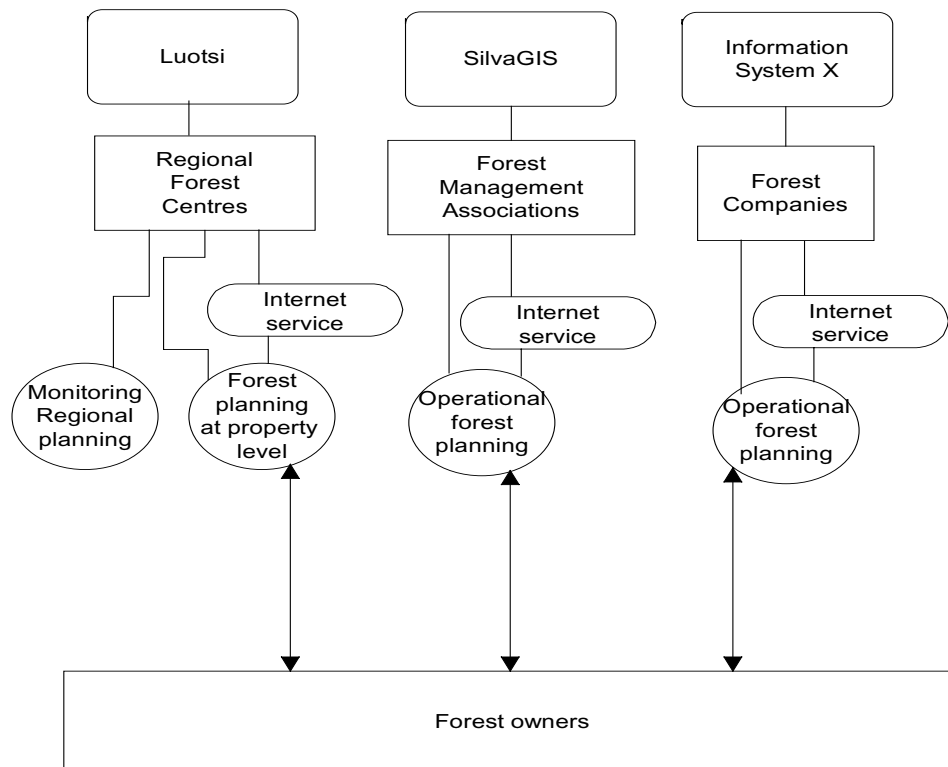


Figure 1. Service providers for forest planning.

NFP 2010 (Ministry...1999) set a target to increase the coverage of forest plans in private forests up to 75 % to support high utilisation rate and good management of forests. Consequently, the government increased the support for forest planning. For example, in 2005 the government financed regional planning by 16,5 million € which was expected to cover standwise inventory costs of approximately 1 million hectares. In addition to this unit cost of 16–17 € per hectare 50 % of which is due to field work, forest owners pay 7–10 € per hectare for plans they order. The existence of plans generates some benefits and tax reduction possibilities to forest owners. In addition, a forest owner ordering a plan is allowed to decide who has the right to use the stand data for his/her property. In spite of the benefits, the coverage of property level plans has remained lower than the target.

3 Planning process and its products

Typically the planning process consists of several phases. In the office, stand boundaries are delineated on aerial photographs. The stand delineation from previous inventory can be utilised if available. The office work also includes data collection on different restrictions concerning forest management or interests of other parties. During the field work, stand delineation is checked and stand level field data recorded based on visual assessment (so called relascope method). In Finland, the average stand size is 1.5–2 ha. Therefore the average productivity of field work is low: approximately 30–40 hectares per day. Stand data include 1) site and management variables for stands, 2) mean values by tree cohorts and 3) management proposals for stands. Since the introduction of field computers, it is almost standard procedure to utilise stand data from previous inventory where available as a basis for field checking.

Increasingly, forest owners are encouraged to participate in the planning process (either in the field or in the office when the plan is prepared, or both) in order to define management proposals matching the forest owner's needs and/or interests. In principle, multiple goals of forest owners should be taken into account and alternative plans should be calculated to support the decision making process. In practice, however, the interaction between planner and forest owner varies a lot depending on both the planner and the forest owner.

The contents of a property plan is standard: 1) standwise data (by tree strata) and management proposals (cuttings and silvicultural work), 2) estimates of costs, income and subsidies, 3) stand maps and thematic maps, 4) sites of specific interests (habitats) and 5) summaries. Today, an important result is an export file containing stand data that can be transferred to service providers (see Figure 1).

4 Future challenges

The forest policy measures including forest planning have been successful in Finland. The utilisation level of cutting possibilities is very high: annual drain is 60 million m³ which is 73 % of increment and 85 % of sustainable cutting possibilities. Despite the high utilisation level, wood resources in Finland are larger than ever: currently over 2000 million m³. Supported by the effective utilisation of wood resources and the resulting economic welfare, Finland has also been able to take care of other forest ecosystem services as well: over 10 % of forestry land is reserved as

conservation and wilderness areas. (Metsätalastollinen...2005)

Finnish forestry is facing new challenges due to e.g. globalisation and consequent requirements for improvements in cost-efficiency that need to be balanced with the multiple needs of people and society. Forest companies responsible for wood procurement or silvicultural work seek cost-efficiency via logistics for which they request up-to-date forest resource data. Forest owners seek to make their own forests economically viable (in relation to available markets and limitations set by the society) and effective (in relation to their forest resources and interests) achieving a combination of forest ecosystem services and products with subsequent operations. The government seeks effective policy measures to fulfil the current and future needs of people and society that sometimes conflict with the market behaviour of forest enterprises and forest owners.

Luckily there is potential to improve effectiveness and cost-efficiency. For example, so called multi-source NFI (MNFI) based on intensive field measurements annually covering the whole country is applicable for monitoring and regional planning at a cost of only 2 c per ha.

Therefore, the MAF has given the Finnish Forest Research Institute the task of establishing a research and development programme whose aim is to support the development of cost-efficient forest resource information system and effective operational planning. For this purpose, the programme will study and develop models, processes (involving different organisations and individuals) and IT applications for continuous forest resource data updating and planning based on the integration of multiple data sources (e.g. MNFI and operational information systems) and interactive decision support tools. To increase cost-efficiency in research and development, the programme will facilitate interaction between the operational, developmental and research organizations.

References

- Metsätalastollinen vuosikirja 2005. Skogsstatistisk årsbok. Finnish Statistical Yearbook of Forestry. SVT Maa-, metsä- ja kalatalous 2005:45. Metsäntutkimuslaitos. 424 s.
- Ministry of Agriculture and Forestry. 1999. Finland's National Forest Programme 2010. Publications 2/1999. 37 p.

Working Papers of the Finnish Forest Research Institute 38: 32–35

Planning Afforestation in Iceland

Thröstur Eysteinnsson

Iceland Forest Service

1 Introduction

Afforestation by planting is the main forestry activity in Iceland. About 1500-2000 ha are planted annually, generally with multiple-use goals but emphasizing developing a timber resource, reclamation of eroded or degraded land and/or amenity. About 80% of afforestation takes place on farms with grants from the state-run Regional Afforestation Projects (RAPs). The rest is carried out by forestry societies, individuals and two state agencies; the Iceland Forest Service (IFS) and the Soil Conservation Service (SCS) (Gunnarsson 2004).

2 History of forestry planning

The first maps of state-owned forests were made in 1906. Such maps were basically the only forest planning tools until 1970, when the first district plan for farm afforestation was made. It included a description of goals but no inventory or detailed description of land to be afforested and no forest design maps. The first regional plan including land inventory and forest design was made in 1987 and the first estate level afforestation plan in 1988 (Blöndal and Gunnarsson 1999).

During the 1990s, a total of five regional plans setting long-term afforestation goals were developed covering all of lowland Iceland. These formed the foundation upon which the six RAPs are built. The regional plans were all developed through co-operation between the IFS, local farmers' associations and forestry societies and the Ministry of Agriculture. At the same time, estate level plans were developed and made for several hundred farms (Eysteinnsson 1999).

The first National Forestry Plan was accepted by parliament in 2003. It includes goals and a 5-year budget for the farm afforestation grants scheme administered by the RAPs and provisions for budget increases for forest research and the national forests, both administered by the IFS.

3 Levels of planning

Almost all estate level plans to date are for afforestation of treeless land. The first true management plans for existing forests are now being made for the national forests and plans that include thinning will be made for private forests soon.

Estate level plans are simply a set of instructions from a forester to a forest owner, in other words, professional advice. They are tools to plan fencing, seedling production, site preparation, and other things that precede afforestation, as well as planting. Estate level plans do not go through the official (legal) planning process unless environmental impact assessment is required, that is if the afforestation area covers over 200 hectares or it is located in a nature protection area. The time scale of estate level plans is usually 10 years (Eysteinnsson 1999).

Regional level afforestation plans have been developed for the 5 RAPs. They basically describe the state grants scheme for farm afforestation, which accounts for roughly 80% of afforestation in Iceland. They do not describe where afforestation will take place, since that depends on what land owners elect to participate. They do however exclude some areas from afforestation before hand, mostly wetlands, nature protection areas and land at high elevations. The regions vary in size, with each covering 15-25% of the Icelandic lowlands. Regional level afforestation plans are public and required by the regional afforestation projects act. They do not go through the official planning process according to the planning and building act however. Instead, they are accepted when signed by the minister of agriculture. The timescale of the regional afforestation plans is 40 years.

The National Forestry plan is basically a state budget plan for 5 years, with no guarantee that it will be fulfilled. The time scale is actually one year at a time since it depends on the state budget. Getting an actual national forestry programme and associated plan is a work in progress.

4 Forest planning and conservation

Integrating conservation value into afforestation plans has been emphasized since the mid 1990s. Even though most land to be afforested has almost certainly been wooded in the past and has therefore been deforested, its current state may still have conservation value. Aspects that may have conservation value include biota (animals, plants, habitats), geologic formations and landscape (lavas, cliffs, waterfalls), archaeological or historic sites (ruins, sites connected to specific events), areas used for outdoor recreation (walking, hunting, berry picking) and sites with other types of interest (folklore, "favourite spot").

Conservation value is integrated specifically into estate-level planning through discussion with the landowner, by consulting experts and by reviewing various types of references such as red lists of rare animal and plant species, national and/or local registers of sites of nature conservation interest and archaeological surveys. The most common method is simply to mark the area in question on a map and say, "don't plant here". In some cases, more involved designing is required, especially where landscape is concerned.

Regional and national forestry plans include general goals and considerations regarding conservation.

5 Who plans afforestation?

People with university degrees in forestry are responsible for estate level planning. Consultation is primarily with the land owner, but also with local planning authorities and experts at the IFS and/or other state agencies in some cases. There are no legal restrictions on who can make a forestry plan however and no regulations regarding who must be consulted. Forest owners participating in the RAP grants scheme receive afforestation plans as part of their grant (Eysteinnsson 1999).

Regional level plans are developed by the IFS and directors of the RAPs with input from local forest owners, forestry societies, municipalities and others. The national forestry plan was authored by the Ministry of Agriculture, the IFS and the RAPs. Consultation with stakeholders outside the forestry sector was through official channels while the plan was in parliamentary committee. It was then approved by Parliament.

No forestry plans are required to go through an official planning process according to the planning and building act. The national and regional forestry plans are available to the public on web sites of the IFS and RAPs. Estate level plans are the property of the forest owner and not available to the public.

6 Financing

Estate level plans are financed by the RAPs for participants. Individual forest owners can buy plans from the Icelandic Forestry Association and at least 3 independent forestry consultants. Regional level plans are financed by IFS and RAPs. The national plan was financed by the ministry of agriculture, IFS and RAPs. In other words: almost all forestry planning is state financed (Eysteinnsson 1999).

7 Future trends

Work is about to commence on a real National Forest Programme which will result in a new national forestry plan 2009-?. This will be an open process with participation of all interested stakeholders, ending in acceptance by Parliament.

There are forces at work to increase bureaucracy, mostly through the legislative process. Several attempts have been made to require estate level plans to go through the official planning process according to the planning and building act and attempts have also been made to increase the number of afforestation plans requiring environmental impact assessment. These have until now been unsuccessful since forestry in Iceland is limited in scope and is generally considered to have positive rather than negative environmental effects, resulting in the Icelandic parliament not seeing the necessity for imposing restrictions or additional costs. These attempts will doubtless continue and the forestry sector will continue to fight them.

References

- Blöndal, S., and Gunnarsson, S.B. 1999. Islandsskogar (Iceland's Forests). Reykjavik, Mal og Mynd. 265 p.
- Eysteinsson, T. 1999. Forest Planning in Iceland. In: Forest Planning Today in the Nordic Countries and Scotland. TemaNord 1999:580, Copenhagen, Nordic Council of Ministers: 19-26.
- Gunnarsson, E. 2004. The year in forestry 2003 (in Icelandic). Icelandic Forestry 2004, vol. 2: 118-122.

Working Papers of the Finnish Forest Research Institute 38: 36–41

Forest Planning in Private Forests - Norway

Tron Eid

Norwegian University of Life Sciences

1 Background

The productive forest area in Norway is approximately 7 mill. ha. Non-industrial private forest properties, represented by 120 000 owners, cover almost 80% of this area (Statistics Norway 2003), i.e. the average size of the private forest property is approximately 45 ha. The management of these forest properties have traditionally been combined with agricultural production. This combination is still important, but over the past decades an increasing part of the owners' incomes are coming from outside the farm. The forest area in Norway is also highly non-homogeneous with respect to productivity, elevation and terrain. Forest planning in Norway is therefore carried out within a framework of high diversity with respect to the owners' education, occupation and goals, and within large variations for natural conditions.

The first forest plan in Norway was worked in 1875, but systematic forest planning covering significant areas in private forests started in the early 1950's. The activities in forest planning reached a peak in the 1990's. Over the past few years the planning has comprised 300 000-500 000 ha forest land per year. This corresponds to 10-20 years cycles to cover the entire area of productive private forest land in Norway. The aim of the present paper is to give a brief description of planning in private forests in Norway.

2 Stakeholders and procedures in private forest planning

2.1 Stakeholders

The Ministry of Agriculture and Food provides regulations for forest planning. The Ministry also has the overall responsibility for administrating the subsidies related to forest planning. The present regulations from the Ministry (2004) focus on the plan content and on the quality of the plan content. Previously these regulations also comprised detailed requirements for the inventory methods to be applied. According to the new regulations, the stakeholders of a planning project may freely choose inventory method as long as the basic requirements with respect to content and

quality is fulfilled.

The forest planning projects may be divided into two groups, i.e. projects for “individual owners” and projects for “large areas”. Projects for individual owners are mainly done for large industrial properties. The vast majority of projects are performed as projects for “large areas”. Generally such projects cover 5-15 000 ha of forest land. In 2004, 41 projects were started for a total area of approximately 500 000 ha. The 41 projects comprised nearly 7 500 properties (NIJOS 2005). As an integrated part of the conventional forest planning, i.e. planning focused on timber production, also assessments related to biological diversity may be performed. Since such assessments form the basis of the Norwegian certification regime (PEFC), integrated projects are quite usual (35 out of the 41 projects started in 2004). In general there are three main stakeholders in the forest planning projects for large areas:

- The county authorities have the administrative responsibility. They initiate a new project according to an over-all 10 year main plan for the county. In addition they provide administrative services and expertise for individual projects.
- The forest owners, represented by the local forest owner association, are the buyers of the data and work out the requirements for the content of the plans.
- The forest planning companies are the supplier of data and work out the final plans.

2.2 Procedures

A forest planning project is initiated by the county authorities according to the over-all 10 year plan. The first task is to settle a steering committee for the project. The local forest owners constitute the majority of the committee. Professional local foresters from the association forest owners and from the municipality may also be members. An expert from the county authorities is administering the committee and acting as a secretary. The most important task of the committee is to prepare requirement specifications for the plans to be developed. These requirements are usually sent to several planning companies. The companies then work out bids to the steering committee with a detailed description of plan content, quality (accuracy) of the data, inventory methods to be applied and prices of the product. The number of planning companies involved in the competition for a project is varying, but from a situation 5 years ago, where almost all projects were given to one company without any competitive bidding, today most projects involves competition between two or more companies. The next task of the steering committee is, according to considerations on plan content, quality (accuracy) and price, to choose the company they want to do the actual planning work. Most of responsibility in the project is from now on in the hands of the planning company. The task of the steering committee is limited to follow up the work of the companies related to the inventory, to the design of the plans and to coursework for the forest owners when the plans have been finalized. The total duration of a project from the first initiative of the county authorities to the finalized plans is usually 3-4 years.

