METSÄNTUTKIMUSLAITOKSEN TIEDONANTOJA 704, 1998
THE FINNISH FOREST RESEARCH INSTITUTE, RESEARCH PAPERS 704, 1998



Social sustainability of forestry in the Baltic Sea Region

Proceedings of workshops organised by the Nordic Research Programme on Social Sustainability of Forestry (NORSUFOR) 30–31 January 1997 in Helsinki, Finland and 10–12 September 1997 in Kärdla, Estonia

Marjatta Hytönen (ed.)

HELSINGIN TUTKIMUSKESKUS – HELSINKI RESEARCH CENTRE

METLA

15. 01. 99

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The Finnish Forest Research Institute, Research Papers 704.
Helsinki Research Centre, Helsinki 1998.

METSÄNTUTKIMUSLAITOS
Kirjasto

Hytönen, Marjatta. (ed.). 1998. Social sustainability of forestry in the Baltic Sea Region. Proceedings of workshops organised by the Nordic Research Programme on Social Sustainability of Forestry 30-31 January 1997 in Helsinki, Finland and 10-12 September 1997 in Kärdla, Estonia. Metsäntutkimuslaitoksen tiedonantoja 704. 354 s. Finnish Forest Research Institute, Research Papers 704. 354 p. ISBN 951-40-1646-7, ISSN 0358-4283.

The proceedings contains 29 articles written by authors from the Nordic countries, Baltic countries and Russia. The contextual background articles provide information about the concept of social sustainability of forestry and the Forestry Agenda 21 for the Baltic Sea Region. The articles under general themes discuss ethics, urban forestry, forestry planning paradigms and non-wood forest products. The articles dealing with the countries in transition discuss the present forest policy problems in Estonia, Latvia, Lithuania and Russia. The articles on Nordic perspectives describe current development efforts in Finland, Iceland, Sweden and Norway. Four Finnish authors have written articles on tourism and recreation in rural areas. The proceedings is concluded by three articles on research and development activities in Biosphere Reserves.

Keywords: forest policy, sustainable development, social aspects, Baltic Sea Region, Biosphere Reserves.

Publisher: Finnish Forest Research Institute. Accepted for publishing by Research Director Matti Kärkkäinen in November 1998.

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Distribution: Library of the Finnish Forest Research Institute, P.O. Box 18, FIN-01301,Vantaa, Finland, Tel. +358 9 85705580, Fax +358 9 8570 5582, E-mail: library@metla.fi.

Cover photo: A wooden sculpture made according to the idea of Ruuben Post symbolising different aspects of sustainable development; hand referring to technical, heart to emotional and head to intellectual dimension. More information about the sculpture on page 314. (Photo: Mart Mõniste).

Printed in Finland by Hakapaino Oy, Helsinki 1998

15. 01. 99

TABLE OF CONTENTS

CONTENTS 3

FOREWORD 7

CONCEPTUAL AND GEOGRAPHICAL ASPECTS

The concept of social sustainability of forestry 9
Marjatta Hytönen

Agenda 21 for forestry in the Baltic Sea Region 45
Marius Lazdinis

GENERAL THEMES

Environmental ethics: implications for forest management 61
Christian Gamborg

Urban forests and forestry: a framework for
a European comparative study 69
Cecil Konijnendijk

Planning as learning: a new paradigm for implementing
sustainable forestry 85
Jukka Tikkanen

Issues in data collection on non-wood forest products 99
Celeste Lacuna-Richman & Katri Karkinen

FORESTRY IN COUNTRIES IN TRANSITION

The role of forestry in the economy of Lithuania 111
Algis Gaizutis

Sustainability and private forestry in Latvia 123
Lelde Vilkriste

Private forestry as an employment guarantee in countryside of Latvia .. 131
Ilze Silamikele

The role of forest rangers in the Latvian state forest sector..... 137
Ilva Konstantinova

How human impact is reflected in forest dynamics in Estonia..... 145
Kalev Jõgiste

Development of forest conservation area network in Estonia.....153
Henn Korjus & Kaili Viilma

Private forest ownership in Finland and Estonia:
comparative analysis..... 163
Heimo Karppinen

Recent changes in social welfare of the forest sector of the
Russian Federation..... 177
Elena Kopylova

Changing attitudes of Russian foresters.....183
Maxim Lobovikov

NORDIC PERSPECTIVES

Sustainability from the viewpoint of southern Swedish forest owners... 189
Gunnar Isacsson

The advocacy coalition framework: its applicability to
a Swedish land-use conflict.....197
Roger Berggren

Local participation in sustainable forest management
based on landscape analysis..... 219
Bo Mårsäter

Employment as an indicator of social sustainability of forestry
in Finland.....225
Pertti Elovirta

Participatory forestry planning in Kainuu, Finland..... 233
Sakari Virtanen

Recent forestry developments and social forestry research in Iceland....249
Karl S. Gunnarsson

Attitudes and culture among environmental officials in Norway..... 257
Jørund Aasetre

RECREATION AND TOURISM

Role of recreation in social sustainability of forestry and use of natural resources..... 271
Tuija Sievänen

Role of forest-based tourism in rural development..... 285
Mirja Turunen

Public participation, nature tourism and community development.....291
Päivi Piispa

Sustainability and the development of tourism..... 299
Jarkko Saarinen

BIOSPHERE RESERVES AS MODEL AREAS OF SUSTAINABLE DEVELOPMENT

Local participation in the West-Estonian Archipelago Biosphere Reserve: the case of Hiiumaa..... 309
Ruuben Post

Role of Biosphere Reserves in promoting sustainability of forestry and regional development.....315
Ilkka Eisto

Forestry planning in coastal Biosphere Reserves in Estonia, Finland and Germany..... 325
Martin Welp

ANNEXES

1. Starting workshop of the Nordic Research Programme on Social Sustainability of Forestry, 30-31 January 1997, Helsinki, Finland: presentations and participants.

2. Nordic-Baltic workshop on social sustainability of forestry, 10-12 September 1997, Kärdla, Estonia: presentations and participants.

Foreword

The globally agreed objective for development is sustainability. According to the international agreements reached at the United Nations Conference on Environment and Development held in Brazil 1992 and the Second Ministerial Conference on the Protection of Forests in Europe held in Finland 1993, sustainable management of forests has three dimensions: ecological, economic and social.

The social aspects of forestry have until now been vaguely defined and little researched. Today, the wide-spread social problems, for example, increasing unemployment, poverty, stress, mental distress and social exclusion require social innovations, including the revision of forestry's role in creating well-being. Moreover, social forestry research is needed to recognise opportunities and to understand the existing positive functions of forests.

The Nordic Research Programme on Social Sustainability of Forestry (NORSUFOR) was created to contribute to the production of information on social aspects of forestry. It is hosted by the Finnish Forest Research Institute (METLA) and will last from 1996 to 1999. The programme contains dissertation studies by post-graduate students from various countries and disciplines dealing with social aspects of forestry in the Nordic and Baltic countries and North-West Russia. The involved post-graduate students work in their own organisations.

The main objectives of the programme are to

1. collect and disseminate information on the involved dissertation studies and other social forestry research in the Nordic countries and the adjacent areas,

2. organise multidisciplinary meetings for students and practical forestry professionals, and

3. give financial subsidies to the involved post-graduate students for participating in international meetings.

This publication contains articles based on papers presented in two workshops organised by the NORSUFOR. All the participants of the meetings have not prepared articles and, on the other hand, the collection includes a few papers by people who were not able to attend the meetings.

The first workshop was held in Suomenlinna and Nikuviken in Finland 30-31 January 1997. The aim of the meeting was to present the involved studies and to plan the activities of the programme. The second workshop was organised in Kärdla on the island of Hiiumaa in Estonia 10-12 September 1997. The aim of the workshop in Estonia was to discuss and compare forestry strategies and practical forest policy tools in the Nordic and Baltic countries. The most lively discussion topics were the problems connected to private forest ownership and public participation in forestry planning.

The programme has received funding from the Nordic Council of Ministers, the Nordic Academy for Advanced Study (NorFA), the Ministry of Agriculture and Forestry of Finland and the Finnish Forest Research Institute. The patient technical editor of this proceedings has been Mr. Pasi Paldanius, a trainee financed by the University of Helsinki. Special thanks are due to the personnel and other people of the West-Estonian Archipelago Biosphere Reserve, who organised the Nordic-Baltic workshop and the consequent field excursion excellently. During the days on Hiiumaa, the guests were informed well on the special character of Biosphere Reserves as model areas of sustainable development. It has also been a pleasure to cooperate with the friendly and committed participants of the programme.

Helsinki, September 1998

Marjatta Hytönen

Hytönen, M. (ed.). 1998. Social sustainability of forestry in the Baltic Sea Region.
The Finnish Forest Research Institute, Research Papers 704: 9-44.

The concept of social sustainability of forestry

Marjatta Hytönen

Abstract

As a background for the concept of social sustainability of forestry, a collection of definitions of "sustainable development", "socially sustainable development" and "sustainable forestry" are presented and shortly discussed. The contents of "socially sustainable forestry" are analysed with the help of describing related development trends and studies from the United States of America, North-West Russia and Finland. The concept is also related to two other current concepts, which are significant from the sustainability point of view, i.e. "community forestry" and "social capital".

Keywords: forestry, sustainable development, social aspects, definitions, Finland, North-West Russia, the USA.