3 Inventory methods

Three main data sources constitute the basis of a forest plan. The first source is electronic data from official map series with information on property boundaries, land use classification, infrastructure and topography. The second data source is digital aerial photographs covering the whole

area subjected to planning, and the third source is data from field-, photo- or laser inventories.

The most widely applied inventory method is a “photo inventory”. Over the past years this method has been applied for an increasing part of the forest area, and today almost 90% of all inventory work in private planning is based on the method. Several variants of the inventory method are carried out, but in general there are four main phases;

- Stand delineation based on photo interpretation
- Stand inventory based on photo interpretation
- Field control in stands
- Systematic sample plot inventory covering the entire area of the project for calibration of the subjectivity of the photo interpreter

The stand delineation is in general based on criteria like main tree species, development class and site quality, but also on practical considerations related to the treatment of stands. In the stand inventory, which depends on the individual photo interpreters’ judgements, volume, species proportions, mean height, basal area, site quality, and age is assessed. In the third phase, all stands are looked up in the field, and, if necessary, the results of the photo interpreter are calibrated. For some projects only a part of the stands are controlled in the field, usually those close to maturity and with a high productivity. There are even projects without any field control where the plan is based solely on the photo interpretation. In the fourth phase, a systematic sample plot inventory covering the entire area is carried out. The results from this inventory are used for calibration of potential biases of the individual photo interpreters with respect to their volume estimates at the stand level. The calibration is supposed to provide an unbiased volume estimate at the property level. Previously this systematic inventory was compulsory for all projects. In the new regulations from the Ministry there are no such requirements, and today only a few projects include a systematic sample plot inventory.

“Relascope inventories” are carried out for 5-10% of the area. This inventory method comprises three phases starting with stands delineation based on photo interpretation, continuing with a stand inventory with relascope plots distributed subjectively in each stand and ending with a systematic sample plot inventory for calibration of potential biases from the relascope inventory. Over the past few years, an increasing number of projects have been based on “laser-scanning inventories”. This method is a combination of photo interpretation (stand delineation, and assessments of species distribution, site quality and age), laser-scanning (volume, height, basal area, no. of trees, etc.) and a systematic sample plot inventory (for calibration of the laser-scanning data). It is expected that laser-scanning in future will play an increasingly important role for the planning of private forests in Norway. So far 8-10 such projects have been carried out.

4 The forest plan

4.1 Content

The content of a Norwegian forest plan may be divided into three main parts;

- A forest map with delineated stands
- A description of the present resources

- A description of treatments

In addition to basic features related to the topography and infrastructure, the standard forest map usually displays information on development class and site quality for all stands within the property. Alternative forest maps related to different themes may be requested. The resource description (present state) may be divided into two parts. Firstly, summary figures and tables with information at the property level (total area distributed on productive forest land and other land-use categories, total volume, species distribution, development class- and site quality class distribution, and current total growth according to different classifications) is presented. Secondly, there is a detailed description of each individual stand (area, development class, site quality, age, volume for different species, and possibly information on mean height, dominant height, basal area, and number of trees).

The description of the treatments may also be divided into two parts. At the property level, there may be a suggestion for the overall annual harvests for the next 10 years. Previously the potential annual harvests suggestion was based on compulsory computations with a large-scale scenario model. Such computations are now less frequently performed, and quite a large number of plans are today produced without any overall harvest suggestion for the property. Treatment suggestions for each individual stand may also be a part of the forest plan. Here basic silvicultural works such as timing and performance of final harvests, regeneration method, young growth tending and conventional thinning are described. These suggestions are mainly based on visual assessments performed by the planners in the field. Since a field control of each stand no longer is compulsory, an increasing part of the plans are produced without any treatment suggestions at the stand level, or with only a part of the stands having such suggestions. Although there are variations between projects and among the companies, this means that the present Norwegian forest plan is becoming like a description of the present state than an actual plan for future activities in the forest.

The forest plan may be offered as a written document or as an electronic plan. An increasingly proportion of the plans are now delivered as an electron plan. The forest owners are in such cases provided with software including GIS-tools. With this software the forest owner may produce summary tables as well as maps on different themes. In addition the software can be used for updating the state of stands and for delineation of new stands according to performed treatments. The software may also be used for updating the state according to an estimated growth for individual stands.

4.2 Costs and prices

A relatively large number of investigations have been done over the past 10 years in order to evaluate the quality of the forest plans (see e.g. Eid 2003 and Eid et al. 2004). The figures on expected accuracy (random errors for volume at the stand level) and biases (systematic errors for volume at the property level) in Table 1 are based in these investigations. In addition the table shows estimates for the costs related to different products/plans.

Table 1. Expected accuracy, biases and costs according to different products and methods.

Product/Method	Accuracy (%)	Biases (%)	Costs (EUR ha ⁻¹)
Stand map (site quality/development class)	-	-	2-3
Photo inventory only	20-30	0-30	5-8
Photo inventory - field control in stands	15-25	0-30	10-20
Photo inventory - field control in stands and systematic sample plot inventory	15-25	0-5	15-25
Laser-scanning and photo inventory	10-15	0-5	10-20

The figures presented in Table 1 are involving all costs of the planning companies related to field work, data management and finalizing plans. The price for the forest owner is reduced considerably due to subsidies provided by the public authorities. The subsidies may vary between 30% and 70% depending partly on local regulations. The figures in table 1 are not differentiated according to the property size, but reflect the average. For the forest owners, the price ha⁻¹ for the product in general decreases when the size of the property increases.

5 Concluding remarks

Since year 2000 there has been substantial changes in practical forest planning for private forest in Norway. From more than 20 different departments closely connected to their respective local forest owners associations, the work is today performed by 6-7 companies, totally or partly, independent of their forest owners associations. The main result of these changes has been larger and more professional units. At the same time the Ministry has provided for a planning environment with fewer regulations and with more competition. Along with these two main changes in the organisation of the forest planning, we have, however, also seen a decreasing willingness among the forest owners to pay for the planning products. A “more distant relation” among the forest owners to the forestry activities in general, along with decreasing timber prices over some years, are probably the main explanations of this negative trend. The main result of these changes has been a focus on cost reductions in all phases of the planning work. The inventory procedures have changed towards more remote sensing, and less conventional field inventories. The product (plan) has become more differentiated, i.e. the forest owners may choose among different alternatives according to content and quality. In general this means that the Norwegian forest plan of today is offered to a lower price, but also with a poorer quality than previously.

References

- Eid, T. 2003. Kontroll av relaskoptakster og fototakster. Pp 10-17 in Registreringer i Aas skog 1960-2000. Aktuelt fra skogforskningen 5/03:1-17. (In Norwegian)
- Eid, T., Gobakken, T. & Næsset, E. 2004. Comparing stand inventories for large areas based on photo interpretation and laser scanning by means of cost-plus-loss analyses. *Scand. J. For Res.* 19:512-523.
- NIJOS (2005). Kontroll av skogbruksplanprosjekter 2003 og 2004. Note from the Norwegian Institute of Land Inventory. 4 pp. (In Norwegian)
- Statistics Norway (2003). Forestry Statistics 2003. Official statistics of Norway NOS D 320.

Working Papers of the Finnish Forest Research Institute 38: 42–51

Forest Planning in Private Forests in Scotland

Steve Smith

Forestry Commission, Scotland

1 Background

Over the last one hundred years or so, the woodland cover in Scotland has increased more than four-fold, from a low of 4% in the early 1900's to around 17% by the year 2000. Figure 1 (Smith and Gilbert 2001) illustrates how much of this increase occurred during the 1970's and 1980's, when there were large planting programmes in both the public and private sectors.

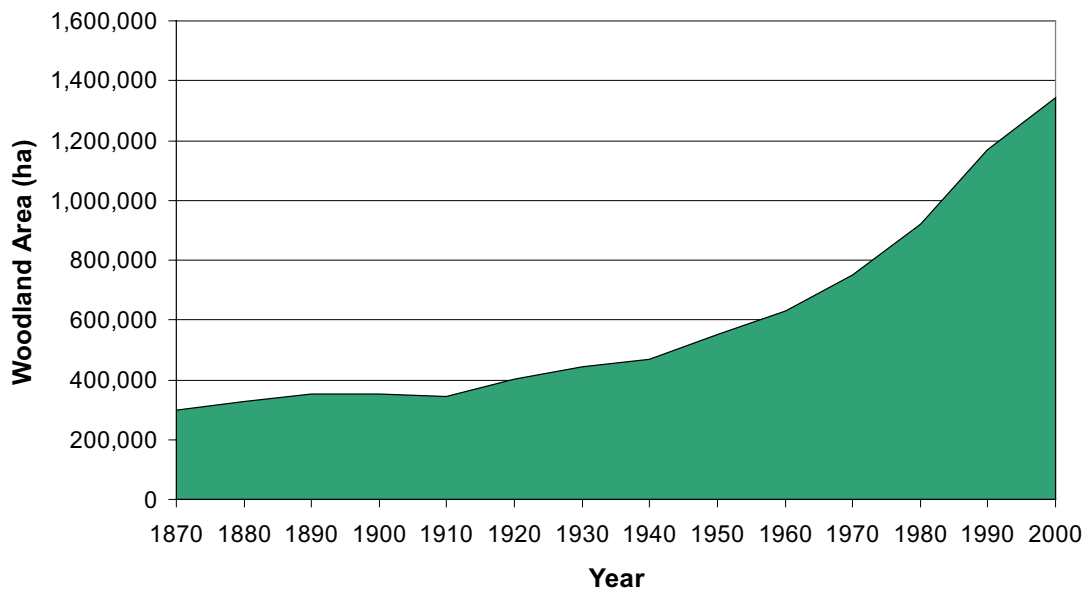


Figure 1. Scotland: change in woodland area through time (1870 – 2000)

This helps explain why there is not a strong history or culture of forest management, and hence forest planning, in the Private Sector. There are a few exceptions in some larger private estates that have been in the same ownership over long periods, but even here the interest in forestry was often a more minor factor than, for example, the sporting interests.

Another explanation is that, although there is legislation covering the felling of woodland, there is no legal requirement to actively manage, or maintain plans for privately owned woodland.

The State owned forests have dominated the production of timber over the last 30 years. However, the ownership pattern is changing, with currently around 55% of the woodland in private ownership. The production pattern is also changing, with timber production in the Private Sector due to overtake the State Sector within a decade (theoretical 'availability' already has). While softwood availability can be predicted from National Forest Inventory data (Smith and Gilbert 1999) (Figure 2), there is a need to know more of actual planned production from the Private Sector, so that the processing sector can make investment decisions.

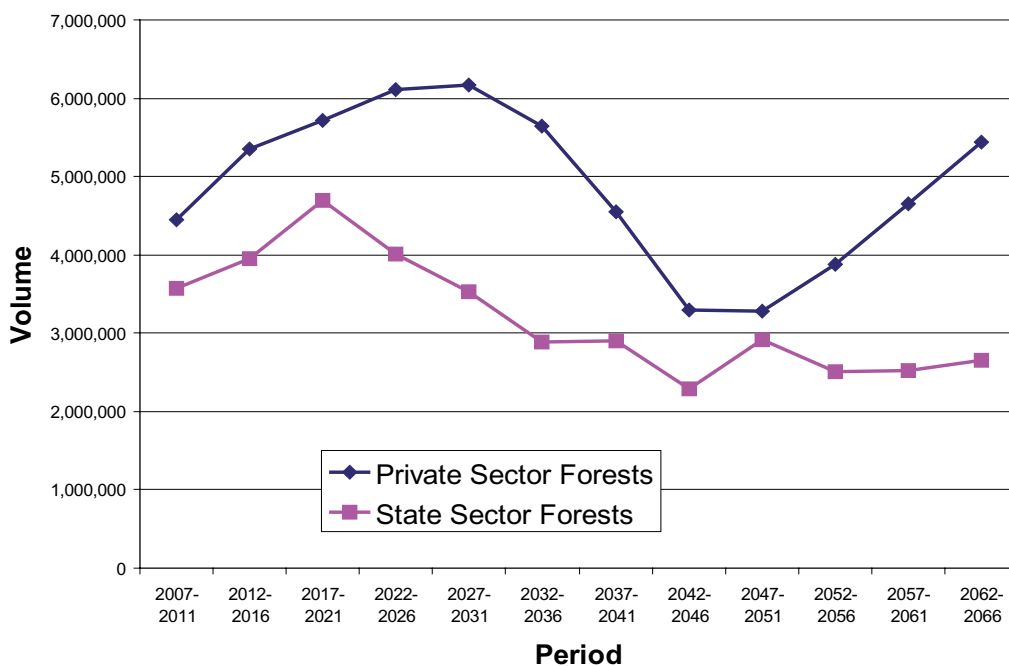


Figure 2. Scotland: softwood availability in the State and Private Forest Sectors

Private Sector forest planning is therefore of increasing relevance for the forest industry, and in general terms of being the dominant forest ownership in Scotland. In recent years, therefore, there has been a move towards linking private sector forestry grant schemes to forest plans, to increase the incentive to have a plan in place.

There can be four levels of forest planning considered that involve or affect privately owned forests: national, regional, district and the estate/forest. These are explored below.

2 National level forest planning

After the process of government devolution in 1999, forestry was an issue devolved to the Scottish Parliament. They quickly developed the Scottish Forestry Strategy, published in 2000 (Forestry Commission 2000) (Figure 3). There was a full process of forest industry and public consultation.

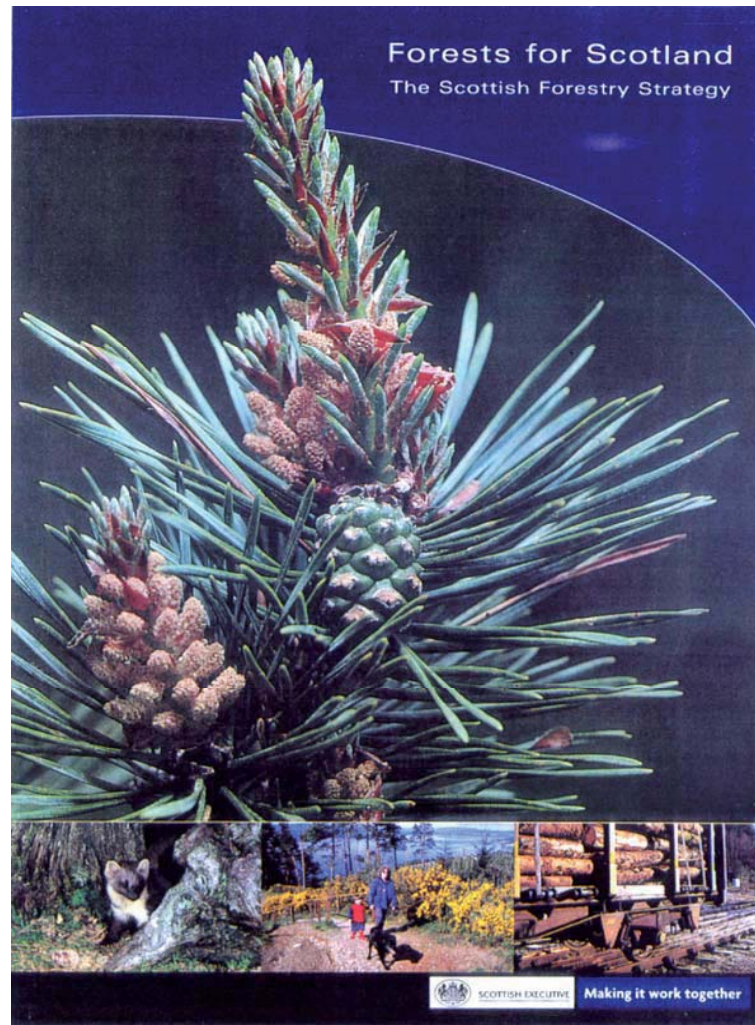


Figure 3. The Scottish Forestry Strategy

This document reviews the resources, i.e. forests, and talks about ‘activities & outputs’, e.g. timber production, recreation and conservation, and finally it defines desired ‘outcomes’, such as sustainable economic growth, improved health and wellbeing, and enhanced natural and cultural heritage.

The strategy is currently being reviewed (Forestry Commission 2005), with a new strategy to be published in later in 2006. The 2000 Strategy has as its vision: ‘Scotland will be renowned as a land of fine trees, woods and forests which strengthen the economy, which enrich the natural heritage and which people enjoy and value’

The review process is in its second phase now, with another round of public consultation on the draft 2006 strategy. This has slightly changed the emphasis of the vision to: ‘Scotland’s woodlands will benefit everyone in Scotland: promoting vibrant and healthy communities; enriching natural environments and our cultural heritage; and creating wide-ranging opportunities for economic development’

In other words it looks like people and communities are coming to the fore in the new strategy, and private forest owners will need to take this into account. In their plans they will need to demonstrate how they have taken the needs and wishes of local people into account.

- est and woodland resource in securing both local and wider socio-economic and environmental gains, expansion and development of woodlands around settlements, crofter forestry;
2. Expansion of native woodland, particularly in areas of higher natural heritage value or important areas for recreation – via development of forest habitat networks, and schemes to re-instate and expand riparian, tree-line, and coastal woodland;
 3. Expansion of productive forest – establishment of new woodlands geared to timber production and improvement of the timber quality of specific species;
 4. Enhancement of the region’s attractiveness for tourism and recreation via woodland development - enhancement of important tourist routes, archaeological sites, and footpaths;
 5. Improvement of the infrastructure for forestry and local processing – identification of priority road and bridge improvements, opportunities for increased rail and ship usage for timber transport, and development of local processing capacity and woodfuel supply chains.

4 District Level Forest Planning

This is not an active area in forest planning related to the Private Sector in Scotland, compared, for example, to the State Sector which is divided into 14 Forest Districts, each with its own ‘strategic plan’. However, with both national and regional strategies seeking to increase community benefits from forests, and to enhance community involvement in forestry, there is a desire to find ways of bringing people into the process.

The Northern Periphery Project ELAV (Enhancing Local Activity and Values from forestland through community-led strategic planning) is seeking to develop such a model at the district level. A project area in Northern Scotland (Figure 5) containing both private and state forests has been selected, and a project officer employed – results from the project are due by late 2007.

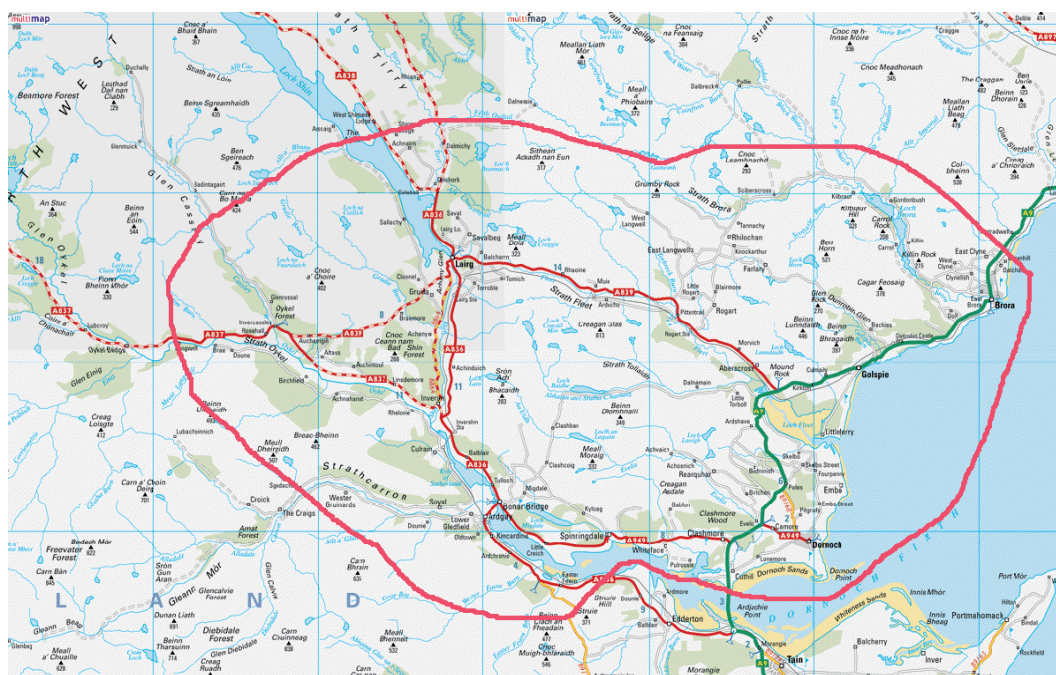


Figure 5. NPP ELAV Project Area in East Sutherland

The project will work with rural communities to identify opportunities for enhancing and sustaining local values and rural development benefits from forests and forestland. Communities will play a lead role in the development of sub-regional forest plans focussed on better integration of tourism development, exploitation of non-timber forest products and local processing with existing timber harvesting and nature conservation objectives.

It is expected that the models and processes developed at the district level will ease the burden of consultation for individual forest owners in formulating their estate/forest level plans.

5 Estate/forest level forest planning

The purpose of forest planning at this level began as primarily related to timber production. Another aim for some owners has been also for certification through the UK Woodland Assurance Scheme. However, for many owners forest planning has been aimed at having access to funding of one kind or another.

To some extent the type of forest planning undertaken in the Private Sector has reflected the spread of types of ownership. The dominant type of ownership is the private estate and (relatively) large landowner with around half of the private forests (Figure 6).

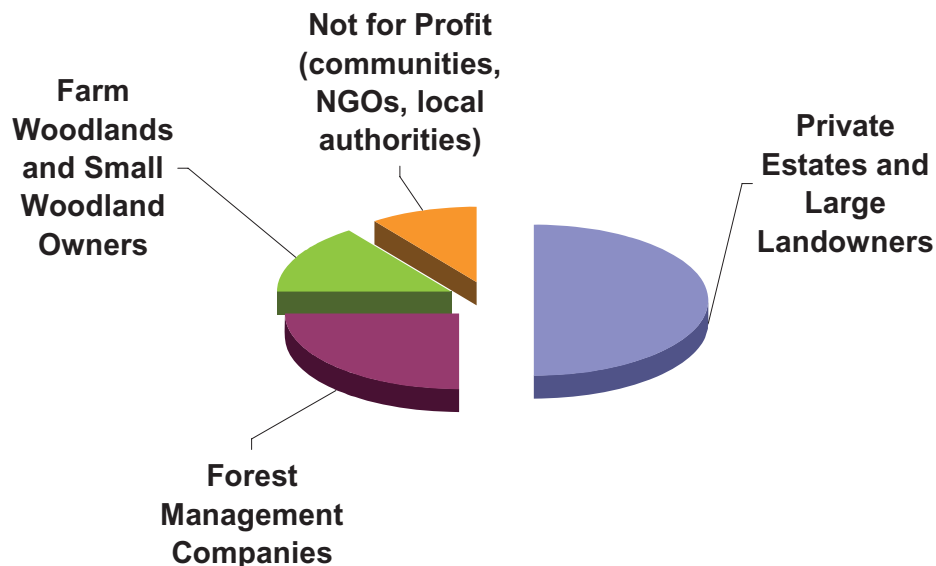


Figure 6. Private Sector Woodland Ownership (%)

Novar Estate in Easter Ross (Figure7) can be held as an example of this type, with a total land holding of around 4,000 ha, of which about 2,500 ha are woodland. Novar is slightly unusual in having a long history of woodland management, but no plans as such survive from earlier years.

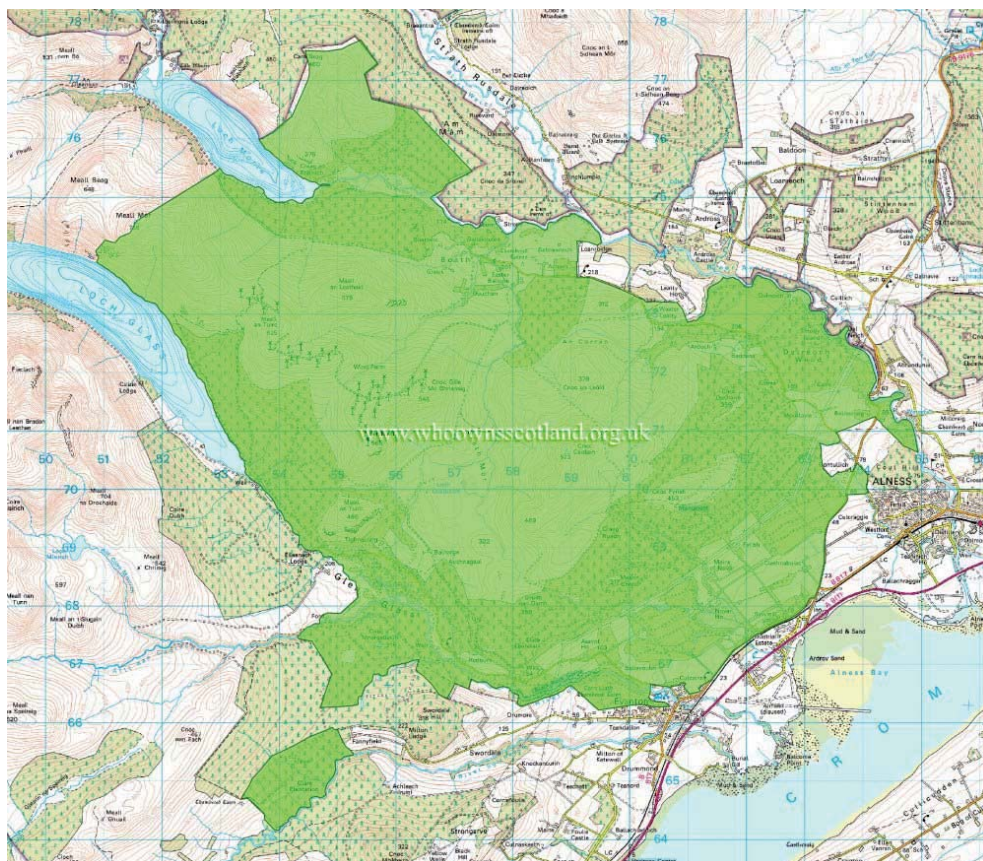


Figure 7. Map of Novar Estate in Easter Ross

The Woodland Management Plan for Novar consists of:

- A description of the woodlands.
- An evaluation of the resources.
- Aims & Objectives.
- Constraints on management.
- Management Prescriptions for:
 - Timber,
 - Conservation, and
 - Recreation.

Most privately owned woodlands are dependent to some degree or another on access to government grants and subsidies. Forestry Commission Scotland has always encouraged applications to be in the context of an overall plan. Recently it has gone further and developed a more formal context of 'Forest Plans' (Forestry Commission 2003) (Figure 8) which has the following features:

- The formulation of plans is subsidised,
- Approval of a plan implies approval of appropriate grants, and
- The procedure for accessing grants is much simplified.

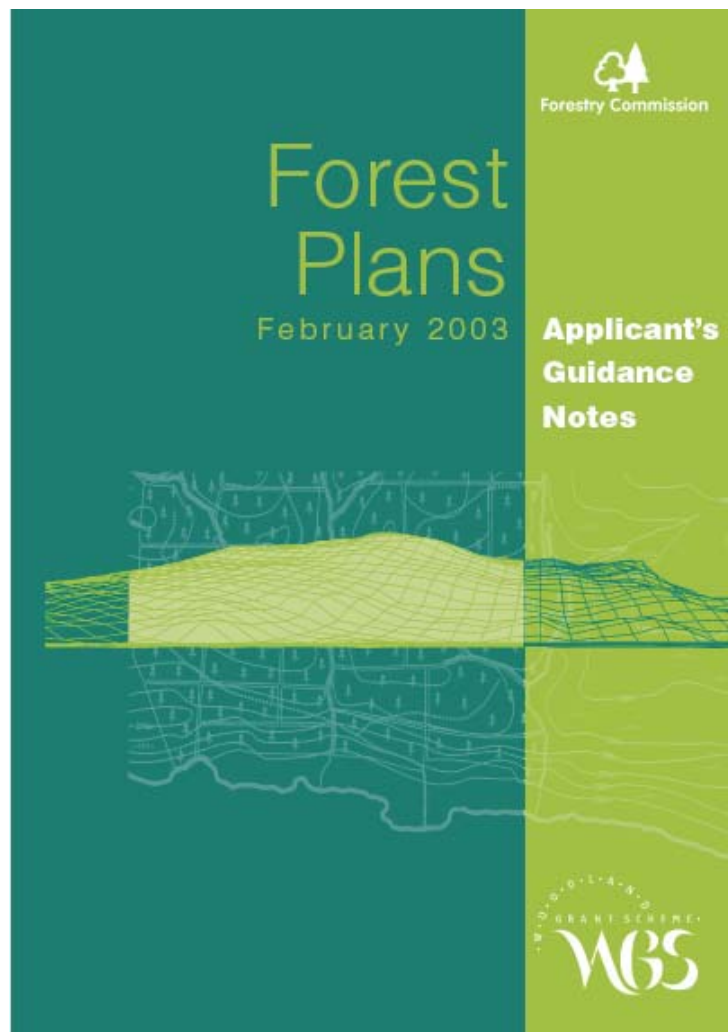


Figure 8. Forest Plans Guidance Notes

Forest Plan Components consist of:

- Property details.
- Description of Woodlands.
- Survey Data.
- Analysis, including concept maps and visual landscape analysis.
- Felling and Restocking Plans, including maps and detailed operational schedules.

The timescale of a Forest Plan is:

- The Forest Plan will outline felling, thinning and restocking over a 20 year period, and
- Forestry Commission Scotland will approve a detailed work plan for the first 10 years.

The financing of Forest Planning is through the Scottish Forestry Grant Scheme, with a Plan Preparation Grant for Long-Term Forest Plans of:

- 22 Euros/ha for 1st 200 ha, and
- 7 Euros/ha for remaining area, up to maximum of 22,000 Euros.

6 The Future of Forest Planning

It is generally acknowledged that for the Private Sector to access public funding then Forest Plans must reflect the needs and desires of the public, as expressed through the national, regional and local district level strategic plans.

This will mean:

- A wider range of objectives,
- More use of Forestry Commission Long-Term Forest Plans,
- More integrated land use planning, and
- More community involvement.

Forestry Commission Scotland has committed itself to encouraging the Private Sector in this regard, but is also pursuing a programme of divesting the State of its forests to local communities where it can be demonstrated that this is in the public interest. The programme is called the National Forest Land Scheme (Figure 9).

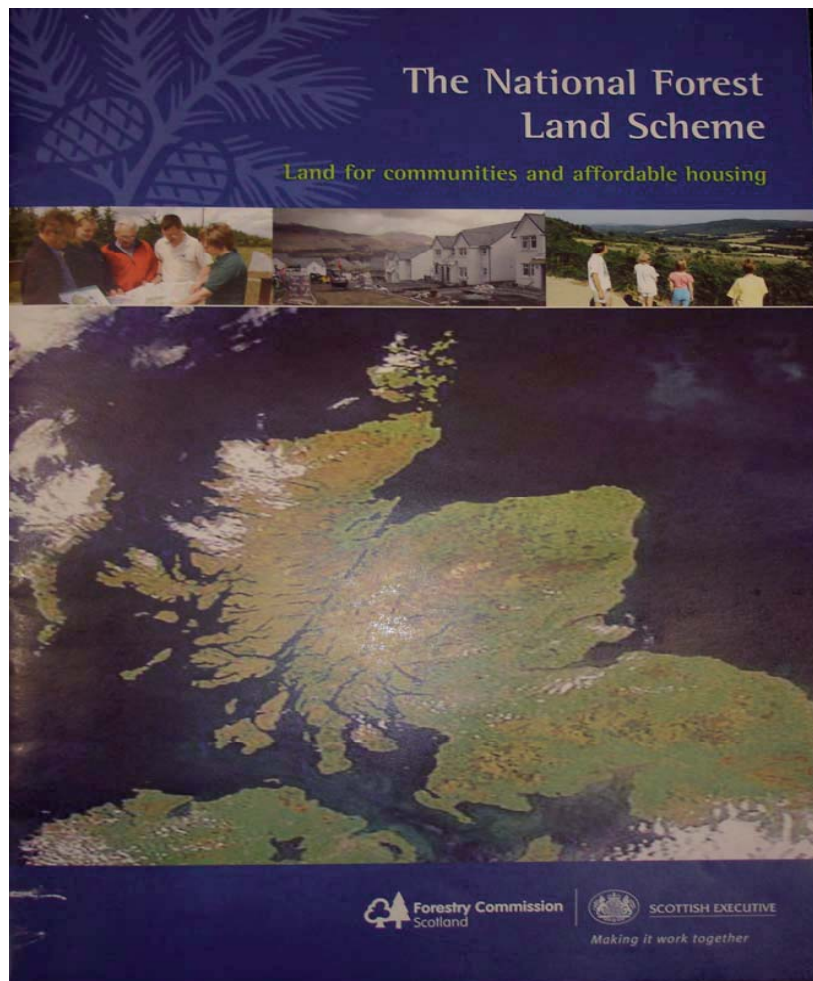


Figure 9. The National Forest Land Scheme

The National Forest Land Scheme allows for:

- Community acquisition of local forests,
- The provision of land for affordable housing, and
- The sale of surplus land to the highest bidder.