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1 Introduction

There exists a consensus that the societies of the world should live and develop sustainably. It is also agreed that sustainable development contains a social dimension. However, it has turned out to be difficult to define social sustainability unanimously. Moreover, the contents of social sustainability depend on the contexts within which it is analysed and discussed. The interpretation of the concept is also dependent on the person defining it, on his or her world-views and relation to nature (Rannikko 1997).

The aim of this article is to discuss the contents of the concept of social sustainability within forestry. Various different kinds of sustainability definitions produced by independent researchers, business enterprises, environmental activist groups and governmental organisations are presented to provide contextual background information. The issues at stake when discussing, studying and promoting social sustainability of forestry in different geographical and societal conditions are analysed more in detail by describing related development trends and studies from the United States of America, North-West Russia and Finland. The article is concluded by short descriptions of the concepts of community forestry and social capital.

2 Sustainable development

The starting point of the worldwide discussion and implementation of the sustainable development concept was the succesful verbalisation of the sustainability idea by the World Commission on Environment and Development (WCED) in 1987. The popularity of the definition and the consequent numerous applications of it are an impressive example of the world-changing-power of one sentence. According to the Commission:

Sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Our common future 1987).

The WCED definition was confirmed and elaborated further by the UNCED (United Nations Conference on Environment and Development) Conference in 1992. The Rio Declaration defines 27 principles for promoting sustainable development. Practical guidelines are given in Agenda 21, the first chapter of which describes sustainable development the following way:

"Humanity stands at a defining moment in history. We are confronted with a perpetuation of disparities between and within nations, a worsening of poverty, hunger, ill health and illiteracy, and the continuing deterioration of the ecosystems on which we depend for our well-being. However, integration of environment and development concerns and greater attention to them will lead to the fulfilment of basic needs, improved living standards for all, better protected and managed ecosystems, and a safer, more prosperous future. No nation can achieve this on its own; but together we can - in a global partnership for sustainable development". (Report... 1992).

Pearce et al. (1989) and Pezzey (1992) have listed other definitions of sustainable development from the 1980s and also from the earlier years. As an example of the pre-WCED sustainability discussion, Repetto's definition:

"The core of the idea of sustainability, then, is the concept that current decisions should not impair the prospects for maintaining or improving future living standards [...]. This implies that our economic systems should be managed so that we live off the dividend of our resources, maintaining and improving the asset base." (Repetto 1986 in Pearce et al. 1989).

A recent example of a rather value-neutral application of the WCED definition can be found in Journal of Forestry from March 1998:

"Sustainable development is a process of meeting the continuing, evolving needs of people while protecting and enhancing the resource base on which production of goods and services depends." (Gregersen et al. 1998).

Many authors have elaborated the concept further and added normative value statements to it. For example, Constanza mentions the need of fairness in distributing resources and opportunities among people and Korten emphasises the equity and human development aspects:

"Sustainability [...] entails maintenance of 1) a sustainable scale of the economy relative to its ecological life-support system, 2) a fair distribution of resources and opportunities between present and future generations, as well as between agents in the current generation, and 3) an efficient allocation of resources that adequately accounts for natural capital." (Constanza 1994).

"Sustainable development is about creating: 1) sustainable economies that equitably meet human needs without extracting resource inputs or expelling wastes in excess of the environment's regenerative capacity, and 2) sustainable human institutions that assure security and opportunity for social, intellectual and spiritual growth." (Korten 1996).

The worldview of the World Wide Fund for Nature (WWF) is also very human being centered:

"Sustainable development means improving the quality of life while living within the carrying capacity of the earth's finite resources. It means meeting the needs of the present generation, particularly the needs of the poor, without compromising the ability of future generations to meet their own needs." (Sustainability... 1995).

Various countries have developed their own definitions concerning sustainability. For example in Finland the sustainability discussion has been very lively. Here is an officially approved Finnish variant of the theme developed by the Finnish National Commission on Sustainable Development for the follow-up of the UNCED process:

"...sustainable development is a continuous, guided process of societal change at the global, regional and local levels, aimed at providing every opportunity to present and future generations to lead good life." (To the Rio+5 -forum 1998).

Another Finnish working group, the Finnish Association for the Club of Rome (FICOR), has developed the definition further and states clearly that sustainable development is first of all a social issue:

"Sustainable development is a social process which takes place and is controlled on global, regional and local levels. Its objective is to secure good living conditions both for present and future generations. Sustainable development includes three functional dimensions, environmental, economic, social and cultural, all of which are interrelated in social communication and activities. Sustainable, good development is thus 1) ecologically and economically viable, 2) socially just, and 3) spiritually creative and reformatory development." (On the way... 1997).

The contents of the sustainable development concept can also be scoped by looking at the efforts to operationalise it. Defining practical principles for realising sustainable development and developing indicators to measure the trends towards or away from it are important processes in finding ways to increase sustainability. The practical principles include the Precautionary Principle mentioned in the Rio Declaration. Examples of other important principles are the Polluter Pays Principle (PPP), the Best Available Technology Principle (BAT), and the Ecocycle Society Principle (described e.g. in: On the general principles... 1994). The United Nations is developing indicators of sustainable development which cover economic, social, environmental and institutional aspects of societal change. These indicators are at the moment being tested in various countries of the world (detailed description in: Indicators... 1998).

3 Socially sustainable development

Many of the above-presented general-level definitions of sustainable development are predominantly socially oriented. This may be one reason for the fact that the social dimension of sustainable development has turned out to be difficult to describe explicitly and separately from the whole entity of development issues. However, the Action Programme of the World Summit on Social Development describes social development the following way:

"The ultimate goal of social development is to improve and enhance the quality of life of all people. It requires democratic institutions, respect for all human rights and fundamental freedoms, increased and equal economic opportunities, the rule of law, promotion of respect for cultural diversity and rights of persons belonging to minorities and an active involvement of the civil society. Empowerment and participation are essential for democracy, harmony and social development. All members of society should have the opportunity and be able to exercise the right and responsibility to take an active part in the affairs of the community in which they live." (Report... 1995).

The documents of the World Summit for Social Development elaborate further the social principles which were clearly visible also in the UNCED processes. The Rio Declaration started with the statement:

"Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature." (Rio Declaration... 1992).

In the context of developing indicators for sustainable development within the framework of Agenda 21, the Division for Sustainable Development of the United Nations picks out the eradication of poverty as one of the most acute goals:

"A specific anti-poverty strategy is (therefore) one of the basic conditions for ensuring sustainable development. An effective strategy for tackling the problems of poverty, development and environment simultaneously should begin by focusing on resources, production and people and should cover demographic issues, enhanced health care and education, the rights of women, the role of youth and of indigenous people and local communities and a democratic participation process in association with improving governance." (Agenda 21 - social aspects 1998).

Also other multinational organisations have acknowledged the fundamental importance of social concerns in promoting sustainable development. For example, the World Bank states:

"While the definition of social sustainability is even more elusive than environmental sustainability, some clear principles for action are emerging. At minimum, care must be taken that development programs are not socially and culturally destructive. More than this, every effort must be made to protect the vulnerable, respect social diversity, ensure all stakeholders' fullest participation in decision-making, and build up, rather than destroy, social capital." (Social... 1996).

A definition promoted by the Finnish National Research and Development Centre for Welfare and Health emphasises the needs and rights of an individual:

"Development is a process that increases our opportunities for self-actualisation, for discovering, using and developing our potential to the full, for choosing our own way of life as full members of society. This is the reason why it makes sense to define the equalisation of opportunities as social development, development for all." (Wiman 1994).

Another Finnish interpretation by the National Commission on Sustainable Development widens the individual and cultural approach even further:

"Socially just development ensures people equal opportunities to create their own well-being, to exercise their fundamental rights, to acquire the basic preconditions for life, and to assume an equal share and responsibility in decision-making in their own country and the world community. In its cultural dimension sustainable development permits free intellectual activity, ethical growth, and preservation and development of cultural diversity from one generation to the next." (To the Rio+5 -forum 1998).

The basic elements of social development and social sustainability can also be looked for with the help of the social indicators of sustainable development of the United Nations which contain driving force, state and response indicators describing poverty, demography, education and training, human health and human settlement issues (Indicators... 1998). Applicable ideas can as well be found, for example, from the Social Impact Assessment and social indicators research fields (e.g. Burdge 1994, Social Indicators Research 1974-, Guide for social... 1998).

4 Sustainable forestry

The most authoritative definitions of sustainable forestry have been produced by the international political processes and are written down in political agreements. The Forest Principles agreed upon in the UNCED Conference define sustainable forest management:

"Forest resources and forest lands should be sustainably managed to meet social, economic, ecological, cultural and spiritual human needs of present and future generations. These needs are for forest products and services, such as wood and wood products, water, food, fodder, medicine, fuel, shelter, employment, recreation, habitats for wildlife, landscape diversity, carbon sinks and reservoirs, and for other forest products." (Non-legally binding... 1992).

Another international consensus definition was produced in 1993 by the Second Ministerial Conference on the Protection of Forests in Europe and published in the "General Guidelines for the Sustainable Management of Forests in Europe". In addition to "recognising" the Forest Principles of UNCED, the majority of European countries agree that:

"Sustainable management means the stewardship and use of 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 ecosystems." (Interim report... 1995).

Simultaneously with the UNCED processes, the International Tropical Timber Organisation (ITTO) produced its own definition concerning tropical forest management:

"Sustainable forest management is the process of managing permanent forest land to achieve one or more clearly specified objectives of management with regard to the production of a continuous flow of desired forest products and services without undue reduction in its inherent values and future productivity and without undue undesirable effects on the physical and social environment." (Criteria... 1992).

The concept has also been elaborated in North-America within the context of the ecosystem management paradigm which is the new paradigm guiding forestry in the USA at the moment:

"Sustainable forestry is more than saving old growth, timber-industry jobs, spotted owls, roadless areas, endangered species, or even biodiversity. [...] The ecosystem challenge is this: to sustain desired forest conditions, uses, and values in the context of global markets and environments and with sensitivity to local and regional equity in meeting human economic and social needs." (Salwasser et al. 1993).

Another very socially oriented North-American viewpoint to sustainability:

"Sustainable forestry is an adaptive social process that creates sufficient future forest opportunity to satisfy potentially competitive interests that would diminish the forest if left unresolved. [...] Sustainable forestry is a regime of actions that sustains and enhances forest qualities amidst value conflicts that otherwise would weaken these possibilities. Sustainable forestry is a set of adaptive social processes (e.g. protection, trade, complementation, investment, innovation) that evolve to settle or surmount value conflicts in generally beneficial ways." (Romm 1993).

According to the National Human Dimensions of Ecosystem Management Task Team established by the USDA Forest Service in 1994:

"Sustainability means that the desired ecological conditions or flows of benefits can be maintained over time." (Human dimensions... 1994).

Two examples of statements published by North-American forest industry coalitions, American Forest & Paper Association and Canadian Sustainable Forestry Certification Coalition, respectively:

"To practice sustainable forestry to meet the needs of the present without compromising the ability of future generations to meet their own needs by practicing a land stewardship ethic which integrates the reforestation managing, growing, nurturing and harvesting of trees for useful products with the conservation of soil, air and water quality, wildlife and fish habitat, and aesthetics." (Principles... 1995).

The goal of sustainable forestry is "to maintain and enhance the long term health of our forest ecosystems for the benefit of all living things, both nationally and globally, while providing economic, social and cultural opportunities for the benefits of present and future generations." (The future... 1998).

The international non-governmental environmental forestry activist organisations seldom use sustainable forestry concept. However, the Forestry Stewardship Council's (FSC) mission statement includes same elements as the definitions presented above. According to the statement:

"1. Environmentally appropriate forest management ensures that the harvest of timber and non-timber products maintains the forests' biodiversity, productivity and ecological processes.

2. Socially beneficial forest management helps both local people and society at large to enjoy long-term benefits and also provides strong incentives to local people to sustain the forest resources and adhere to long-term management plan.

3. Economically viable forest management means that forest operations are structured and managed so as to be sufficiently profitable, without generating financial profit at the expense of the forest resource, the ecosystem, or affected communities. The tension between the need to generate adequate financial returns and the principles of responsible forest operations can be reduced

through efforts to market forest products for their best value." (FSC statutes 1994).

The other prominent NGOs affecting forestry in the Baltic Sea Region, Taiga Rescue Network, Greenpeace and WWF, have not elaborated explicit definitions for the concept either, although each one of them has published guidelines, campaign statements or principles covering the same issues mentioned in the above definitions of sustainable forestry (e.g. Sustainable forestry... 1998, Principles and guidelines... 1998, Forest for Life... 1998).

The concrete contents of sustainable forestry can also be scoped with the help of such international processes as the negotiations to create criteria and indicators for sustainable forest management, the battles over the establishment of timber certification and ecolabelling systems, and the efforts to apply lifecycle analysis to forestry (for more information e.g. Intergovernmental seminar on criteria... 1996, Kiekens 1997, Frühwald & Solberg 1995).

5 Socially sustainable forestry

5.1 General definitions

There exists a diversity of definitions for socially sustainable forestry. Here follow a few examples of efforts to describe it.

The Finnish Ministry of Agriculture and Forestry defined socially sustainable forestry within the process of developing criteria and indicators of sustainable forestry for Finland in 1995:

"Social sustainability requires forests to be managed so that the generally accepted forest-based benefits and satisfaction of forest-related needs will be ensured and distributed equitably among present and future generations." (Suomen... 1995).

The Centre for International Forestry Research (CIFOR) has been carrying out international comparative studies on social sustainability of forestry during the 1990s. In the context of the CIFOR studies:

...a definition of sustainability contains "three distinct social elements: 1) the maintenance of people's well-being often with a focus on forest dwellers, 2) the

actions of people that affect the sustainability of the forest, and 3) the intergenerational distribution of benefits." (Wollenberg & Colfer 1996).

The FAO/ECE/ILO Team of Specialists on Social Aspects of Sustainable Forest Management produced the following definition in a background report compiled for the Third Ministerial Conference on the Protection of Forests in Europe which was held in June 1998 in Lisbon:

"...the social elements of Sustainable Forest Management (SFM) may be broadly defined as those which involve two-way interactions or transactions between the forest and people, whether individuals or communities. These interactions may be direct: those between people and the forest itself; or indirect: those where the forest sector is an intermediary. By "forest sector" is meant all kinds of forestry activities, whether associated with wood production or other outputs and services, and downstream activities, notably wood-processing, that are dependent on the forest." (People, forests... 1997).

At least two North-American forest industry organisations, American Forest & Paper Association and Canadian Sustainable Forestry Certification Coalition, have taken a stand in the social forestry field:

"Under sustainable forestry social wants and needs are fully considered, and forests are managed to produce a variety of values and benefits. Values that go beyond the direct sustainability of the forest ecosystem include: aesthetics, wilderness, recreation, biodiversity, and non-traditional forest products." (Principles... 1995).

"When applied to forests, sustainable forest management requires, i.a., social sustainability: a respect for changing social norms, values and needs." (The future... 1998).

A Swedish close-to-earth definition:

"Socially sustainable forestry: forestry must be accepted both by the people who make a living from forestry as well as by the people who are interested in preserving forests. Forests should provide recreation and aesthetic, cultural and social values for all the different categories of users." (Isacsson 1998).

Three North-American researchers have a versatile conception of the social components of ecosystem management which are well applicable to forestry:

"...the social component of Ecosystem Management covers all ways in which humans use, affect, are affected by, and even think about natural ecosystems. Included are human management of natural ecosystems and human use of those ecosystems in any way or for any purpose - for goods and services that are used for subsistence, for recreation, to maintain a particular lifestyle or way of life, for spiritual renewal, for maintenance of local community pride and stability, and to protect regional, national and international heritage areas. Included too are all the economic transactions of nature-based goods and services whether for economic gain of individuals and private firms or for nations to maintain a favorable international trade balance. Also covered (in this work) are deliberations about natural ecosystems in political arenas..." (Driver et al. 1996).

All the above-presented definitions are rather abstract. The following sub-chapters aim to clarify the issues at stake when discussing, studying and promoting social sustainability of forestry in different geographical and societal conditions.

5.2 USA: human dimensions of ecosystem management

In the 1980s and 1990s, the concept of "new forestry" became popular in the USA. In its most basic form, new forestry meant applying ecological principles to forest management by replicating natural processes. By following the ecological principles, the goal of the new approach was to manage forest sustainably and to ensure the long-term health of forest dependent species, systems and processes. (Stankey & Clark 1992).

The "new forestry" -approach was primarily ecologically oriented, but it was accompanied with a wider dissatisfaction rooted in a range of values which gave rise also to spiritual, aesthetic, recreational, economic and ethical concerns. The USDA (United States Department of Agriculture) Forest Service responded to this by starting the "New Perspectives in Forestry" - program in 1990. (Brunson 1993). The program had two basic goals: 1) to manage forests to balance values and produce a sustained supply of goods and services, and 2) to maintain biodiversity (Stankey & Clark 1992).

In 1991, the "Consortium for Social Values of Natural Resources", an interagency research cooperative based in the Pacific Northwest, produced a problem analysis of the "new perspectives in forestry" aiming to describe the nature of social forest values and to outline a research and study program which would enhance the ability of natural resource professionals to accommodate, protect, enhance, and integrate such values in forest management. (Stankey & Clark 1992, Brunson 1993).

According to the authors of the problem analysis, Stankey and Clark (1992), all forest values - ecological, recreational, economic - are social in that they imply a measure of worth and importance to society. They define three elements around which most social value problems and issues can be identified: *people* (including their distribution, values, organization, and behaviour), *places* (both the geographic and symbolic dimension), and *processes* (the ecological processes and human activities and institutions that affect people, places, and their interactions). Social values embrace several forms or expressions:

- commodity values: timber, range, minerals
- amenity values: lifestyle, scenery, wildlife, nature
- environmental quality values: air, water quality
- ecological values: habitat conservation, sustainability, threatened and endangered species, biodiversity
- public use values: subsistence, recreation, tourism
- spiritual values.

Stankey and Clark also discuss the problems facing research, development and application efforts. Among other problems, they mention the structure, standard operating procedures, and values of natural resource organisations and professions which limit the integration and incorporation of a full range of public values into decision making, and the lack of non-threatening environments in which debate and discussion of critical issues facing resource managers and citizens could occur.

The researchers involved in the Consortium played a major role in the Forest Ecosystem Management Assessment Team (FEMAT) established in 1993 to identify management alternatives that "would attain the greatest economic and social contribution from forests" in North-West USA (Thomas 1994). The FEMAT analysed the ecological, economic and social implications of 10 management options for federal forests in the range of the northern spotted owl. The

social assessment addressed three principal areas: 1) rural communities, 2) native American values, and 3) recreation, scenic, and subsistence values. (Social assessment... 1993, Clark & Stankey 1994).