Community involvement is therefore likely to be the biggest change in forest planning in both the State and the Private Sectors over the coming years. It is hoped that this will:

- Increase opportunities for community consultation,
- Provide opportunities for greater community involvement in forest management, and
- Support community ownership where this brings local benefits.

References

- Forestry Commission (2000). *Forests for Scotland: The Scottish Forestry Strategy*. Forestry Commission, Edinburgh.
- Forestry Commission (2003). *Forest Plans: Guidance Notes*. Forestry Commission, Edinburgh.
- Forestry Commission (2005). *Review of the Scottish Forestry Strategy*. Forestry Commission, Edinburgh.
- Smith, Steve, and Gilbert, Justin (1999). Scotland: new forecast of softwood availability. *Forestry & British Timber* 28 (7), 20-25.
- Smith, Steve, and Gilbert, Justin (2001). *National Inventory of Woodland and Trees: Great Britain*. Forestry Commission Inventory Report. Forestry Commission, Edinburgh.
- The Highland Council (2006). *Highland Forest and Woodland Strategy*. The Highland Council, Inverness.

Working Papers of the Finnish Forest Research Institute 38: 52–60

Forest Management Planning for Private Forest Owners in Sweden

Erik Wilhelmsson

Swedish University of Agricultural Sciences

1 Background

Sweden has 27.4 million hectares of forest land, according to FAO's definition, and 22.9 million hectares with a potential growth over 1 m³ per hectare and year of which 11.6 million is owned by 350 000 private owners (SLU 2005). The number of holdings are 240 000, thus the average size is 45 hectares. Most forest owners have other sources of income for their living. Of the owners 38% are women, and 37% do not live close to the holding (The Forest Agency 2006).

2 History of forest planning

The Swedish Forest Agency began forest management planning in the 1930's when aerial photos became available. The planning work became more systematic during the 1960's. It was mandatory for all private forest owners to have a management plan according to the Forestry Act between 1983 and 1993. This was largely the result of the forest industry's inability to obtain sufficient amounts of raw timber. A lot of private forest owners had high marginal taxes (>70%) on incomes from the forest and were unwilling to sell timber. Forest owners with management plans had proven more active (and supplied more timber).

Subsidies were available to the Swedish Forest Agency for production of forest management plans. The production of plans was integrated with a national programme the General Forest Inventory of all private forests. From 1983 to 1990, the Swedish Forest Agency produced plans for approximately 700 000 ha per year. Forest plans covered 90 % of all private holdings by 1993 (plans not older than 15 years).

The plans were produced with rough subjective methods, i.e. estimations rather than measurements.

There were criticisms of these plans for many reasons. The quality was low in the description of the stands (subjective estimations, with no or few measurements) as well as in the management

proposals (based on subjective assessment and not analysis). This was made obvious by the development of a new planning system (The Forest Management Planning Package, Jonsson et al. 1993) designed for forest companies with large holdings. This system demonstrated the need for changing forest management practices in company forests.

The system was also demonstrated on a few private holdings and that showed the low quality (Eriksson 1990).

The programme was a considerable expenditure for the state in the form of subsidies. According to nature conservationists, the programme also placed too much focus on timber production and too little on nature conservation. At the beginning of 1990's the forest management plans became voluntary again, and planning activities fell to less than 200 000 hectares annually. Sweden adopted a new Forest Act from 1994, where the general idea was to give equal weight to production and environmental goals.

Environmental consideration was included in the forest management plans, and different variables were assessed for this purpose. The Swedish Forest Agency and the forest owners' association, Södra, developed a system called "Green Forest Management plans" in 1995.

For each stand a long-term production and/or environmental goal is formulated in one of four classes and the assessment of forest production and nature values are reported. These are PG - production goal with general nature conservation consideration, PF (or K) - production goals with reinforced conservation consideration, NS - nature conservation goals where management is needed to sustain the conservation value, and finally NO - nature conservation goals where the forest should be left untouched. The balance between these goal classes is specified on estate level. In a "Green Forest Management Plan" 5 % of the forest area should be in goal class NS/NO, another 5 % in PF, and 90% in PG. Holdings of less than 20 ha have no requirements regarding balance. A Green FM plan is required within 5 years for certification from FSC (Forest Stewardship Council).

Other organisations may make different, additional demands. The forest owners' association, Norra Skogsägarna (Eriksson, J. pers comm) call their FM plans "Ecoplan" (eco from both ecological and economic) and consider 5 % NS/NO the central part and put less emphasis on another 5 % PF.

Since 2003 a Forest and Environment Declaration is required according to the Forest Act (The Forest Agency 2006). The owner must have information about his or her forest. These data are both forest data for stands such as area, age, if regeneration activities are required, and environmental data: area with broadleaved hardwood, nature reserves, protected biotops, wetlands with special value, the presence of archaeological sites, and other valuable areas. This regulation makes at least a simple forest management plan necessary. The information is for the benefit of the forest owner and there is no plan within the Forest Agency for a follow-up of the regulation.

Forest planning systems have generally been available for the private forest owners since the 1980s, and to some extent before that time. Most of the systems offer little guidance to the owner for making economic management decisions, but some professional systems include possibilities for economic optimisation. This is the situation today, despite the possibilities for sorting the data, printing of pedagogic maps, updating the information with annual growth, changes in stand boundaries, and completed management activities.

3 Kind of planning, purpose, time scale

Planning should be normative, i.e. help the owner to achieve his/her goals within the frame of the Forestry Act and other rules set by society. The planning process needs sufficient, accurate data and should ideally be based on extensive analysis and the comparison of the outcomes of management alternatives. In real life, plans for private forest owners are often based on subjective data and management proposals. Also, there is a need to identify the goals of the forest owner and to adopt the plan to fit them. Many (most) owners lack clear ideas concerning their goals. Therefore much work is needed in this area.

Green FM plans are a means of implementing the goals of the forest owners' association, Södra, and the Forest Agency (e.g. the politicians) of setting aside a proportion of forest land for conservation.

During the 1980's the FM plans were aimed at both more intensive timber production and higher supply of round wood for the forest industry. This was based on experience gained during the 1970's. In Älvdalen 2000, the establishment of forest management plans led to increased activity (Svensson 2002) when compared to the previous years. Clear cuts, soil scarification and cleaning increased 150-200% and precommercial thinnings and thinnings increased 400-500%. Also, the forest management plan resulting in many forest owners transferred their holding to another person.

FM plans in Sweden are made with a 10 year planning horizon. On the strategic level, a longer planning horizon is necessary. The long term judgements are made by comparing total cut volume during the 10 year planning period and growth, also considering clear cut area and age class distribution. In general long term optimization is not done.

FM plans should be updated every year and revised after a few years. This is not done in most cases, but organizations making plans offer this service as an option, and it might be more common in the future, especially if web based techniques are used.

Forestry and therefore forest management planning in Sweden, has been and still is primarily focused on timber production. Timber production is important for the country and has a strong tradition. The last 15 years (1990-2005) has seen a trend towards nature conservation, but during last few years the interest in production has increased again.

There are of course uses other than production and nature conservation. Reindeer herding is important for the Sami people and there are cultural heritage values for the Swedish people as well.

4 Regional levels of planning

Sweden has a long tradition of planning at the regional level. This type of plan is the result of the analysis of different management alternatives (and not optimization, the forest has many owners). The analyses are based on sample plot data from the national forest inventory and since 1985, the Hugin-system (Bengtsson et al 1989, Lundström & Söderberg 1996) has been used. Calculations are done for timber balance areas (see Figure 1) and separated among private forest owners and other owners (mainly companies and public owners). Calculations are done for 100 years in 10

periods. National analysis was done 1985, 1992, 1999 and 2003. Special analyses have been done between these dates, including detailed analyses for some areas.

There is no direct link between the regional planning level and the management planning for a private forest holding.

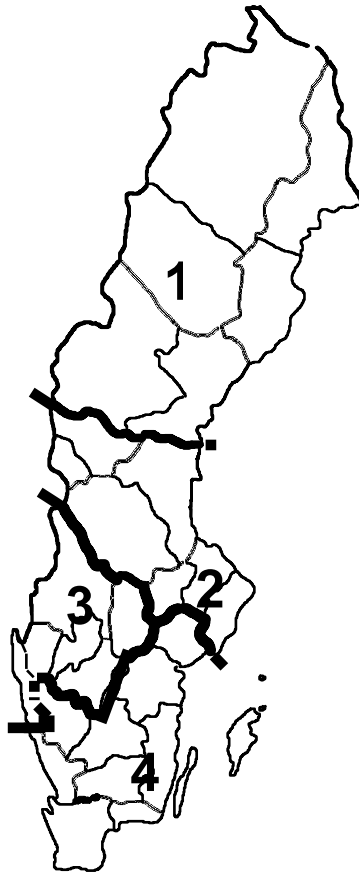


Figure 1. Timber balance areas in Sweden.

5 Planning activity

Approximately 4 million hectares have FM plans that are less than 10 years old (Table 1). The dip in planning activity 2005 is in a large part the result of damage from the storm “Gudrun” in January 2005, that felled approx. 70 million m³ of forest.

Table 1. Area (1000 of ha) of field data capture for green plans (Ragnar Spross, pers comm)

Year	1997/98	1999	2000	2001	2002	2003	2004	2005	Sum
Area	460	540	830	630	550	480	440	140	4080

Management plans are most often produced by timber buying organizations (Table 2). The planning work is done by their employees, or often by contractors hired by these organizations. The

main purpose for these organizations is the provision of services. It is their objective to help the forest owners make decisions regarding where to cut, with the ultimate goal of buying the timber. Another reason is to impose nature conservation strategies on the forest owners.

Table 2. Organizations proportion of planning market (Ragnar Spross, pers comm)

Organization	Type of organization	Market share
Forest Owner Association		49 %
The Forest Agency		31 %
Skogssällskapet	– forest mgmt org	4 %
Sydved	– round timber buyer	4 %
Others	– companies, buyers	12 %

The area certified is 2.9 mill ha (>1 m³/ha, year) with group certification according to PEFC (PEFC 2006, Lundell S pers comm), and 0.45 mill ha (>1 m³/ha, year) with group certification according to FSC (FSC 2006, Häggström E pers comm). The latter figure also includes some areas owned by others than private persons.

6 Making FM plans

Subjective inventory methods (relascope) are used widely. Aerial photo interpretations are done in the first step by some organizations (Forest owner associations Norrskog and Norra Skogsägarna). The planners start each season in May with a short training course. The length of this training varies from a couple of days up to two weeks depending on the prior experience of the people.

Some organizations do a follow up of the quality of the plans. Comments, management proposals and other information in the plan are checked before the plan is delivered to the forest owner. Also some organizations make an objective sample plot inventory in some stands. This is to give feed back to the planner, but also to give a declaration of the quality of the data delivered during a season, and the salary to the planner is based on these results.

There is no official standard for what information should be contained in a forest management plan or for standards of quality. Neither is there a formal requirement that the plan be made by a certified person, or a person specifically educated to do so. But in reality those making plans have two years of forest education.

Field computers are often used during the field work. Aerial photos and maps with boundary lines for the estate are included, as well as the programmes needed to handle the data and assessments of the planner.

7 Who can contribute to the FM plan

The planner is the most important person as they make most of the necessary measurements and

judgements, and propose management activities. Eventually an aerial photo interpreter makes delineations, estimations and measurements. The forest owner decides who or what organization will make the plan and what other values should be considered. The owner also formulates the goals and may provide some data. The public/politicians make regulations, extension service(s), tax regulations and other factors that may influence the design or content of a forest management plan. The authorities provide data via internet (Swedish Forest Authority and the County Administration about valuable biotops, the National Heritage Board about sites of special cultural or historical value, the County Administration may provide data via the internet about nature conservation and in some cases local authorities provide land use plans. The Swedish Society of Nature Conservation makes data available to the local authority/ administration or forest owner, reindeer herders and the appropriate authority have data about areas of interest for their needs, in Ren2000 (Länsstyrelsen i Västerbotten 2006).

8 What kinds of documents are made?

The management document includes the name of the estate and the owners' name and address. A description of the goals is sometimes included. The name of the planner and date the plan was completed are included, and a description of the method for data collection and establishment of management proposals are often included as well. Sometimes there is a statement about the data quality, or rather possibility of inaccuracy. This is followed by a description of the state of the forest in tables, figures and often in text form.

A very important aspect that is always a part of the plan is a forest map showing the identity of and the delineation of the stands and a standwise description of the forest. The map is often used in conjunction with an aerial photo (ortophoto). Thematic maps of different kinds are often included showing land classes, goal classes and cutting classes of the forest.

The standwise description also includes management proposals. A summary of proposals and their consequences in ha, m³ and age class distribution is also included, and a comparison of the estimated growth is common. The plan is often available in a digital version.

The plan belongs to the owner! Neither the state, nor the public is given access without permission from the owner. However some data from the General Forest Inventory from the 1980's and some data bases are in the public domain.

9 Variables in the plans

- Stand identity
- Area
- Land class
- Cutting class/ tree layer
- Age
- Site index
- Standing volume
- Tree species composition)

- Average diameter (not always included)
- Average height (not always included)
- Stem number (not often included)
- Basal area (not always included)
- Soil moisture class (not always included)
- Terrain class (not always included)
- Management proposal
- Time period (immediately, -5 yrs, 6-10 yrs, sometimes also 11+ yrs)
- Cut percentage
- Cut volume
- Medium, higher and lower level of proposal of cut (not always included)
- Goal class – proposal for balance of timber production and nature conservation
- Description, comments on both production and nature conservation
- Comments regarding the management proposal

10 Future trends – changes in forestry

There will be an official forest policy report released on October 3, 2006 (Skogsutredningen 2004). According to preliminary information a suggestion about mandatory forest management plans will be included. A political process will probably follow giving goals and direction for approximately the next 10-15 years.

The forest industry is very important in Sweden and the demand for bioenergy is increasing. Other uses and interests found in forest lands are also growing or more clearly pronounced and they will become increasingly important in future forest management planning. Increasing knowledge of these other users and values will facilitate their inclusion in the planning process.

Another interesting change is that the forest estate prices are increasing. This is partly caused by low rate of interest on loans.

Trends in forest management planning include development of a new generation of planning system (Mistra 2006). This system named “Heureka” will also be applicable for private forest owners. This system provides better problem analysis, more accurate consequence descriptions, and better management proposals that will increase the efficiency of resource management and utilization. All planning requires accurate data. Perhaps the technology for remote sensing will improve and coupled with field measurements make this type of data collection possible for small private forest holdings at a reasonable cost.

There are also research programmes aimed at making forest management plans more flexible, and adapted to the needs of the individual forest owner.

References

- Bengtsson G, Holmlund J, Lundström A & Sandewall M 1989. Avverkningsberäkning 1985, AVB85. Del 1. Long-term forecasts of timber yield in Sweden, AVB85. Part I. Swed Univ of Agric Sci, Dept of Forest Survey, Report 44. ISSN 0348-0496.
- Eriksson L, 1990. Quality of data and proposals of activities in our forest plans. Rapport 11- Sveriges lantbruksuniversitet, Institutionen för skog-industri-marknad studier, ISSN 0284-379X, Uppsala, 93 p.
- The Forest Agency 2006. The Swedish Forestry Act. <http://www.svo.se/minskog/templates/Page.asp?id=12677> 2006-08-22
- The Forest Agency 2006. In: The Swedish Statistical Yearbook of Forestry. 337 p, Jönköping. Summary in English. <http://www.skogsstyrelsen.se/minskog/Template/EPFileListing.asp?id=16863> 2006-08-22
- FSC, 2006. FSC Certified Forests. Revised 2006-06-21. http://www.fsc.org/keepout/en/content_areas/92/1/files/ABU_REP_70_2006_06_21_FSC_certified_forests.pdf
- Jonsson B, Jacobsson J & Kallur H. 1993. The forest management planning package: theory and application. *Studia forestalia Suecica* no 189, ISSN 0039-3150, Uppsala, Faculty of Forestry, Swedish Univ. of Agricultural Sciences. 56 p.
- Lundström, A & Söderberg U, 1996. Outline of the HUGIN system for long-term forecasts of timber yields and possible cut. In Päivinen R, Roihuvuo L & Siitonen M (eds.) *Large-Scale f*
- Forestry Scenario Models: Experiences and Requirements, EFI proceedings no. 5 1996, pp 63-77.
- Länsstyrelsen i Västerbotten, 2006. Ren2000 – Rennäringens tittskåp. <http://www.ren2000.se/introduktion.htm>? 2006-08-22
- Mistra 2006. Forskningsprogram Heureka. Analys- och planeringssystem för ett mångbruksinriktat skogsbruk. 2006-08-22 <http://www.mistra.org/program/heureka/hem.4.7d810b7d109c0650979800044782.html>
- PEFC, 2006. Statistic figures on PEFC certification. Information updated on 31/07/2006. http://register.pefc.cz/STATISTICS1.ASP?COUNTRY=Sweden&COUNTRY_CODE=05
- Skogsutredningen 2004. Swedish Forestry Inquiry. <http://www.sou.gov.se/skogsutredning/index.htm> 2006-08-22
- SLU 2005. Forestry Statistics 2005. (Skogsdata 2005) Official Statistics of Sweden. Swedish University of Agricultural Sciences, Umeå. ISSN 0280-0543. 108 p. Summary in English.
- Svensson H, 2002. The Importance of a Forest Management Plan for Private Forest Owners Activity in Älvdalen. Master of Forestry-thesis No. 2, SLU, Institutionen för skogens produkter och marknader, ISSN 1651-4467. http://ex-epsilon.slu.se/archive/00000184/01/exjobb_2.pdf

Personal communications

Eriksson, J, 2006. Norra Skogsägarna. Meeting 2006-03-15 in Umeaa at his office.

Hägström E 2006. FSC Sweden. Mail 2006-08-24 with data about FSC certified private forests in Sweden.
fsc@fsc-sverige.org

Lundell S, 2006. LRF skogsägarna. Phone 2006-08-28 about PEFC certified private forests in Sweden.
08-7875400.

Spross R, 2006. The Forest Agency, Mail 2006-06-09 with data about Green forest management planning.
Ragnar.Spross@skogsstyrelsen.se

More information:

Erik Wilhelmsson
Dept of Forest Resource Management and geomatics
Swed Univ of Agric Sciences
SE-901 83 Umeå
+4690-7868340
Erik.Wilhelmsson@resgeom.slu.se

Working Papers of the Finnish Forest Research Institute 38: 61–65

Interactive Forest Planning with NIPF Owners

Jouni Pykäläinen¹⁾, Mikko Kurttila²⁾ & Timo Pukkala³⁾

1-2) Finnish Forest Research Institute, Joensuu Research Unit

3) University of Joensuu, Faculty of Forestry

1 Basic principles of interactive planning

The participants of non-industrial private forest (NIPF) planning typically include the forest owner and the planning consultant. The computer interface of the forest planning software may also be seen as a participant that quickly answers computational questions related to the production of the forest. When additional human participants are involved the process may be called participatory planning.

A planning model is an important technical instrument in modern forest planning. It consists of the treatment alternatives for forest stands, on one hand, and the landowner's forest management objectives, on the other hand. Solution of the planning model is a forest plan which fulfills the owner's forest management objectives in the best possible way. In interactive forest planning, defining the planning model and solving it are alternated until the decision maker is satisfied with the result and selects one of the solutions to be his final plan (e.g. Pykäläinen 2000). Instead of defining his preferences *a priori*, the forest owner learns them during the planning process. The forest owner's preferences are therefore an important output of the planning process.

Interactive planning is needed in planning situations where it is too difficult to define the planning model *a priori*. Interactive forest planning is required when (i) the forest management goals are fuzzy for the forest owner, (ii) the production possibilities of the planning area are not known well enough in advance, (iii) the effects of producing different products from the forest can not be defined accurately enough in advance and/or (iv) the forest owner is not able to express his preferences so that they could be included in the planning model due to limitations of the planning method. This paper presents some examples of interactive private forest planning and some ideas for improving human-computer and interpersonal interaction in private forest planning.

2 Planning examples and experiences

The first interactive planning example (Pykäläinen 2000) is actually a hybrid process of qualitative and quantitative goal analysis, and prior and progressive articulation of preferences. The interactive process outlined below was tested with 22 real forest owners and holdings in eastern Finland. The tested planning process can be divided into six steps:

- Step 1. The forest owner and the planning consultant get familiar with the present state of forest by using a visual computer interface (Pukkala 2004).
- Step 2. The planning consultant interviews the forest owner. He uses a thematic interview approach where the owner's forest management goals are identified (Pykäläinen 2000). The owner may also give more or less exact spatial and temporal specifications for the goals for example by prohibiting certain treatments from certain stands.
- Step 3. Based on the results of the thematic interview, and feedback from calculations, the planning consultant and the owner define the forest owner's planning model.
- Step 4. The planning model is solved by using a heuristic optimization algorithm (Pukkala & Kangas 1996).
- Step 5. The forest owner evaluates the solution of the planning model. If the forest owner is satisfied with the result, the process proceeds to Step 6. Otherwise, the process goes back to Step 3.
- Step 6. The forest owner accepts the forest plan.

Forest owners' feedback (19 respondents) considering the planning process was collected by an inquiry. The major results of the inquiry were as follows: (i) the produced forest plans fulfilled the owners needs very well in 26 %, quite well in 53 % and neither well nor badly in 21 % of the cases, (ii) 89 % of the owners became more interested in forestry, 63 % of the owners felt they learned something, (iii) 89 % of the owners would like to take part in planning in the same way in the future, and (iv) majority of the owners preferred the method applied in the study as compared to the present way of Finnish forest planning. None of the owners preferred the present method over the method used in the case study. 42 % of the owners did not express their opinion about this question.

Our second planning example illustrates possibilities of using Internet based multi-criteria decision support tool called MESTA (Pasanen et al. 2005) in interactive planning with NIPF owners. MESTA is a decision support method for discrete choice situations, i.e. the forest owner can investigate and compare a limited number of forest plan alternatives prepared beforehand. In MESTA, subjectively defined acceptance levels divide alternatives into acceptable and not acceptable with respect to each decision criterion (Figure 1). The limits are adjusted holistically as long as one alternative that has been accepted with respect to all criteria is found. In this process, the decision maker is forced to adjust his/her goals and acceptance limits to be in line with the production possibilities of the planning area. Improved understanding and a well argued solution for the decision problem are the most important results of the process.

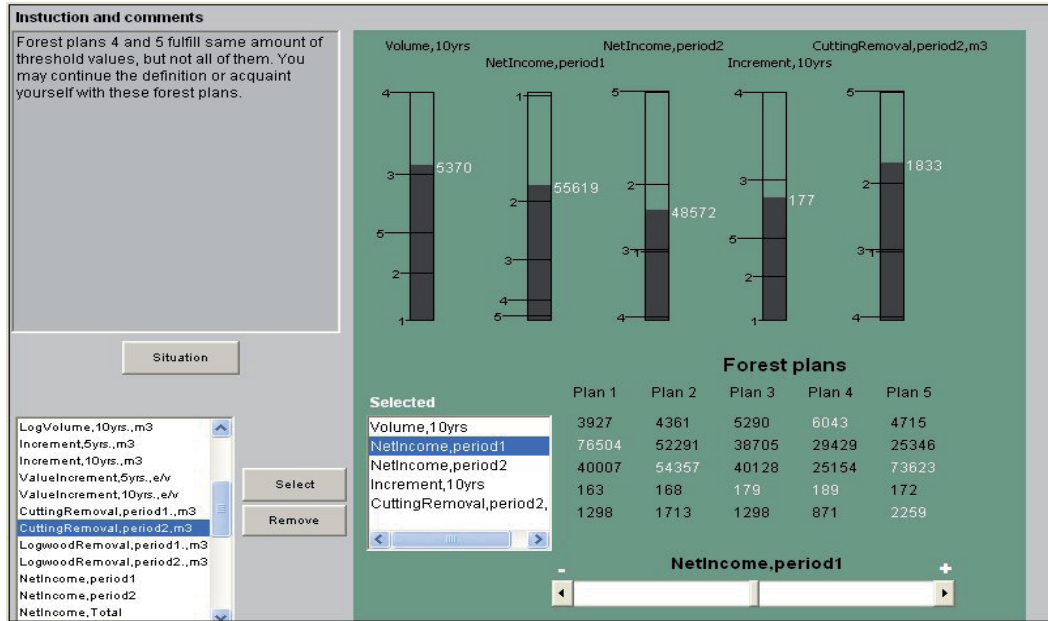


Figure 1. MESTA -planning interface.

In MESTA, the production possibilities are depicted through predefined discrete alternatives. Therefore, the alternatives must be produced carefully so that they are efficient and different from each other. To create a relevant set of alternative plans, some kind of preference information needs to be collected from the forest owners before the preparation of alternatives.

The experiences of using MESTA with trial forest owners were encouraging (Pasanen et al. 2005). In the trial use of the Mesta service the goal selection phase carried out by private forest owners, the creation of alternative forest plans by the planning consultant and the verbal and graphical description succeeded satisfactorily. The Mesta Internet application also functioned properly after the reported problems had been solved. The part of the Internet application most difficult for the forest owners was the setting of the acceptance limits, which only three owners out of eight experienced easy. Six owners said that they learnt something when they used the Mesta service. MESTA has been also used in strategic participatory planning of state owned forests and it has been found to be a good tool for supporting negotiation between different parties.

3 Promoting human-computer and interpersonal interaction

Optimization interfaces and visualization are central parts of interactive planning with NIPF owners. A good interface allows direct possibilities to make if-then analysis. For example, these analysis can be carried out so that the user changes the importance of his forest management goals and sees immediately the effects of changing the importance on the current achievement of the goals (Figure 2).

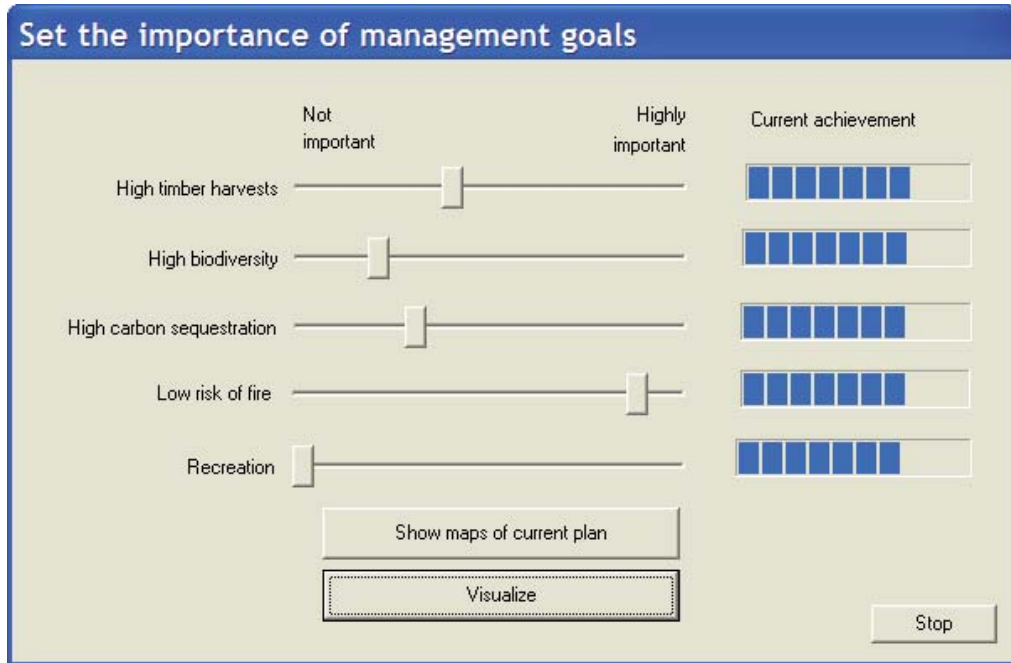


Figure 2. Example of an interactive optimization interface.

In addition, forest visualization can be used for improving communication and understanding of the results of planning as a part of interactive planning. At its best, forest visualization is integrated to interactive optimization so that effects of alternative plans on the forest resource can be instantly seen on the computer screen. Visualizations may also be offered to the forest owners over the Internet. For example, Virtual Reality Modeling Language (VRML) could be used for that purpose (Figure 3).

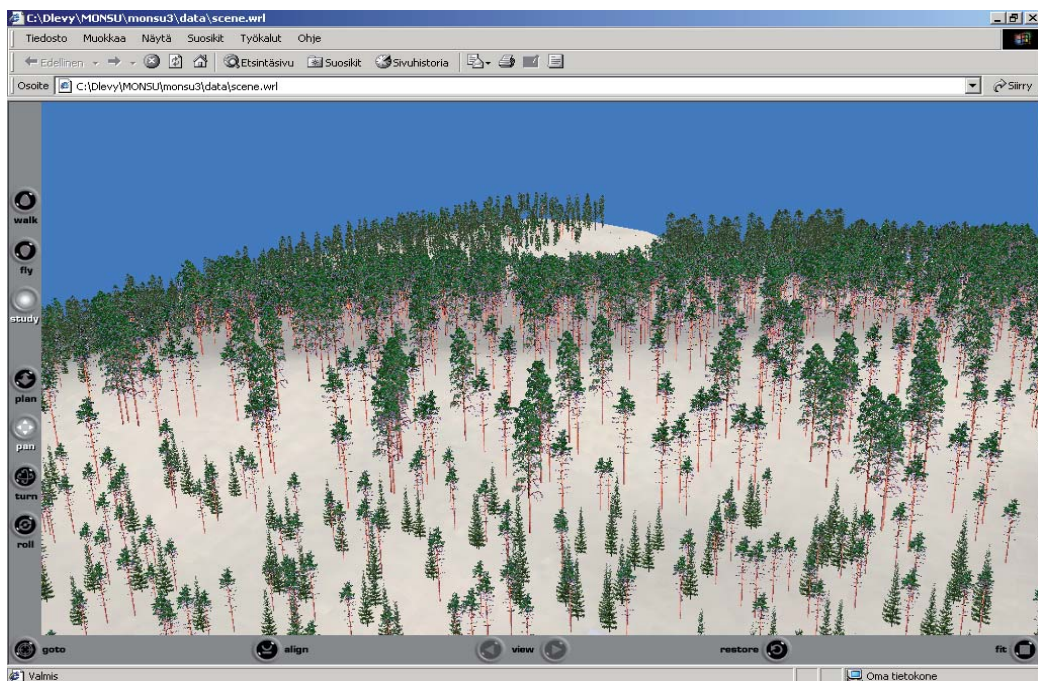


Figure 3. VRML visualization of forest landscape.

Even though technical tools are important parts of modern interactive planning, the planning process should be adapted according to forest owners' preferred ways to grasp and process information. For example, some forest owners do not necessarily want to take part in interactive optimization, and more conversational and qualitative planning approach could better serve these owners. An interesting topic for future research is to develop methods for selecting the best planning process for different owners.

References

- Pasanen, K., Kurttila, M., Pykäläinen, J., Kangas, J. & Leskinen, P. 2005. MESTA - Non-industrial private forest owners' decision-support environment for the evaluation of alternative forest plans over the internet. *International Journal of Information Technology & Decision Making* 4(4): 601-620.
- Pukkala, T. 2004. Monsu-metsäsuunnitteluohjelmisto. Versio 4. Ohjelmiston toiminta ja käyttö. 53 s.
- Pukkala, T. & Kangas, J. 1996. A heuristic optimization method for forest planning and decision making. *Scandinavian Journal of Forest Research* 3: 533-544.
- Pykäläinen, J. 2000. Defining forest owner's forest-management goals by means of a thematic interview in interactive forest planning. *Silva Fennica* 34(1): 47-59.

Working Papers of the Finnish Forest Research Institute 38: 66–69

Purposes and Challenges of Collaborative Forest Planning

Leena A. Leskinen

Finnish Forest Research Institute, Joensuu Research Unit

1 Background: Communicative rationality

According to e.g. Iyer-Raniga and Treloar (2000) the sustainable management of the natural resources requires proactive involvement by the public. Public participation as a communicative process helps decision makers better understand the knowledge possessed by and the values of the participants, or allows the stakeholders to directly influence planning and decision-making (e.g. Leskinen 2004a).