Concerning the future of forest-dependent communities, the FEMAT social assessment concluded that communities with a high capacity to adapt tended to be more populous, and communities less able to adapt tended to have limited infrastructure, lower levels of economic diversity, less active leadership, more dependence on nearby communities and weak linkages to centres of political and economic influence (Harris et al. 1998).

The New Perspectives program produced the "still-evolving" concept of ecosystem management, which has been defined in many different ways (Brunson 1993). In 1994, Moote et al. collected statements about the concept into a booklet and classified them according to the following essential elements of ecosystem management: 1) socially defined goals and management objectives, 2) integrated, holistic science, 3) broad spatial and temporal scales, 4) collaborative decision building, and 5) adaptable institutions.

In 1993, the USDA Forest Service established the National Human Dimensions of Ecosystem Management Task Team which produced in 1994 a concept paper describing the agency's general philosophy for integrating the human dimensions of ecosystem management into Forest Service activities. The Task Team defines:

the ecosystem management as "the use of an ecological approach that blends the needs of people and environmental values in such a way that the National Forests and Grasslands represent diverse, healthy, productive, and sustainable ecosystems." (Human dimensions... 1994).

and

the human dimensions of ecosystem management as "an integral component of ecosystem management recognising that people are part of ecosystems, that people's pursuits of past, present, and future desires, needs, and values (including perceptions, beliefs, attitudes, and behaviours) have influenced and will continue to influence ecosystems, and that ecosystem management must include consideration of the physical, emotional, mental, spiritual, social, cultural, and economic well-being of people and communities." (Human dimensions... 1994).

According to the Task Team, the human dimensions objective within ecosystem management can also be described as "seeking to understand human demands on, values and perceptions of, and interactions with ecosystems and to integrate those into policy, programs and management." Furthermore, effective ecosystem management must incorporate human dimensions on an equal footing with biological and physical dimensions. (Human dimensions... 1994).

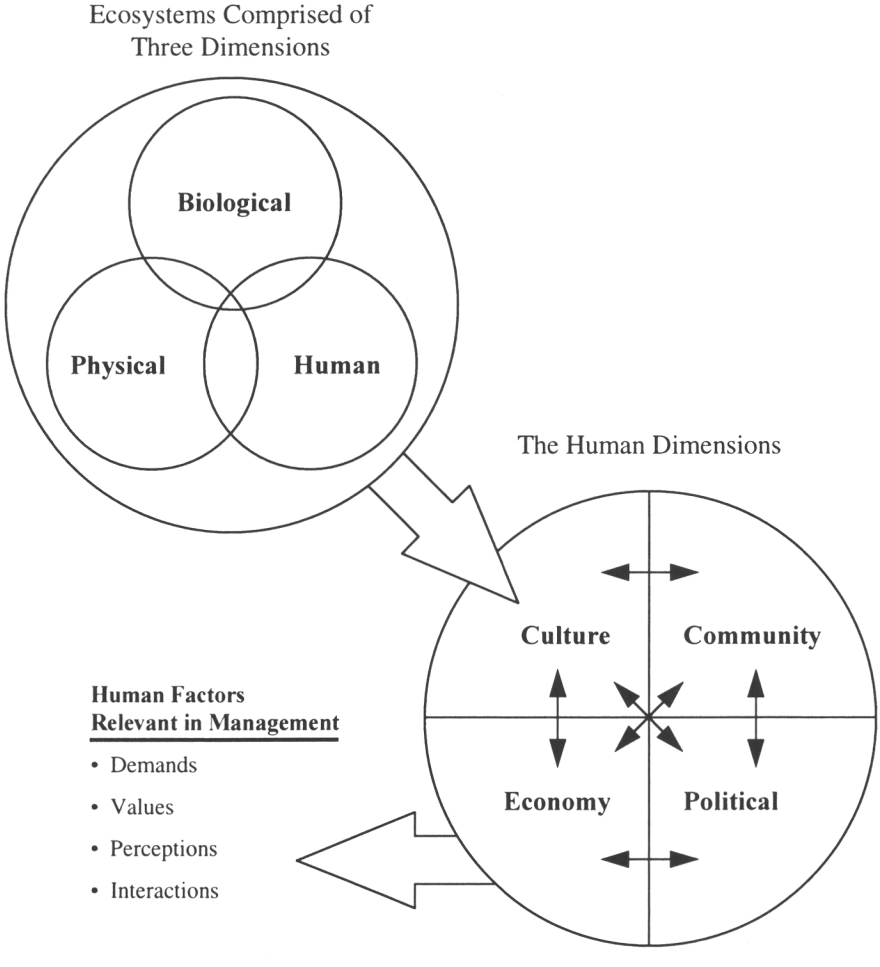


Figure 1. Human dimensions in ecosystem management (Human dimensions... 1994).

Currently, the Forest Service is working to produce a national human dimensions framework which will identify and organise social science information for large-scale activities such as forest planning and eco-regional assessments. The Forest Service also carries out social science research, the main themes of which include recreation trends, social values, rural development, and economic valuation, and develops methods for four practical emphasis areas: social impact analysis, social assessment, public involvement and institutional capacity (Hoover 1997).

A recent big effort in the USA to analyse the social dimension of forestry is the "Interior Columbia Basin Ecosystem Management Project" (ICBEMP). This multiagency effort led by the Forest Service was initiated in 1993 to assess the natural resources and socio-economic conditions in the inland North-West USA. Part of the ICBEMP assessment focuses on the resilience of rural communities. (Economic and social... 1998, Harris et al. 1998).

Accordig to the ICBEMP studies, vital and resilient rural communities are characterised by active social groups and civic organisations, sound educational infrastructure, availability of services, success in obtaining development grants, and preparedness for the future. The researchers also conclude that financial investments, technological advantages, sound business management, and entrepreneurial will to survive may be at least as important for the running of wood-processing enterprises as the levels of federal timber supply. A general trend in the region is the growing role of tourism and recreation, which increases economic diversification. Finally, a major determinant of a community's resilience is the residents themselves: "The most resilient communities are those whose residents have clear vision of desired future conditions and have taken into account biophysical, social and economic changes. These residents have the capabilities and motivation to plan, organise and act." (Harris et al. 1998).

5.3 North-West Russia: restructuring institutions and markets

According to a Russian interpretation, the most important qualities of social sustainability are (Golybev & Savtsenko 1996 in Polevsikova & Gurova 1998):
- improving the standard of living and quality of life,
- intellectual development and increasing the spiritual wealth of human beings,
- development of historical memory and culture, education, art and science,
- social security and health care,
- diversity of ownership forms,

- realisation, and taking care of by each individual, of the "socionatural" responsibilities,
- guaranteed personal freedom and safety, and
- strengthening of the family.

The above criteria of social sustainability are not fulfilled in present-day Russia. Polevsikova and Gurova (1998) state that the majority of people in Russia find the present situation in the country as catastrophic. The crisis is evident in all spheres of living. Many recent developments have created uncertainty concerning the future: decreasing income, decline in services, increasing unemployment and other social problems (Klementjev et al. 1996). In rural areas forest resources play an important role in alleviating the situation, but forestry as economic activity is facing severe restructuration problems.

The general political and economic situation affects the possibilities to solve forest management problems (Moiseev 1992). At the moment the reforms within forestry in Russia are dependent upon budget funding, and they are not of high priority under the conditions of the general fiscal crisis (Petrov 1997).

Because of historical reasons (see Petrov 1997 for more detailed description), forestry in Russia has faced the transitional period with

- undeveloped economic relations,
- an outdated logistic framework, characterised with poor assets and energy capabilities and a low level of labour efficiency,
- low social standard of living of employees (low salaries, lack of housing and other social goods).

In 1992, Burdin listed a set of problems which must be solved in the period of transition to market economy

- organisation of management
- forms of ownership
- banking system
- taxation
- sales of products
- price formation
- market demonopolisation
- social protection of the population (social welfare).

The list includes topics which were never raised and discussed during the Soviet time in relation to practical forestry. New is also the need for economic incentives to intensify forestry, especially in the field of enhancing the ecological and social functions of forests (Moiseev 1992).

According to Krott (1998), the legal framework for forestry is only partly defined and the implementation lags much behind the official programs. The formal tasks and informal interests affect sustainability of forestry. Major problems are connected to the separation of the state forest agency, which owns practically all forests, from final cuttings, which are carried out by commercial enterprises and other organisations according to leasing contracts (Oksa & Saastamoinen 1995, Petrov 1997, Krott 1998).

In the Republic of Karelia in North-West Russia, logging and wood processing have been the main base of the local economy for many rural communities and districts (Oksa & Saastamoinen 1995). Extensive logging operations were started at the end of the 1940s, and they continued until the 1970s. Inside Soviet Union and the Russian Federation, Karelia has specialised in forestry, pulp and paper production and forest-related engineering. Up to 1957, altogether 324 special forestry settlements were founded. In the 1960s and 70s, every fourth village was a forestry settlement. (Klementjev et al. 1996). At the moment there still exists about 100 forest-dependent villages (Oksa 1998).

As a rule, the rural communities of the Karelian Republic have been one-company villages of a state farm or a logging enterprise. The real executive power on the village level has been held by the managers of local enterprises, because the resources of the public village administrations, the village soviets, have been scarce. (Oksa & Saastamoinen 1995).