One step forward from compromise is collaboration. Basically in this paper, it is assumed that communicative rationality and collaboration can be achieved by a communicative action. The challenge of the communicative process is that stakeholders have different perspectives. The process to overcome misunderstandings regarding different perspectives can be explained by Habermas' theory of communicative action (Habermas 1987, see also Leskinen 2004a).

In the communicative action theory, individuals have different perspectives and see things differently because words, phrases, expressions and objects are interpreted differently according to their frame of reference (Healey 1992). Knowledge is broadly understood as knowledge of cause and effect, moral values and aesthetic worlds. "Aesthetic worlds" means that each individual's experience based interpretations concerning the planning situation is valid. Everyone has an equivalent standing: there is no criteria available for distinguishing one person's interpretation from another's. This situation does not end in chaos, because an individual's ideas about themselves, interests and values are socially constructed through communication with others and the collaborative work this involves. Individuals are engaged with others in diverse, fluid and overlapping "discourse communities" (Healey 1992, see also Leskinen 2004a).

The role of communicative action is to develop understandings and practices of inter-discursive communication, that is, understanding of different perspectives. Interaction involves respectful discussion within and between discourse communities. Thus, the knowledge of moral values includes communication concerning the value of the local environment, the benefits of the planning, and the positive and negative results of the implemented plan. Communication among stakeholders changes individual preferences and creates shared moral values (Healey 1995). Knowledge is

not pre-formulated, but is created by social process and the aim is to move from zero-sum solutions to win-win resolutions (Healey 1992, Healey 1995).

Finally, the knowledge of cause and effect includes technical knowledge and instrumental rationality to formulate and implement the plan that meets the requirements defined in communicative process (Healey 1992). Thus the result of communicative process is a implementation plan, that meets the requirements of communicative rationality and supports collaboration among participants.

2 How to apply the theory in practice?

Communicative action and rationality cannot be reached intentionally. Planners cannot force stakeholders to collaborate, respect or trust each other. However, many studies indicate that learning, relationship building, sharing knowledge and interest representation are the dimensions of successful public participation (see Leskinen 2004a). If successful, these dimensions may result in participants creating common knowledge during the process of communicating among different discourse communities and thereby achieving consensus.

The key factor in promoting communication is including the proper procedures in planning, e.g. by facilitation of collaborative process, and sound argumentation, building trust and transparency into the planning process Leskinen 2004b).

How do we know, if the result of the planning process is consensus, compromise or manipulation? Evaluation or research can be conducted by surveys, observations, interviews and case studies (Leskinen 2004a and b). However, the challenge is to prove that communicative action and knowledge creating processes *per se* have occurred. The participants' perceptions may address it – or they may have been manipulated during the process. At best, it can be shown that there were adequate possibilities for communication during the planning procedure. Some other criteria of collaborative planning can be addressed as: innovations and dispute resolutions that are indicators of the collaborative processes (Leskinen 2004b). In practice this means that as a result of the planning process:

1. Problems are resolved (win-win resolutions).
2. Something new is created: new practices arise.

3 Results from some empirical cases

3.1 Regional Forest Programme process (Leskinen 2004a)

The case introduces communicative participation process, used by the Regional Forest Programme 1998-2002 for the Ostrobothnia region of the Coastal Forestry Centre in Finland. The following stakeholders participated in the programme formulation process: the Regional Environmental Agency, the Regional Employment and Economic Development Centre, the forest industries and the forest owner organisations (see more Leskinen 2004a). The working group meetings during the Regional Forest Programme process offered an arena for communication and understanding of the discourse communities' different perspectives. In principle, consensus-reaching communication was possible. According to the stakeholders, in the current case compromises were

reached. This conclusion is also supported by noting that no resolution was created, because the conflict concerning biodiversity conservation continued at the national policy level.

3.2 Wood energy project run by Southern Ostrobothnia Forestry Centre (Leskinen 2006)

The case introduces collaboration that emerged to solve the problem of early thinnings in the Southern Ostrobothnia Forestry Centre. In the implementation area, the difference between the necessary thinning of saplings and the actual thinning was almost 6,000 ha per year and the difference for necessary pre-commercial harvesting and actual area harvested was approximately 9,000 ha per year. At least partly, this discrepancy is caused by the forest industries preferring not to purchase small diameter wood from young forests.

A wood energy project run by the Forestry Centre facilitated the establishment of a small heating business producing energy from small diameter wood. The main efforts entailed in the project were promoting the idea of wood energy and facilitating the decision-making processes of energy consumers (e.g. local authorities) and suppliers (i.e. forest owners). The wood energy project aimed to be a facilitator for the collaboration among forest owners. An entrepreneurship advisor introduced the local forest owners to the idea of energy wood for heat generation, in order to find entrepreneurs interested in forming co-operative for a small heating business.

Wood energy projects also promote early thinnings by creating new markets for small-diameter wood. The practical outputs at the local level were an increase in area of young forest management, increased rural entrepreneurship and employment. This case meets two criteria on collaboration: the problem of the early thinnings was (partly) solved and a new practice, forest owners co-operatives, was created.

4 Concluding remarks

Sustainable forest management requires that human practices and natural conditions are integrated so that ecosystems are healthy and local communities are provided with income and welfare (e.g. Haila 1998a, Haila 1998b, see also Leskinen 2004a). According to Iyer-Ranica and Treloar (2000), the evolutionary nature of both ecological and social components must be recognised in the context of sustainable development. Ecological and social changes are not managed by simple instructions, but instead by creating and promoting social practices and structures supporting sustainable forest management. Social structures are institutions (e.g. legislation), rules (e.g. forest management recommendations), customs and habits (Haila 1998a). Social structures are important because they constrain the use of nature and define social practices that is, how people manage forests. The present study supports the theory that if public participation facilitates collaboration, it has the possibility of creating preferred social practices (Iyer-Ranica and Treloar 2000, Leskinen 2004a and b, Leskinen 2006).

However, the challenge is to demonstrate that adequate possibilities for collaboration have occurred in particular planning case. The win-win resolutions of problems and new social practices are promising indicators that collaboration has indeed occurred. The conditions and connections of collaboration and sustainable forest management practices need further research. This can be conducted through case studies (Yin 1994, Flyvbjerg 2001).

References

- Flyvbjerg, B. 2001. *Making Social Science Matter. Why social inquiry fails and how it can succeed again.* Cambridge University Press, Cambridge. 204 p.
- Habermas, J. 1987. *The Theory of Communicative Action, Volume 2: Lifeworld and System: The critique of Functionalist Reason.* Beacon Press, Boston. 457 p.
- Haila, Y. 1998a. Assessing ecosystem health across spatial scales. In: Rapport, D., Costanza, R., Epstein, P.R., Gaudet, C. & Levins, R. (eds.). *Ecosystem Health.* Blackwell, Malden, Ma: 81-102.
- 1998b. Environmental problems, ecological scales and social deliberation. In: Glasbergen, P. (ed.). *Co-operative Environmental Governance.* Kluwer Academic Publishers, Dordrecht, Holland: 65-87.
- Healey, P. 1992. Planning through debate. The communicative turn in planning theory. *Town Planning Review* 63(2): 143-162.
- 1995. The argumentative turn in planning theory and its implication for spatial strategy formation. In: Pakarinen, T. & Ylinen, H. (eds.). *Are local strategies possible? Scrutinising sustainability.* Urban Planning Publications 29. Tampere University of Technology, Department of Architecture, Tampere: 46-70.
- Iyer-Raniga, U. & Treloar, G. 2000. A Context for Participation in Sustainable Development. *Environmental Management* 26(4): 349-361.
- Leskinen, L.A. 2004a. Purposes and Challenges of Public Participation in Regional and Local Forestry in Finland. *Forest Policy and Economics* 6: 605-618.
- 2004b. Yhteistoiminnallisen metsäsuunnittelun mahdollisuudet yksityismetsätaloudessa. (English summary: Possibilities of collaborative forest planning in Finland's non-industrial private forestry) FFRI Research Notes, 927. 43 p.
- 2006. Adaptation of the regional forestry administration to national forest, climate change and rural development policies in Finland. manuscript submitted in *Small-scale Forest Economics, Management and Policy.*
- Yin, R.K. 1994. *Case study research. Design and methods.* Applied social research methods series 5. Sage Publications, London. 171 p.

Working Papers of the Finnish Forest Research Institute 38: 70–73

Interactive and Participatory Forest Planning in Koli Case Study Area

Leena Kärkkäinen

Finnish Forest Research Institute, Joensuu Research Unit

1 Introduction

ELAV - Enhancing Local Activity and Values from forest land through community-led strategic planning - is an international project, the central aim of which is to develop methods for involving local communities in forest planning at strategic level. The lead partner of the ELAV project is Swedish Forest Agency and 15 other partners from Finland, Iceland, Norway, Scotland and Sweden take part in the project. Each country participating in the project has its own case study area. The experiences got from the study areas are shared during the project and these experiences are used for the development of new methods. The project started in 2005 and it will last until the end of the year 2007. The project is partly funded by Interreg IIIB Northern Periphery Programme.

The main aims of the ELAV project in Finland are to develop interactive methods and new procedures for forest planning and to prepare a local forestry programme in the area of Koli and Hattusaari. Finnish partners in the project are Finnish Forest Research Institute (Metla), Regional Forestry Centre Northern Karelia and Forest Management Association Northern Karelia.

2 Description of the case study area of Finland

The case study area of Finland is Koli and Hattusaari, which is located in the Eastern Finland, in the province of Northern Karelia. The study area covers the areas in the western coast of Lake Pielinen, which belongs to the municipality of Lieksa. There are about 250 private forest owners in this area. In the area the most important sources of livelihood are tourism and agriculture. Finnish Forest Research Institute and Hotel Koli are large single employers. E.g. Koli national park and down hill skiing possibilities draw tourists to Koli. Over 100 000 people visit in Koli yearly (Metsäntutkimuslaitos...2005, Puhakka 2005).

The area of Koli and Hattusaari was selected for the case study area, because there are remarkable scenic, cultural, recreational and nature values in this area. Therefore, forest owners have more potential to utilise commercially their forests in the production of ecosystem products and services for the welfare of the people.

3 Preparation of local forestry programme

Finnish Forest Research Institute (Metla), Regional Forestry Centre Northern Karelia and Forest Management Association Northern Karelia are preparing the local forestry programme in a close interaction with people living in the area of Koli and Hattusaari. The programme will be carried out for the benefit of the local people, and therefore, it is important, that the local communities have a possibility to affect on the content of the programme.

MELA forest planning system is used by Metla for the analyses of sustainable use and development opportunities of the forests (Figure 1). Multi-source national forest inventory (MNFI) data is used as an input in MELA simulations. MNFI-data consists of the data from the 9th National Forest Inventory and the data from satellite images. The areas of specific interest, e.g. the areas covered by shore plan and component master plan will be defined. The restrictions set for forest management in these areas are taken into account in MELA simulations.

Forestry forum defines the objectives for MELA optimisations. MELA system produces alternative scenarios about the development opportunities of the forests. Forestry forum evaluates these scenarios in meetings and through web services and web pages.

Stand level inventory data is used for the preparation of plans for forestry holdings. The plans made for forestry holdings by Regional Forestry Centre are used e.g. by Forest Management Association, when the joint initiatives and the projects, which promote the development of source of local livelihood based on forests are identified. In addition, the opportunities for financing these projects are determined.

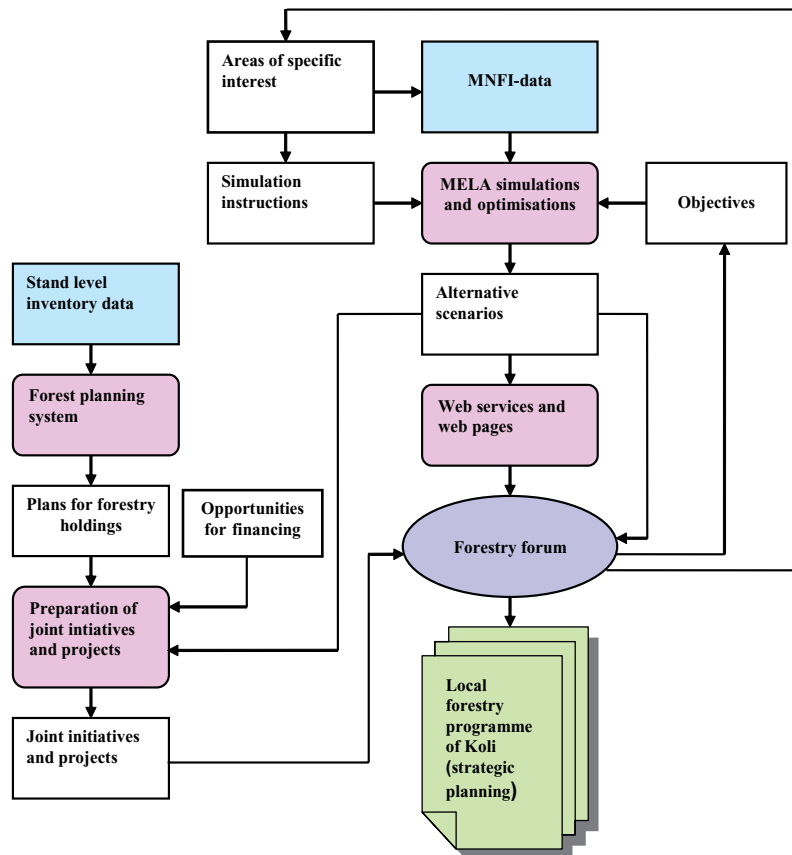


Figure 1. Preparation of local forestry programme for the area of Koli and Hattusaari.

4 Involvement of local people and other interest groups

One aim of the involvement is to gather information about aims and preferences of local people and other interest groups for the use of the forests. Furthermore, the joint initiatives and projects are found out. In the same time as it is gathered information, it is also given information about ELAV project and local forestry programme. Information is also given about forest planning and forest management and the use and the development opportunities of the forests. The purpose is that the people working in ELAV project and the people involved in the process can learn from each other and that the involvement would produce more acceptable and applicable document for the use of local people.

The methods for involving people are represented in Table 1. Information about the ELAV project and local forestry programme is given mainly at public meetings, in media releases, ELAV web sites and leaflet. The working group has a key role in the determination the aims of the management of the forests in the area of Koli and Hattusaari and in the evaluation of different scenarios produced by MELA system.

Table 1. Methods used for involving people in the planning process.

	Letter	Local newspapers	Public meetings	ELAV web site	Leaflet	Media releases	Working group	Telephone	Email
Invitations to the meetings									
Information about the project									
Possibility to contact									
Finding out the aims of interest groups									
Finding out the joint initiatives and projects									
Evaluation of different scenarios									

5 Experiences so far

The experiences about the involvement of the local communities into the process are that the public meetings are a good way to give information, but only very few people take part in the conversation. Better way to gather information and involve people into the planning process is to set up a smaller working group. The problem is that only very active people are interested in taking part in the meetings of the working group. Thus, personal contacts are needed in order to get people to come to the meetings. In that way it is also possible to affect the representativity of the participation.

Web sites are not necessarily a good media to collect information from the people living in countryside. Most of the people, who are living in countryside, do not yet have fast internet connec-

tions or the connections are not used multifunctionally. In addition, the use of the internet may still be expensive. The internet can be one possibility to take part in the planning process, but other options should also be given.

References

Metsäntutkimuslaitos: Tutkimusmetsäpalvelut ja Joensuun tutkimuskeskus 2005. Kolin kansallispuisto 2010. Hoito- ja käyttösuunnitelma 2003-2010. 98 s.

Puhakka, R. 2005. Matkailijoiden käsitys matkailun asemasta kansallispuistossa. Metlan työraportteja 20. 17 s. <http://www.metla.fi/julkaisut/workingpapers/2005/mwp020.htm>.

Working Papers of the Finnish Forest Research Institute 38: 74–77

Public Participation and Strategic Land Use Planning in Iceland

Sherry Curl

Iceland Forest Service

1 Introduction

Strategic land use planning has a relatively short history in Iceland. Although planning has been done for population centres for many years, the first legislation regarding this type of planning was not written until 1964. Land use planning was more or less unknown in rural areas until 1998 when legislation was passed requiring all districts to submit approved strategic plans by the year 2008.

Throughout history, Iceland has been sparsely populated and land-use was based on centuries old traditions. The uniformity of agricultural methods made strategic land use planning a non-issue. The reasons for requiring detailed land use plans in Iceland are a combination of increasing foreign pressure (for example through the EU) and an increasing concern for environmental issues.

2 Different levels in making strategic land-use plans

National plans- for areas of national interest in some way, including national parks, and natural or cultural value areas

District plans- for politically demarcated districts

Special regional- plans such as plans for afforestation that are very similar to regional Danish *Driftsplan* (These deal with the region as a whole and do not reach the estate level.)

Special plans- for areas requiring an environmental impact statement

Detailed plans- for areas such as neighbourhoods, summer house areas and industrial sites.

All of these plans follow the same protocol and are intended to reflect the desires and goals of those affected by the plans.

The state planning agency is responsible for advising those making plans in manner of form, for

example what must be included. They are also responsible for making sure that district plans do not contradict state plans and that all state laws regarding land use are followed. They are in no way supposed to allow the agenda of the planning board to supersede the desires of the group for which the plan is intended.

3 The steps in making strategic land-use plans

- Public meetings or other methods of scoping the desires of those living in the area covered by the plan.
- Advice from various experts such as archaeologists, naturalists, engineers etc.
- Drawing up a draft plan
- Review by the state planning agency
- The plan is then put before the public for comment.
- Review of written criticisms of the plan made by experts asked to review the plan and all individuals submitting written comments
- Rewriting the plan in light of these inputs
- If the plan is changed to include any of the comments, then the entire review process must be repeated.
- The plan is then sent to the state planning agency for comment, again if changes are made it must go through the review process again.
- When the plan finally makes it through this process without change, it is sent to the Minister of the Environment for approval.

This seems like a system that provides ample opportunities for including the goals and concerns of the public. However if the process and how it works in practice is examined closely, it becomes obvious that when a plan is signed by the Minister of the Environment, it may not be representative of desires of the majority.

4 Factors limiting public input

Attendance by the public-Those few individuals who attend meetings and speak up, are usually persons with extreme views. They make up a core group and it is almost invariably the same persons who attend public meetings. Rarely are other individuals present, often the public is unaware that such meetings are being held.

Planning Agency bias-Although bias from the planning board should not be integrated into the plans, it is often included in the changes they recommend for the plans. District planning committees are usually made up of local residents farmers, shop keepers and such. While well aware of the desires of local persons, these individuals do not have the legal background and experience to realise that revisions called for by the state planning agency going against the desires of the community, do not have to be incorporated into the plans. They feel that the experts, in this case the planning agency, know best.

Written remarks from the public are few. The land use plan for one of the world's largest aluminium smelters, which is being built in eastern Iceland, was much talked about and critiqued, how-

ever only one written opinion was submitted. Also almost all opinions submitted expressed are negative. Seldom has a plan elicited a positive response

Financing-The state finances most of the work done by districts in drawing up their plans. Until such time as the state planning agency approves a plan, the districts must pay all expenses from their own budgets. Therefore, the state planning agency can (and has on occasion), forced districts into putting forth a land use plan that the district does not want by. This was done by simply refusing to approve it and release funding, until the district includes those aspects “recommended” by the planning agency.

As mentioned before, the concept of strategic land use plans was transferred to Iceland from Europe. Very often aspects of planning, are transferred directly from other countries or international organisations and do not reflect the Icelandic reality. Currently there is a movement in Iceland to place all estate level afforestation plans through the formal planning process. Granted in some countries this process may be desirable, especially where landholdings are small and the actions of one person can have a direct effect on the people living on nearby farms. Small holdings also effectively hinder the management of areas as ecological wholes. However in Iceland the average farm is 1,103 hectares and landboundries are almost always based on natural barriers such as rivers and gorges. This allows for the management of estates as ecologically distinct areas. These areas are large enough that afforestation does not have an appreciable effect on the neighbour’s livelihoods or quality of life.

Those persons involved with transferring ideas directly to Iceland are most often so far removed from the realities of average persons, especially those living in rural areas, that they do not realise that these restrictions have little or nothing to do with the Icelandic ecological or social situation. The results can be disastrous for those forced to live by them.

The media in Iceland serves as a soap box for those wishing to express an opinion. In recent years the afforestation program in Iceland has been criticised repeatedly. Because the Iceland Forest Service wants to work in accordance to the desires of the people, an IGM-Gallup survey was done in 2004 to test whether or not those opinions represented in the media were indeed those of the Icelandic people and if policy changes within the Iceland Forest Service were necessary. As these figures show, people are very positive about afforestation, the effects of forests on the land and its people and want more forests planted. Nor do the people feel that forests threaten other environmental and social values.

Percent of Icelanders surveyed who are:

In favour of increase the area of forests: 85%

Of the opinion that forests are good for the land:91%

Of the opinion that forests are good for the people: 92%

The Icelandic Forest Service has worked directly with state agencies and NGOs in the planning process on both national and regional levels. It is based on our experience from this work that the goal of preventing estate afforestation plans from being forced to go through the formal planning process was formed. If laws are passed making this type of planning necessary, not only could the plans be biased by those against afforestation and therefore against public will, but the expense and complexity of the system would prevent landowners from going through the process. This would effectively put a halt to the afforestation program in Iceland, again in opposition to the goals and desires of the majority of the people.

The IFS is however very aware of its responsibility towards various environmental and cultural issues and will continue to include consider these values in all aspects of its advisory and planning efforts.

Since many of the problems discussed so far reflect human nature and not the devious intentions of a few individuals, it is unlikely that problems such as these are limited to Iceland.

The ELAV project in Iceland, involves designing a process by which a multi-resource land use plan can best be produced. This process can then be used in other parts of the county.

When attempting to define the desired uses of multiple resources, the first step is to learn from the public what resources they want to use and how. These can then be put into a framework that allows their utilisation in a sustainable manner. However, the main problem remains of trying to represent the majority of stakeholders, not just a few.

The problem was, what is the most effective way to elicit public opinion and how to gauge when this has been done.

From the various programs and projects, both those connected to ELAV and others, it has become abundantly clear that there is no patent answer or single method by which this can be done. The best method(s) depends entirely on the target group, and the persons doing the out reach work. Below are the methods deemed most effective in this effort.

On a national and district level- The only method that has proven effective has been to use telephone surveys designed by IFS and reviewed and administered by a third party. When dealing with groups of this size, because of the cost involved, it is impossible to address all issues. However this is the best and perhaps the only way to get a well founded idea of the attitudes and desires of the general public. Agencies and institutions dealing with planning at this level, owe it to the public to do this type of survey, regardless of the expense. For the study area, general attitudes of the public were taken from the IMP-Gallup survey done in 2004.

Small to medium size groups- It was relatively easy to reach this type of group and meetings have proven very successful . Experience has shown however, that exclusive use of local papers and web sites for advertising these meetings has limited results. Therefore letters are sent to all individuals known to be interested in specific aspects of the project. However, both the local paper and web sites were also used to try to reach interested individuals that were unknown to those planning the meetings. This resulted in an attendance rate much higher than that expected by meeting planners.

Specific user groups- The only method of reaching this group effectively is by one on one interviews done in the field. Again this method is expensive, but it not only provides specifically desired data, it also brings to light issues that may be overlooked by those designing the survey.

When the official procedure for obtaining public opinion is compared to that used by the IFS, a marked difference is apparent. The official procedure relies on the public actively seeking to make themselves heard, while the IFS approach actively seeks the opinion of the public. The IFS feels that despite the extra expense and work involved, it is well justified as it the most effective way of gathering the information necessary for resource planning in a socially responsible manner.

Working Papers of the Finnish Forest Research Institute 38: 78–80

The Norwegian ELAV-Project

Ove Mogård

Allskog BA, Norway

1 Background

When the invitation came from the Executive Committee for northern Norway to participate as an Interreg northern periphery partner in the ELAV project, it fit perfectly with our ambitions for local forestry business planning. Allskog, the cooperative society for forest owners in northern Norway (Figure 1), had worked with ideas on performing a full scale project for local business development based on forest resources in one of the northernmost municipalities for a long time, without knowing how to raise the necessary funding.

At a preliminary meeting in Mørkret, Sweden in June of 2004, it became clear that the ELAV-project might be the right opportunity, and potential Norwegian project partners were contacted. The result was a joint Norwegian project with Allskog, Statsskog SF (the crown forest) and the governor of Troms county Agricultural Department as project partners. The following debate regarding the selection of a case study area, resulted in the Municipality of Bardu being chosen. They subsequently became the most important of the project partners .

86 percent of the forest land in Norway is owned by local farmers. The average forest holding is approximately 50 hectares. Rural communities are in need of extensive business development based on local resources , to realise sustainable development and secure a sound economic basis.

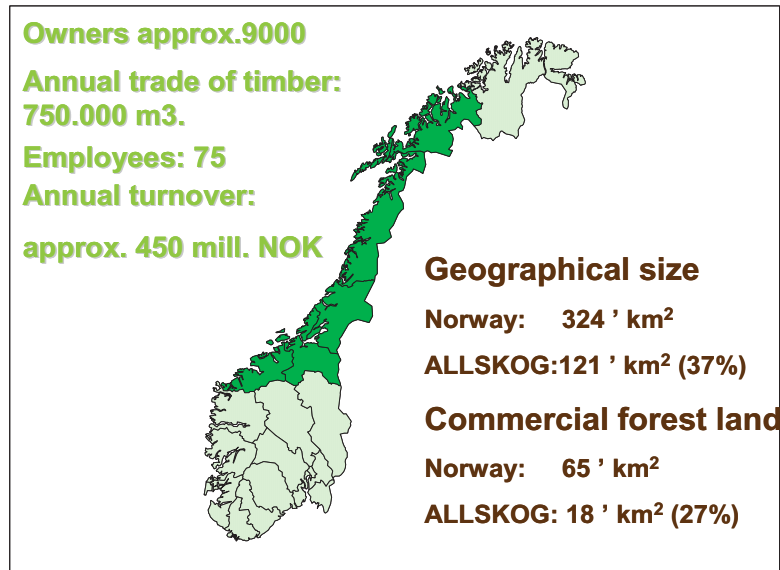


Figure 1. Key figures and target area for the Allskog society of private forest owners.

2 Case study area

The municipality of Bardu (Figure 2), population 3.874 (1.01.2005, source Statistics Norway) is one of two municipalities located in the interior river valleys of Troms county. In this area forestry and farming is the most common agricultural combination (Figure 3). Besides being a garrison town, producing hydroelectric power, and having a rather well developed tourism business, dairy farming and forestry represent a major part of the overall income to the community. The mountain area is almost endless, and represents a wide spectrum of opportunities for recreational use, such as camping, hunting, fishing and so on. Bardu is not a old municipality. The first settlements of farmers came from south-eastern Norway, in to the interior river valleys in Troms in the 18th century.

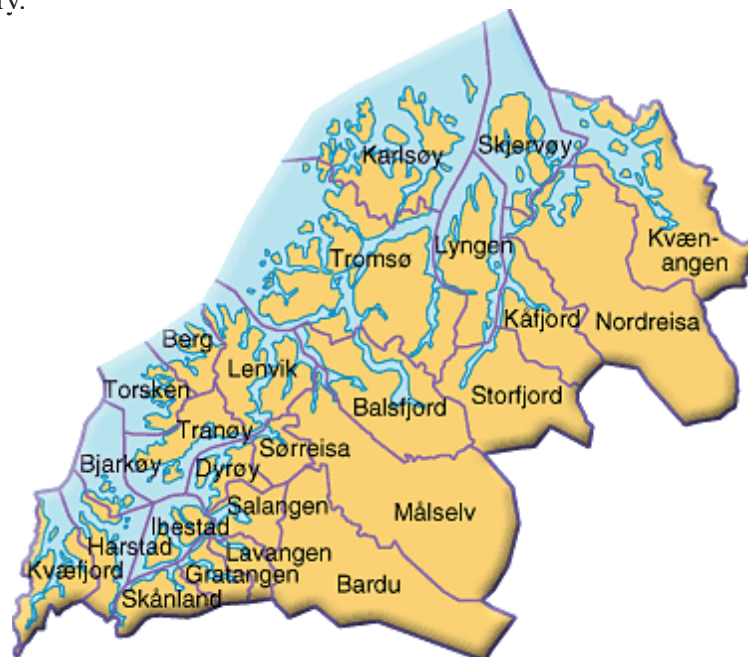


Figure 2. Map of the municipalities of Troms, with Bardu located in the south-east.

3 Status

The Norwegian ELAV-project is established to focus on detailed planning of forest resources, to encourage local people to use this information in the practical development of their own ideas. A project leader is employed on a part time basis for the project, and is working with the municipal agricultural office in Bardu.

Until now (March 2006), the project leader has put considerable effort into organising several interest groups of local farmers, entrepreneurs and other personal of ongoing or planned projects. The interest-groups are established with themes such as traditional forestry, non-timber forest products, tourism and health and social business.

4 Expectations

The major results the partners expect from the project are to obtain an updated land resource database emphasising the forest land and its values. Furthermore, that the networks of people active during the project will continue to be active after the project is closed, and implementing the strategic plan for land resource utilisation created within the project.



Figure 3. Scenery from Bardu

Working Papers of the Finnish Forest Research Institute 38: 81–84

Interactive and Participatory Forest Planning in Forestry Commission Scotland Forest Districts

Malcolm Wield

Forestry Commission, Scotland

1 Introduction

The talk explained the FCS Forest Design Plan process and the production of a local plan. The involvement of local people and other interest groups during the planning process was described.

2 Context

Fort Augustus Forest District is close to the ELAV East Sutherland project area and near the Highland city of Inverness, the most northerly city in the UK.

The District has 26 Community Council areas and the main source of livelihood within the District is tourism. 1.5 million people per year visit Loch Ness, which lies centrally within the District boundary.

Inverness is the area administration centre and within easy reach of commuters living in the District.

The area is renowned for the Glen Affric National Nature Reserve, an extensive area of native Scots pine woodland that forms a mosaic habitat. Although the local population in the surrounding area is low, communities are extremely interested in how the Reserve is managed and comprehensive engagement is being followed.

3 Preparation of a local forest plan

A graphic (Figure 1) illustrates the process that FCS follows to implement UK government forest policy. This demonstrates how the views of all interested stakeholders contribute to the final production of the plan, including those of the local community.

The plan may be modified at each stage, depending on the views expressed.

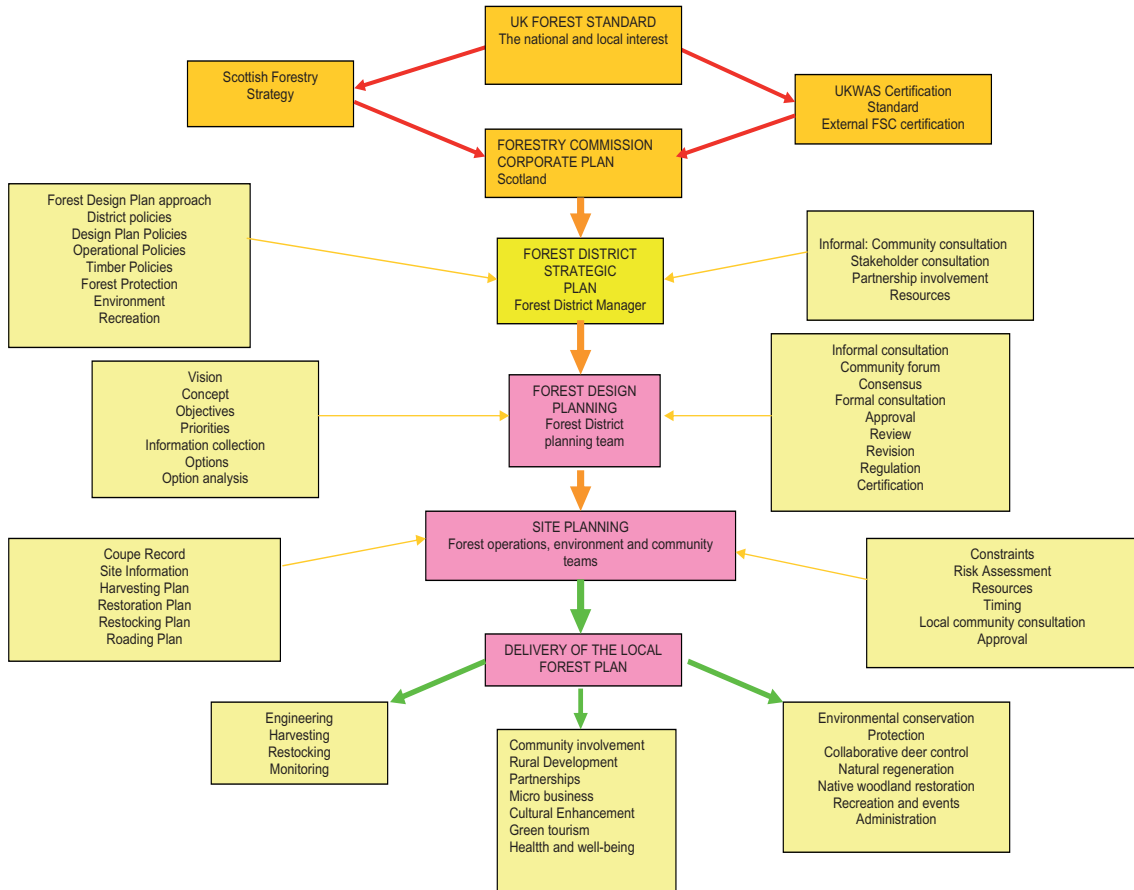


Figure 1. Implementation of UK government forest policy.