The forestry enterprises provided social services including housing, communal infrastructure and kindergarten. Often also music schools, club houses, libraries, health clinics and sporting facilities were taken care by them. Some enterprises ran even cattle farms or piggeries to satisfy the local need for milk and meat. (Oksa & Saastamoinen 1995).

The newly privatised companies are not willing to cover the costs of the social services anymore and the process of transferring them over to the district administration is under way. The planned build up of social services organised and financed by the local governments will take a long time. (Krott 1998).

The privatisation of logging companies has led to disappearance of several jobs. Unemployment has increased in the villages. Furthermore, the income of the population is not steady and is insufficient even for the most basic needs. In the new situation, the payments of pensions and salaries may be late, and money quickly loses its real value because of the rapid inflation. (Klementjev et al. 1996).

Because of the increasing unemployment and the decrease of services provided by forest enterprises, people have lost a lot of basic support for their lives. The survival strategies of private households are based in combining several types of income sources. Rural households have to rely on subsistence farming and wildlife products. (Klementjev et al. 1996).

Despite of the shrinking value of the income from the jobs in the forest enterprises, they have remained important for the people because of a lack of alternatives for getting employed (Krott 1998). The level of salaries remains low in forestry. Employees of forestry enterprises obtain the bulk of their income from their own households (livestock and poultry rearing, fruit and vegetable growing) as well as from hunting, fishing and harvesting of wild berries and mushrooms. The shares of incomes from salaries and those from other sources are estimated to be 25 % and 75 %, respectively. The low salaries have led to lack of qualified personnel in forestry, particularly of young specialists educated in universities and colleges. (Petrov 1997).

The fate of the forestry villages is dependent on the political and economic decisions concerning the use of forest resources. Most of these decisions are made outside the villages, in timber markets, in logging enterprises and in the administrative level. (Klementjev et al. 1994, Oksa 1998). The possibilities of rural people to affect those decisions are very limited. Their role is mainly to take care of logging operations, timber transportation and the maintenance of equipment (Oksa 1998).

Despite of the great importance of the national economic and political situation for the development possibilities of forest-related livelihoods, efforts have been started to solve local problems. The Taiga Model Forest -project, which aims to study the economic, ecological and social effects of forestry at the local level in Matrosa forest area in Karelia, defines social sustainability of forestry the following way:

"Social sustainability can be understood as the level and stability of welfare that forests and forest sector provide for the people and the communities. The research of social sustainability at local level consists of the study of the local economy, living conditions, social safety networks, survival strategies, and the level of dependence of the population on forests, including the employment issues." (Taiga model... 1998).

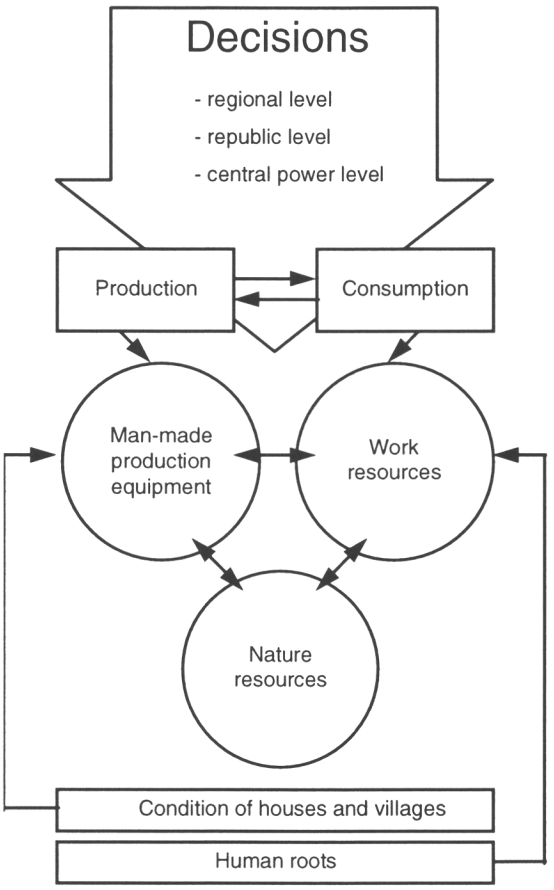


Figure 2. Social sustainability - a viewpoint from Russia (Romanov 1997).

The sub-project on social sustainability of the Taiga Model Forest -project includes a study on the redistribution of property and social expenditures between the bodies of local and district government and forest enterprises. According to the project group, this is one of the most important issues in social sustainability in Karelia at the moment. (Taiga Model... 1998).

Here is a definition of social sustainability provided by a local Karelian forester Grigory Romanov:

"A community can be socially sustainable when there exist preconditions for development. [...] Social sustainability consists of a group of measures which unite various objectives when organising work to achieve different goals, and which can be combined in the search for a satisfactory relationship between nature, and the social and economic needs of local areas today and in the future - and having as a basement the provision of livelihoods for people." (Romanov 1997).

Romanov (1997) sees the future possibilities of the Matrosa area in multipurpose forestry. An essential element in promoting social sustainability is the local processing of the various material and non-material forest resources to create new forestry products and employment.

5.4 Finland: employment, recreation and local culture

According to Saastamoinen (1996), Finland's forestry meets many requirements of social sustainability because of the traditional right of public access, a socially balanced forest tenure system based mainly on family ownership, increasing application of the principle of multiple use in state forestry, and the recent growth of public participation in state forest planning. There has also occurred negative social development; in the forest-dependent regions the decline of the amount of forestry work since 1960s has happened so fast that people have not been able to adapt to the changes and have had to move away. The result has been a diminished number of people and desertion of villages in rural areas. (Saastamoinen 1997b, Rannikko 1998). There has also been numerous conflicts concerning the decline of the quality of the forest environment (e.g. Hellström & Reunala 1995).

Palo (1997) argues that from the national point of view one reason for the relatively good performance of Finnish forestry is the dominance of private

tenure in forest ownership, which has led to the gradual development of market mechanism for roundwood stumpages and deliveries. This has affected positively the development of forest management, along with forestry laws and other forest policy measures.

Finnish forestry is nowadays characterised by search for optimal mix of market incentives and public interventions. The reasons for government interventions include

- distribution; public policies are assumed to help the disadvantaged in order to support the human rights
- stabilisation; for example, lessening of unemployment during economic recessions by public interventions,
- mobilisation; for example, support to key industries in order to induce economic growth and employment (Saastamoinen 1997a, Palo 1997).

According to Palo (1997), the mission of public forest policies is to contribute to decreasing the losses in social welfare due to market failures, unequal income distribution or inadequate stabilisation. In order to better attain this objective, more theoretical analyses and discussions about the roles of markets, public policies and privatisation are needed to enable sustainable forestry both in the developing as well as in industrialised countries.

Social sustainability of forestry at the local level has been studied in the province of North-Karelia in eastern Finland by the Russian border, especially in the municipalities of Ilomantsi and Lieksa. In these municipalities small farming combined with logging was until the 1970s the main source of income for the local population. The mechanisation of forestry work contributed to the rapid destruction of this livelyhood. The small farms in the area became deserted and about 70 % of the people moved away from the small villages. (Rannikko 1998).

According to Rannikko (1998), social sustainability in remote rural areas means, above all, that in determining the use of the environment and natural resources the living conditions of the local population must be considered. For example, in respect to forestry, social sustainability implies deciding whether the forestry practices destroy or reinforce the living conditions and social systems of the local people. The criteria could include the possibilities of the local people to influence policy, their employment, and working conditions.

In the present unemployment situation, social and ecological sustainability in rural areas requires concrete proposals on how jobs can be created while taking into account environmental protection. In North-Karelia, new jobs can be brought to the area, for example, through tourism, nature-related recreation services and landscape management. (Rannikko 1998).

Social sustainability can be seen as a strategy for action. The realizers of the strategy should include all the stakeholders using natural resources in an area. In the cases of Ilomantsi and Lieksa, they include landowners, the Forest and Park Service, forestry industry enterprise Enso, peat production enterprise Vapo, farmers and other small forest owners, professional loggers, timber and peat extraction machine contractors, researchers, municipality administration, environmental activists, tourism enterprisers, the Ministry of the Environment and the local environmental administration, and European Union. (Rannikko 1997).

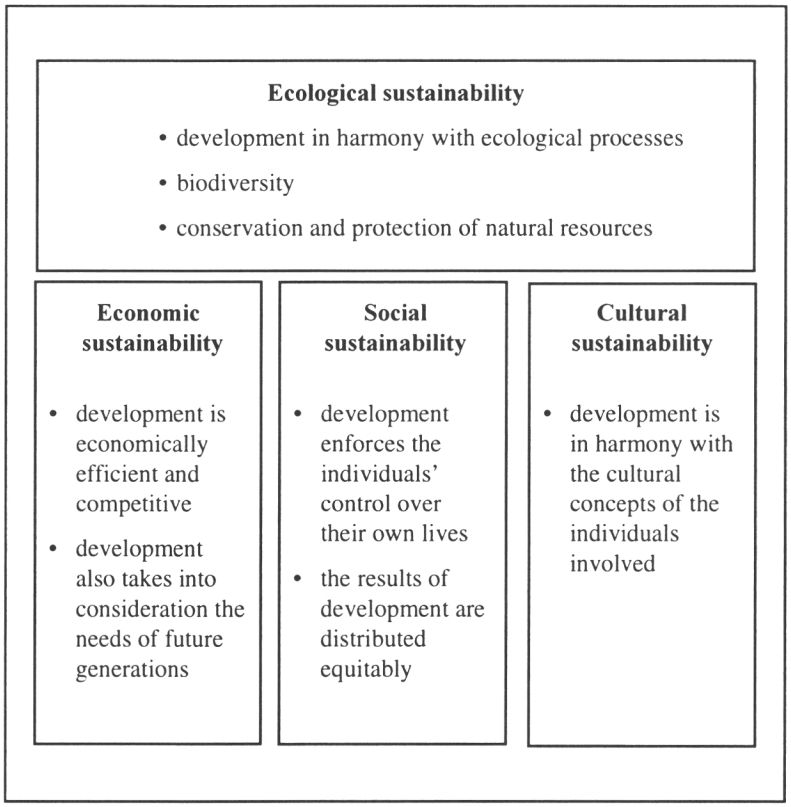


Figure 3. A Finnish interpretation of the dimensions of sustainable development (Rannikko 1998).

Saastamoinen (1997) has studied social sustainability from a more philosophical viewpoint. According to him, forest-related social values differ between social groups within a nation and between nations and cultures. The systems of social values are also dynamic and changing in the course of economic and political development. Changes in some social values may occur in relatively short periods, while some parts of the value system are more permanent. The more sustainable social values compose the system of basic and fundamental values of the societies.

Basic values and key concepts can be divided into two groups when defining social sustainability of forestry. The general social values include, for example, welfare and well-being of people and the right to participate in resource management. The specific forestry values include, for example, the principle of multiple use and everyman's rights (Saastamoinen 1997a).

Forestry is characterised by contradictions, conflicts and controversies rather than harmonius compromises based on shared views. This makes it even more necessary to look for the basic values and principles, and the consequent procedures to cope with the differing opinions and demands (Saastamoinen 1997a).

The Finnish Forest and Park Service (FFPS) has started to develop public participation processes to ensure the acceptability of its activities. According to FFPS, the local and regional acceptance of the utilisation methods of natural resources is a precondition for social sustainability. The combination of socially acceptable forestry practices in the specific circumstances should be defined collaboratively by the interested stakeholders (Loikkanen et al. 1997).

The Forest Development Centre Tapio, which serves private forestry by producing research and information services, has started to develop regional forestry planning to support also local non-forestry livelihoods and the specific development efforts of individual villages. The aim is to promote collaborative planning in villages and to reconcile differing values and needs of local inhabitants and enterprisers within the process of making regional forestry plans. The ideas of the project have been tested in 11 villages and a guidebook has been published for people interested in forestry-related development alternatives (Ruotsalainen & Vähätalo 1997).

6 Related concepts

6.1 Community forestry

Community forestry as a strategy to enable sustainable use of forest resources appeared during the 1970s. It emerged in response to the recognition that existing resource management and development strategies were not succeeding (Community Forestry 1998).

FAO defined the concept in 1978 in a guidebook "Forestry for local community development" the following way:

"Community forestry has been defined for the purpose of this study as any situation which intimately involves local people in a forestry activity. It embraces a spectrum of situations ranging from woodlots in areas which are short of wood and other forest products for local needs, through the growing of trees at the farm level to provide cash crops and the processing of forest products at the household, artisan or small industry level to generate income, to the activities of forest dwelling communities. It excludes large-scale industrial forestry and any other form of forestry which contributes to community development solely through employment and wages, but it does include activities of forest industry enterprises and public forest services which encourage and assist forestry activities at the community level. The activities so encompassed are compatible with all types of land ownership." (Forestry for local... 1978).

According to the current community forestry strategy of FAO, "the vision of community forestry is a partnership of communities, forestry agencies and other stakeholders working together for sustainable forest management and rural development". Community forestry

- supports the control, management and use of forests and tree resources by local communities
- explores the social, economic and cultural relationships between people and forests
- implies a decentralised and participatory approach to forest managemenent, which assumes that the best stewards of the world's forests are the populations living in and around them (Community Forestry 1998).

Globally, forest management agencies are increasingly expanding their mission to manage national forest lands to include environmental protection through alleviating rural poverty. This growing phenomenon of linking natural resource management with social services has been caused by rapidly degrading forest environments due to social needs. (Community forestry: effectively... 1998).

The growing popularity of the community forestry approach in the industrialised countries is connected to the change in the role of forest agencies; field officers are no longer principally guards and enforcers of forest policies, but increasingly serving as technical advisors to communities in their emerging role in forest management. For example, in the USA community involvement in forest management is increasing. This has become necessary as communities are facing a shift in local economies away from the dominance of natural resource extraction and modern forestry agencies endeavour to facilitate this transition (Community forestry: effectively... 1998).

In the present-day USA, community forestry has emerged primarily in the West, where the predominance of public lands guarantees "a seat for rural communities at the table". Some private corporate forest owners have also shown interest in consulting with local communities and working with local contractors. (Brendler & Carey 1998).

Three attributes are shared by most community forestry efforts in the USA (Brendler & Carey 1998):

1. *"Residents have access to the land and its resources"* - community forestry seeks to ensure that local people have access to a portion of the material and non-material benefits flowing from nearby forests.

2. *"Residents participate in decisions concerning the forest"* - because the local communities are the first to suffer from forest degradation, community forestry aims to provide local people with meaningful role in forest decision making.

3. *"The community begins by protection and restoring the forest"*- resource depletion leads to social decline, thus the starting point of community forestry is the protection and restoration of forest resources.

The USDA Forest Service proposes following practical steps for forestry agencies to promote community forestry:

- forestry staff working with local communities should be selected for their genuine interest in social issues, and be trained in participatory skills such as facilitation, community capacity building, action planning, and leadership skills,

- forest agencies should have clear guidelines on how public participation and community initiatives will be handled within the agency,

- community issues should have a permanent in-house presence within forestry agencies, through periodic lectures and seminars, newsletters and annual fairs, that encourage innovative and controversial ideas to be discussed and accommodated,

- information exchanges should be established between international and domestic forest agencies regarding their experiences in collaborative management practices, and

- developing countries have relied primarily on building field level skills, whereas developed countries are concentrating on revising policy issues; exchanges of practices should be supported through field visits, establishing partnership communities, and supporting collaborative comparative case studies. (Community forestry: effectively... 1998).

The debate on community forestry is lively in the USA. Moore (1998) writes that "forest communities are turning to those most affected by the decisions - themselves - for answers to a daunting question: how to rebuild a viable economy that supports families and jobs without exploiting natural resources beyond their sustainable level and damaging the local ecology", Daly (1998) claims that changes will be needed in federal laws and regulations to enable community-based forest stewardship programs to work on public lands and Markham (1998) reminds that community-based movements need regional and national support and leadership to empower local people and communities.

Social forestry -concept is sometimes used to describe same type of issues as community forestry. It is said to originate from India, where the National Commission of Agriculture started a "social forestry" program to help the landless

poor, marginal farmers and agricultural laborers in 1976. The program was designed to engage communities in establishing forest farms to meet their fuel, fodder, and small timber needs. (Community forestry: effectively... 1998). In the 1990s, "social forestry" is used by some as interchangeable with community forestry and by others to describe a narrower spectrum of activities dealing with fuelwood, deforestation and woodlot issues (Arnold 1992).

6.2 Social capital

The concept of social capital entered to the development vocabulary in the 1980s as a response to increasingly plural institutional environments. For example, the growth of non-governmental organisations have changed the way societies function. (Bebbington et al. 1997).

According to a background report prepared for the FAO Working Group on Pluralism and Sustainable Forestry and Rural Development:

social capital refers to "associations, networks and social relationships available to people and that help those people achieve particular intended or unintended objectives through actions that are in some way made effective by the existence of these relationships." (Bebbington et al. 1997).

Harris and Renzio (1997 in Bebbington et al. 1997), make a distinction of six forms of social capital:
- family and kinship connections,
- social networks or associational life related to groups and organisations,
- cross-sectoral linkages; networks of networks that link organisations of state, market and civil society around problem solving tasks,
- political capital, the informal relationships and norms that link civil society and the state, and which determine levels of social control over the state,
- the institutional and policy framework regulating public life,
- social norms and values, such as trust.

Social capital is more likely to exist where there prevails general atmosphere of trust among people and institutions from three main spheres: state, civil society and market. Where basic norms of mutual respect have at some point been severely broken by actors in one of the three spheres, then there is likely to exist more generalised distrust which hinders cooperation and development efforts. (Bebbington et al. 1997).

According to Bebbington et al. (1997), rural development can be promoted by skillful leadership and administration, which contribute to building social capital through fostering trust between public workers and communities, through building organisations, etc. This social capital in turn may become a mechanism through which people can make more claims on government, and engage in self-managed grassroots development initiatives.

The development alternatives of rural communities are influenced, for example, by local ecological conditions, resource types, migration patters, ethnicity, and political and economic history. The developers of strategies for building social capital for rural development should understand the constraints, opportunities and potentials that derive from the various characteristics of the regional context. (Bebbington et al. 1997).

Social capital supports sustainable use of natural resources, for example, when there exists strong local organisations with internal sanctions that can enhance the protection of natural capital from overuse by members. Those same organisations can be vehicles for protecting natural capital from degradation by external agents. Furthermore, market relationships, socio-political hierarchies, policy biases, the exercise of power, and the distribution of natural resource entitlements and endowments are among the key factors determining whether natural capital is used sustainably or degraded. (Bebbington et al. 1997).