Once the plan is complete, a wide range of relationships may form with those who have expressed a particular interest during the planning process (Figure 2). Communities may formalise this relationship, from relatively simple agreements, to carefully composed Concordat documents.

It is very common for working partnerships to be formed, where community interests can be supported and accommodated. These arrangements give mutual benefits.

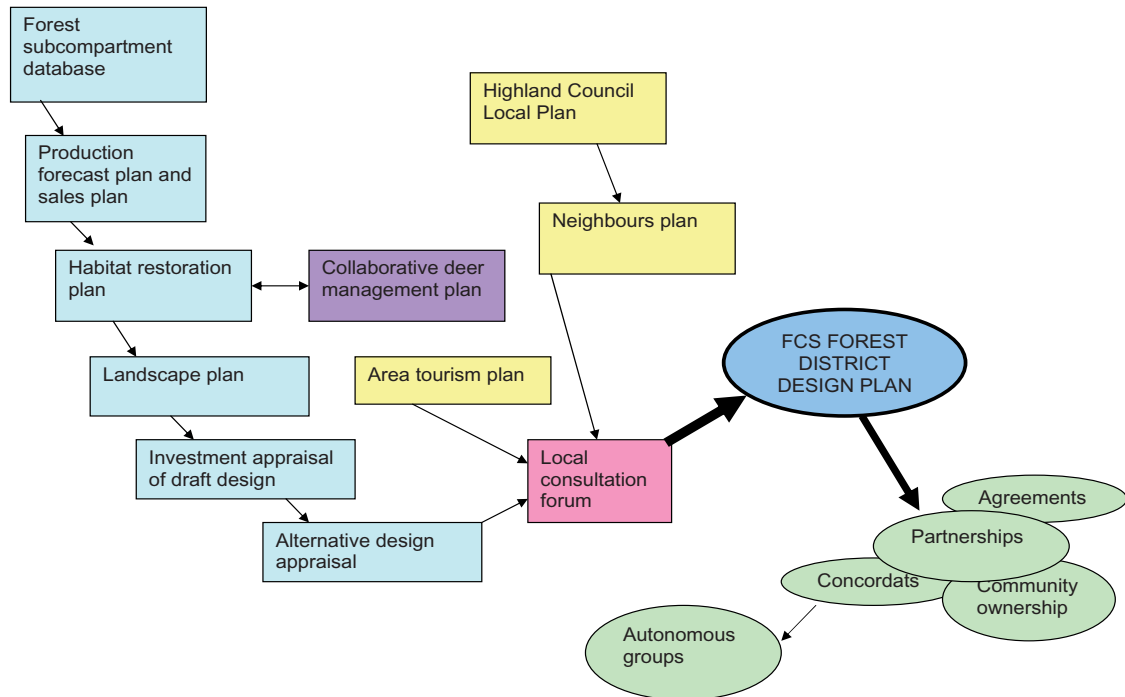


Figure 2. Relationships, which may form with those who have expressed a particular interest during the planning process.

In the Glen Affric community example, a Concordat was signed by the Chief Executive of Forest Enterprise Scotland and the Chairman of the Community Development Programme.

As a result, the community are confident about close liaison during all management planning phases, the progressive development of their ideas in a strong partnership, development of green tourism and strengthen the communities capacity to manage and, very importantly for this particular community - collaborative deer management.

The community formed an independent business company, limited by guarantee, to facilitate access to funding streams not available to the state organisation (FCS).

4 Outcomes of the Forest Planning Process

The members of the community have developed greater trust in the state organisation and obtained increased familiarity and understanding of other users and interests in the forest.

An example of the large range of typical interested stakeholders shows the complexity of inclusive forest planning (Figure 3).

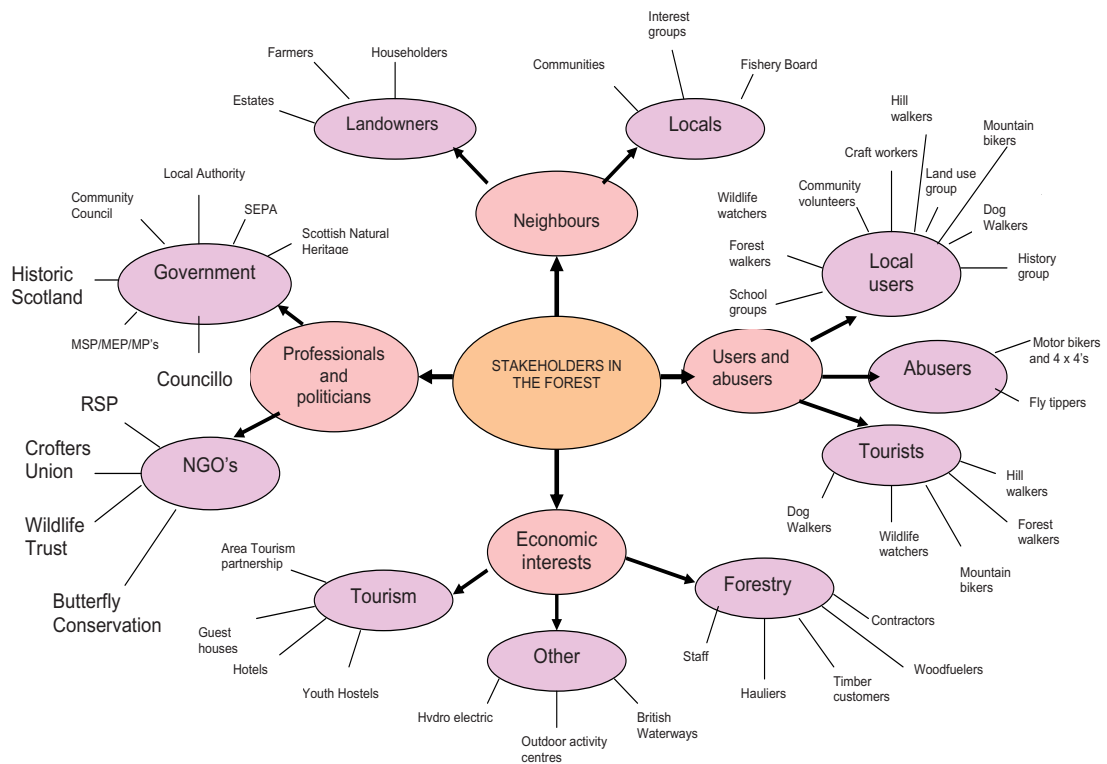


Figure 3. An example of typical interested stakeholders.

Joint projects and initiatives are being taken forward as a result of this process. There are more opportunities for financial support through working partnerships and many new ideas are being developed and progressed.

A twoway process of communications has become well established and awareness of forest issues has been raised dramatically.

The hopes and aspirations of local people have been defined and are taken forward when-ever possible.

A healthy sense of ownership and engagement in the plan was created resulting in the production of a more useful plan document.

It can be demonstrated that the objectives of both the community and the managers are being met. In turn this assists FCS in achieving certification under the UK Woodland Assurance Scheme. This is a benchmark of sustainable forest management leading to forest certification through external environmental auditing.

5 Methods for involving local people

FCS have produced website information that lists 50 different ways to inform, consult, involve and engage people when forming partnerships and building relationships.

The website address is 'www.forestry.gov.uk/toolbox'.

Working Papers of the Finnish Forest Research Institute 38: 85–88

Interactive and Participatory Forest Planning in Särna and Idre parish - Case Study Area of Sweden

Denise Fahlander

Swedish Forest Agency

1 Introduction

There are many stakeholders in the forest land of North West of Dalarna County, where the ELAV area is located. The communication between stakeholders works very well in some cases but less so in other cases. The ELAV project was initiated by the Swedish ELAV partners to look into the matter of rural development from a local perspective. What possibilities are there of practical forest management to benefit this rural area and how may the Partners extend a good dialogue between “all” woodland stakeholders? In Sweden the ELAV project includes four Partners, Swedish Forestry Agency, Dalarna County Administration, Sveaskog AB and Älvdalen Municipality. The social values of the forests are a growing part in the Partners’ daily work. Initially the project has started in two pilot villages where the dialogue will be more intense; within these areas the project also will look at the dialogue in a smaller scale, within communities.

2 Aims of the project in Sweden

There are three main objectives in the Swedish part of ELAV: forestry forum; communication; and exchange between communities.

Forum

The forestry forum will invite all actors interested in the forest. Forest companies, authorities, tourist entrepreneurs, community participants using the forest for recreation etc. This forum will give the partners a possibility to express their views of forest land use and management, and to discuss common solutions to local challenges. A great deal of the forum is also to be aware of other values of the forest than one owns.

Social values

Forestry production has a long history in Sweden, during the last 100 years the humans has developed efficient methods to manage the forest with the results of greater timber yields. Since the 80-ties environmental questions has been an important issue for the society and even so for forest

management. New methods were developed for the forestry sector to sustain greater concern for nature conservation. During the last period of time, a new subject to deal with has entered the forestry sector – the social values of the forest. There are many ways to deal with human interest in the forest. Two growing parts within social values are; recreational possibilities and nature tourism. Within ELAV one aim is to make a survey of the social values in the pilot areas.

Exchange

To acquire more knowledge of how the forest land may be managed to benefit the development of this area, both national and international exchange of local communities are arranged. Local community involvement in forestry are obviously growing in some small places in Sweden and much so in Scotland. Networks between countries and communities concerning woodland interests, aim to be established. The exchange will be not only for community participants but for all stakeholders of the forest land. What arranged meetings will actually give, is difficult to prophesy. The gain of the project is depending on e.g. the individuals attending and what development stage the actual community is in. Benefits of woodland use, management and planning will be experienced.

3 Description of the case study area of Sweden

The case study area of Sweden (Figure 1), Särna and Idre parish, cover round 450 000 ha of land. The woodland soundings are owned mostly by the state and managed by Sveaskog AB and Dalarna County Administration (DCA). Other stakeholders are e.g. forest companies, common forest society and private land owners. The pilot projects with more intense dialogue are initiated around two villages, Mörkret/Gördalen and Drevdagen, those communities consists of 40 respective 100 inhabitants.

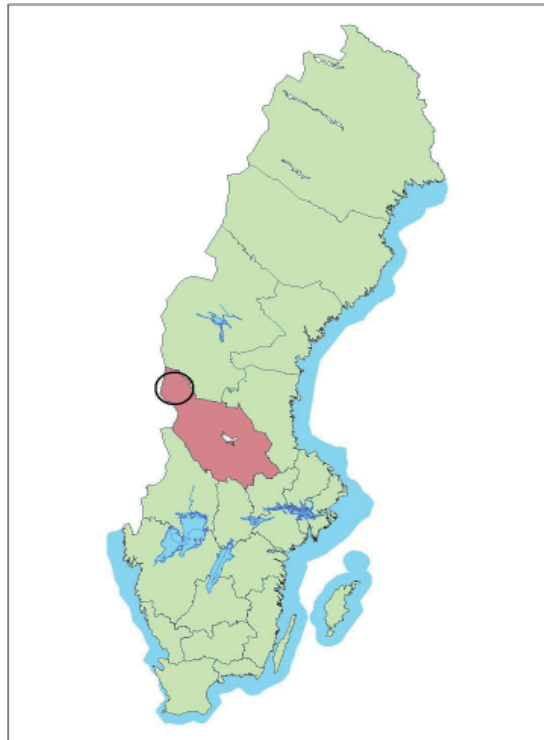


Figure 1. The case study area (marked by the black circle) is located in Dalarna Country.

Sveaskog manage the forest mainly for forest production while Dalarna County Administration manages the nature reserves and national parks, mainly for nature conservation. The area DCA manage is 190 000 ha and contain 30 nature reserves and two national parks. The amount of forest land Sveaskog manage is 111 000 ha. Idre Fjäll, a tourist centre, is another big stakeholder in the area, which employs many local participants and offer winter and summer events in the forest land. Idre Fjäll got 600 000 guest nights a year. A considerable part of the forests in North West of Dalarna are production forests of forest companies. Other actors interested in forest land are tourist entrepreneurs, tourists, craftsmen and the Sami people. Tourism activities are e.g. snowmobiling, hiking, fishing and dog sledging.

4 Involvement of local people and other interest groups

The project identifies social values of the forest through communication with a variety of forest stakeholders. Project participants increase knowledge of each others interests as well as identifying possible common ways for use of divergent interests in forest land. Meetings are set up in small scale (people with similar interests or few participants) and wider scale (participants of great variety of interest or several people). Through human meetings we learn from each other and hope to gain more acceptable and useful common solutions.

To involve the people, a suitable way is to have short meetings, small groups and the talk of the subject should be of present interest. This is noticed so far in ELAV, but is also a result from an evaluation of another forest project (Entreprenörskap i Finnmarken och Skogslandet, Swedish Forest Agency), trying to increase new ways for income of local occupation considering forest as a resource. Engage people and bigger attendance are more often reached when the invitation are made trough close contact, by telephone, village notice board or trough village participants “from one to another”. Different ways ELAV Sweden used for communication is shown in Table 1.

Table 1. Four topics of the communication in the area are shown in the figure; Invitations to meetings, information about ELAV, collecting information about stakeholders’ interests and ongoing joint initiatives. This picture shows different ways used for communication.

	Letter	Local news-papers	Meetings	ELAV web site	Box	Media releases	Working group	Telephone	Email	Community participants	Village notice-board	Village web site	Partners	inter-national exchange	Mapping	Binder in village hall
Invitations to the meetings																
Information about the project																
Finding out the aims of interest groups																
Finding out the joint initiatives and projects																

5 Survey of social interests

Today, ELAV Swedish Partners use digital information of the forest frequently, mainly concerning forest production and nature conservation, e.g. to show fellings and Natura 2000 areas in digital maps. ELAV will try to extend this material to include local social values in the forest, both from the view of recreation and occupation. With also this kind of forest interests one will get a more comprehensive picture over the land use.

The digital work is managed together by Partners and community participants who developed the method in a common work group. Information of social interests is collected by letting people draw their interest into a map. This is transferred by GPS or by hand in to a digital map. Each single interest; track, point from which there is a view, restaurant dependent on wild nature tourism etc. are described in the same way in a data base. Information to the data base is collected through an interest formula, where the questions were developed by the working group. If the stakeholder of the interest like to show more information (e.g. a website) this will be linked from the data base.

6 Experiences

1. The project has gained large interest from many categories in the project area. One likes to find a way for communication of woodland use and management among stakeholders.
2. Communication, meetings, talks – this takes time. The geographical distances are often very long. Many of the stakeholders, authorities as well as tourist entrepreneurs also has very tight schedule for their business and duties. Also local participants lack time, which will use a lot of their spare time in local associations to work for the survival of that association. Though the majority like the idea of forestry forums – lack of time seems to be a big issue to deal with to get it going.
3. When people get together and share issues the energy grows. Groups getting together for social aspects, such as to talk, to walk or to have a gathering seems to raise energy for community development.
4. Real enthusiasts seem to be working a lot alone. When you ask someone else in that community of their opinion or to participate, they almost always refer to that single person that is very interested, instead of attending themselves.
5. To a great extent the community participants in the pilot villages seems to be positive to the survey of social values.

More information:

denise.fahlander@skogsstyrelsen.se
www.elavproject.com
www.minskog.se
www.drevdagen.se
www.gordalen.nu