The USDA Forest Service's Rural Community Assistance (RCA) program has adopted the idea of social capital. A major component of the program has been to enhance community capacity through the creation of social capital, which is defined as "extensive networking organisations, the ability to mobilise resources, and the acceptance of diverse opinions". The RCA program provides support to communities located within 100 miles of national forest lands with a population at least 15 % dependent on natural resources. The building up of social capital has been carried out through leadership training and providing facilitated meeting assistance. The trained facilitators help, for example, to carry out collaborative planning processes. (Community Forestry: effectively... 1998).

The appearance of the concept of social capital was preceded by research on human capital in the 1960s. Investments in human capital were seen as a precondition for technological development and economic growth. The focus in the human capital approach was first on individual abilities and later also on

working life experiences, health conditions and other factors which increase human capacity. (Kajanoja 1998).

In the 1980s, the human capital approach was broadened with the help of the concept of social capital within a wider discussion on human resources. In this new context human capital, along with social capital, is an actual concept also today. According to Serageldin (1996 in Kajanoja 1998), about two thirds of the national income in the high-income countries is created by the human resources.

7 Conclusions

"Economic pursuits will often conflict directly with spiritual and cultural values deeply held by people. Management of ecosystems must deal with these conflicts and the values they represent." (Human dimensions... 1994). This quotation illustrates well the core issues of social sustainability of forestry.

According to Jackson (1998), the idea of sustainable forest ecosystem management is to nurture social processes which help balance ecological values with economic and social values, and "the idea of balance is not one of optimisation but rather one of finding political balance points in allocation of forest resources and lands by actively engaging people with diverse interests and perspectives in the social processes of making decisions."

There exists a vast array of information which is applicable for the sorting out of social forestry problems. But a lot needs to be done to develop systematic, analytical and practical methods to promote social objectives of forestry. The exchange of information between different cultures is important for the creation of such tools.

A good example of valuable conceptual development work is the North-American "sense of place" -discussion, which has been going on for decades. The "sense of place" -issues deal with the emotions, preferences and attitudes connected to places and landscapes (e.g. Mitchell et al. 1993, Williams & Stewart 1998). These aspects of forests are also very familiar to Finns and Russians and a lot of cultural heritage has evolved around them, but the conceptual and practical analysis lags behind the US efforts to apply these ideas to forestry.

Creation of livelihoods based on the non-material forest benefits, and also on the non-material values connected to wood utilisation, are today common challenges to both market-economy countries and countries in transition. The creation of such livelihoods requires investments in human and social capital, rethinking institutional structures and developing new institutional forms to compete in the markets both in west and east.

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Agenda 21 for forestry in the Baltic Sea Region

Marius Lazdinis

Abstract

The political commitments to develop an Agenda 21 for the Baltic Sea Region (BSR) were made in 1996. All countries around the Baltic Sea - Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Norway, Poland, Russia and Sweden - have joined the programme. "The Baltic 21" involves seven sectors: industry, energy, transportation, agriculture, forests, fishery and tourism. The key elements for all the sectors include definition, indicators and scenario for sustainable development and action programme to achieve the set objectives. "Baltic 21 on Forests" mainly focuses on the development of forest policies and practices towards sustainability. It contains a list of key areas of interest as a framework for the development of the action programme. Under each key area, the current situation is described, challenges for the future are identified and some options for action are proposed. Six of the options for actions are identified as priorities for regional cooperation. A target situation of sustainable forestry in the BSR in 2030 is also described. Based on the targets, a number of gaps between today's situation and the future vision are pointed out.

Keywords: forest policy, Baltic Sea drainage basin, international cooperation, sustainable development.

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1 Introduction

1.1 Agenda 21 for the Baltic Sea Region - Baltic 21

Agenda 21, which was jointly adopted at United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro 1992, is a global action programme for the environment and development issues of today and for the future. Its aim is to prepare the world for the challenges of the next century, and it reflects a global consensus at the highest political level. Even if the momentum from Rio has shown signs of slowing down, much inspiring work has been devoted to developing action programmes at the national and, particularly successfully, at the local level. Despite the future potential of the Baltic Sea Region (BSR), and despite some of its countries being the world's most advanced industrial nations, there is a lot to be done on the path towards sustainable development. Many changes are needed in the policies of all countries as well as in regional cooperation. Managing the transition towards sustainable development is a necessary requirement in order to safeguard the future wealth and well-being of people, and to provide a long-lasting prosperity and security in the region. (Creating... 1996).

The political commitments to develop an Agenda 21 for the BSR (hereafter referred as Baltic 21) which were made by the prime ministers at the Visby Summit in May 1996, and later confirmed by the ministers of environment in Saltsjöbaden in October 1996, are an expression of a concerted and overall political will to turn a new leaf in the history of regional environment and development cooperation. While recognising the success of current cooperation efforts, such as HELCOM[1] and VASAB 2010[2], this pledge also shows a clear recognition of the fact that sustainable development, and therefore the development of Baltic 21, is more than the sum of a series of sectorial policies and action plans, and can be achieved only with sustained efforts and political support (Creating... 1996).

The Baltic 21 framework involves seven sectors: industry, energy, transportation, agriculture, forests, fishery and tourism. The key elements for all the sec-

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[1] HELCOM = Helsinki Comission, the governing body of the Convention on the Protection of the Marine Environment of the Baltic Sea Area

[2] VASAB 2010 = "Vision and Strategies around Baltic Sea Area"; a common framework for spatial development of the Baltic Sea Region

tors within the Baltic 21 include definition, indicators and scenario for sustainable development and action programme to achieve the set objectives. Furthermore, cross-sectoral issues and sector inter-linkages played an important role in the development of the Baltic 21. The programme has been compiled on the basis of the work done within the sectors. Each sector was required to report of its progress to the Senior Officials Group (SOG), that guided the work and served as a negotiation forum.

1.2 Baltic 21 on Forests

According to the decisions made in Saltsjöbaden and the recommendations of the SOG, the starting point for forestry practices should be the forestry principles adopted in Rio and the further work of the Intergovernmental Forum on Forests (IFF). Forestry practices should be exercised with clear environmental considerations, which means, for example, that clearcuttings are planned so as to minimise the environmental impacts, the few original natural forests that are left are preserved and that special attention is paid to environmental concerns in sensitive areas, i.e. forests in archipelagos and in mountainous regions. Furthermore, it is important to work with reforestation of newly cut areas to ensure continued timber production. In artificial regeneration of clearcut areas, the choice of tree species should be made consistent with the natural conditions in the area.

In addition, forests play an important role in climate change mitigation policies. Growing forests are huge sinks for carbondioxide in the global carbon cycle. Sustainable use of biomass and wood fuels make it possible to replace the use of fossil fuels thereby avoiding net emissions of carbondioxide into the atmosphere in a very cost-effective way.

In the course of the work, it became clear that the emphasis should be on all the aspects of sustainable forest management. The Baltic 21 on Forests aims at indicating what sustainable development in forestry means in the context of the BSR cooperation, and how sustainable forest management could be further promoted within the region. The Baltic 21 action took an advantage of the ongoing work related to the global, European as well as national forestry commitments, international agreements and other international forest activities, and it strove at advancing these international commitments at the BSR level. Because of the lively international and national forest policy dialogue and developments within the various ongoing initiatives and processes on sustainable

forest management, the forest sector of the Baltic 21 had a wide and solid basis to build on.

Baltic 21 on Forests concentrates on concrete proposals for action for the further development of sustainable forest management, taking into account the specific economic, ecological and social conditions of the region, as well as linkages between other sectors. The main proposed activity form is cooperation between countries at different levels in various fields and ways.

2 Dialogue and commitments on forests as background for Baltic 21

2.1 International activities

The international framework for the Baltic 21 on Forests is wide. Many intergovernmental commitments have been made to promote sustainability within the forest sector, such as the decisions made at UNCED (e.g. Forest Principles, Chapter 11 on Combating deforestation of Agenda 21), Intergovernmental Panel on Forest (IPF), Ministerial Conferences on the Protection of Forests in Europe and their follow-up meetings (the Pan-European process), Environment for Europe process, as well as the recent collaboration between the two last mentioned in the form of a Work Programme on the Conservation and Enhancement of Biological and Landscape Diversity in Forest Ecosystems.

Legally-binding global instruments that would concern purely or comprehensively forest issues do not exist. Discussions on a legally binding instrument for forests will be taken up within the IFF (Intergovernmental Forum on Forests) that was set up by the decision of UNGASS (United Nations General Assemply Special Session) in June 1997, under the aegis of CSD (United Nations Commission on Sustainable Development), to continue the work done in the IPF (Intergovernmental Panel on Forests), inter alia, towards a legally binding agreement. Nevertheless, many of the environmental agreements are relevant to forests. They address forest-related issues in a specific context, embodying to the concept of sustainability many cross-cutting issues that are relevant to forests, such as biodiversity, climate change, financial resources, technology transfer, trade and environment, and traditional forest-related knowledge. The Kyoto protocol can be mentioned as the most recent legally-binding global instrument to support sustainable development.

In addition to the existing political commitments and legally-binding agreements, there is a range of ongoing activities in intergovernmental organisations such as FAO, UN/ECE, EU, the Nordic Council of Ministers and others. Furthermore, there is cooperation for instance in forest research, forest statistics and forestry education between the Nordic and Baltic countries.

One of the most relevant international pillars for the Baltic 21 on Forests is the Pan-European process on the protection of forests. The first Ministerial Conference on the Protection of Forests in Europe was held in Strasbourg 1990, and the second in Helsinki in 1993. The third Ministerial Conference will take place on 2-4 June 1998 in Lisbon. The Pan-European process follows up and prepares the ministerial conferences, involving nearly 40 signatory states and the European Community that collaborate for the enhancement of sustainable forest management in Europe. The process involves also a number of non-European countries and international governmental and non-governmental organisations as observers.

Definition for sustainable forest management (SFM) as laid down in Resolution H1 of the Helsinki Ministerial Conference is assumed to be the overall goal for sustainable forestry development in the Baltic Sea Region by the year 2030:

> *"SFM means the 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 ecosystems."*

In the follow-up process of the Helsinki Ministerial Conference, special emphasis has been given to the further definition of the essential elements of sustainable forest management and to the elaboration of an instrument for evaluating progress towards it. For this purpose the pan-European criteria and indicators for sustainable forest management were developed in 1994.

Among the recent developments, the signatory states of the Helsinki resolutions have adopted (February 1998) a common framework of recommendations "Pan-European Operational Level Guidelines for Sustainable Forest

Management" for voluntary use to further promote sustainability in forestry at the field level in practice.

The international commitments are described more in detail in the homepage of the Baltic 21 on Forests (Sector report... 1998). Information about the Pan-European process can be found from a homepage maintained by the Ministry of Agriculture and Forestry of Finland (Ministerial conferences... 1998).

2.2 National activities

Efforts promoting sustainable forest management in the BSR cover a wide range of political issues, from updated forest-related legislation down to operational level. Most governments in the BSR have recently undertaken a revision of forest-related legislation or are in a process of doing so. Several important aspects of sustainable forest management are covered by national and/or regional laws and regulations and are already being regularly monitored throughout the region. In many countries, national forestry plans or programmes have been or are going to be prepared, and new forest policies are formulated. Also informational, descriptive means including various voluntary codes of practices such as guidelines, instructions, recommendations and/or standards for forest management emphasising environmental and socio-economic aspects have recently been revised or elaborated to better correspond to the modern concept and values of "sustainable forest management".

3 Forestry in the Baltic Sea Region

The Baltic Sea Region (BSR) is defined as the nations wholly or partly belonging to the Baltic Sea watershed. In this process, the BSR included Poland, Lithuania, Latvia, Estonia, part of Russian Federation, Finland, Sweden, Denmark and Germany. Because of the CBSS (the Council of Baltic Sea States) membership also Norway and Iceland participated (An Agenda... 1998).

Forests play a significant role as a vast renewable natural resource in the BSR. Forest sector is of a big importance for the national economies in all the member countries of the Baltic 21 providing different kinds of ecological, economic, social and cultural functions. Timber production is the base for forest industries, which in some of the BSR countries produce main part of export and are very important actors in the general economic development. In addition to timber production, forests provide many non-wood products and services. Fur-

thermore, forests are of vital importance as vast biodiversity reserves and as recreation areas contributing thus also to the health and well-being of people.

Forest areas of the Baltic Sea drainage basin are not only geographically interlinked but are also becoming an integrated zone for environmentally sound forest industry development. This is a major precondition for long-term sustainable management. Therefore, the forest sector considerably contributes to the general goal of striving towards a comprehensive sustainable development of the BSR.

The climatic conditions in the BSR are diverse and vary from country to country. Boreal forests cover large tracts of land in Estonia, Finland, Latvia, Lithuania, Norway, Russia and Sweden, whereas Denmark, Germany and Poland belong to the zone of temperate forests. Compared with other parts of Europe, the BSR has a high proportion of forested land. Generally, forest cover of the region shows a strong north-south gradient; from about 10 % in Denmark to 70 % in Finland. With the prospects of continuing agricultural surpluses, the extent of forests in the BSR is increasing. However, only isolated fragments are natural forests since forests in the region have been influenced by human settlement and action over centuries. In some of the countries planted forests constitute a major part of the resource.

National economic situation differs from countries with economies in transition (Estonia, Latvia, Lithuania, Poland and Russia) to countries with open market economies. In the northern part of the region, forests constitute a major renewable natural resource of great economic value. Towards southern part, the economic value of forests becomes less important.

The management of forests in the region has a long and diverse history, which has resulted in significant differences in management approaches between the countries.

3.1 Specific features of forest sector in transition countries

The former traditional planning system was based primarily on sustainable productivity and had to ensure proper regeneration and reforestation of felled forest sites. Nevertheless, specific features of forestry during the Soviet times in some cases favoured more diverse conditions at the forest site and helped to maintain biodiversity. Low forest harvesting intensity in the Baltic Sea drainage

area was also advantageous from the biodiversity point of view. Forests in some parts of the region have for several decades been left in an almost untouched state and now contain old-growth forests, wet forests and other valuable habitat types. Very rich in biodiversity, these forests are still in many respects unique not only in the Baltic context but also in a wider European perspective. Their conservation and sustainable management is an issue of international concern and can serve as a field laboratory while restoring valuable habitats in western Europe.

There was almost no economic interest to increase the exploitation of forests in the region during the Soviet times. Welfare and income of individuals could not gain much from private initiatives. Private forestry did not exist. Large-scale forestry planning was the basis for the use of forest resources. Financial stability ensured development of research. Fields of responsibility were strictly shared between related institutions and organisations, and in most cases overlapping was avoided.

Many things have changed in the transition countries over the last decade. Markets have been opened for private timber companies. The number of private, and often small, forest holdings is rapidly increasing, due to the ongoing intensive restitution of property rights and privatisation activities. Control of forestry activities in some parts of the region is not always sufficient and effective. Furthermore, there is an increasing demand to intensify forestry in order to improve local and national economies.

3.2 Specific features of forest sectors in the Nordic countries and Germany

Land use for agriculture and forestry in western Europe and Scandinavia can be dated back for centuries. Up to 1960s, forestry was very labour intensive and together with forest industries provided employment for many people in rural areas. Especially during the last 100 years, silviculture has been very intensive, which has resulted in an increasing growing stock but to a great extent also in uniform forests with single tree species and with reduced biodiversity. As a consequence, a number of specialised species of the flora and fauna have disappeared and some species are endangered. However, forestry practice and forestry research, especially in the second half of this century, have considerably improved understanding of forest ecosystems and natural processes. In many parts of the region, closer-to-nature working techniques have been developed and a wealth of knowledge and experience exists. Also concern about and ac-

tivities towards biodiversity conservation have considerably increased during the last decade.

Forest management in the Nordic countries and Germany is characterised by a large proportion of private small-scale and often farm-related ownership. Forest management takes place within clearly established ownership and rights, and with a long history of national/regional laws and regulations which are based on long-term planning.

4 Promoting sustainability of forestry in the Baltic Sea region

4.1 Current situation of sustainable forest management

In the national Baltic 21 forestry reports, the countries describe the current stage in the development towards sustainability in their forestry sector (Country reports... 1998). In all involved countries, forest-related legislation has been amended in the 1990s to fulfil the requirements for sustainable forest management. In all countries the leading principle of forest management is sustainability at ecological, economic, social and cultural levels. In general, a political process to enhance sustainable forest management has been adopted by all countries.

Forest ownership structures in the BSR countries differ from each other. Assistance and guidance for appropriate forest management and extension for private forest owners are well organised and have long traditions in the Nordic countries and Germany where private forest owners are numerous, and the ownership structure is well established. Private forest owners' associations have been actively involved in the forest-related discussion for a long time. Today this is a trend also in the transition countries, where forest ownership structure is changing rapidly. There is a need for services addressed to private forest owners.

Strictly protected forest areas exist in all countries, covering 2.8 - 11 % of the national forest land area. Additionally, on some 10 - 20 % of the total forest area, forestry operations are restricted either for conservational, recreational or protective reasons. Identification of special key biotopes is carried out in many BSR countries. Afforestation of suitable abandoned farmlands is considered as a very important task going on in some countries, in others, however, very little activity exists in that field. Deposition of nitrogen and sulphur is a real threat to

forest health and vitality as well as biological diversity in the whole Baltic Sea drainage basin. Negative effects have already appeared in the southern part of the area.

All the countries have adopted the six pan-European criteria for sustainable forest management developed within the Helsinki process (Ministerial conferences...1998). Some of the countries have also introduced a set of national indicators. One of the main objectives of the national indicator work should be to develop a suitable way of organising data and to create an extensive documentation system, where different international obligations, national policy objectives, regulatory means, existing systems for resource mapping and result assessment among others are integrated. Some difficulties were found while using indicators, especially because they may be considered as a free source of information, while in reality forest-related data is often quite expensive to find out. Work on transforming them to management unit level is going on in some countries.

Discussion on the need and importance of forest management certification and labelling of forest products is going on in many countries. Approaches to certification range widely between the countries and interest groups. Solutions for forest management certification include national standards as well as national non-governmental FSC (Forest Stewardship Council) standards. Certification of some regions based on general FSC principles and criteria has already taken place. Approaches that comply and could be combined with the International Stadardization Organisation (ISO) standards and/or with the EU Eco-Management and Auditing Scheme (EMAS) have also been developed in some of the countries. Furthermore, in some countries marks of origin instead of certification are being developed. Some countries have so far had no chance to initiate the process on the national scale, but may start it in near future. A brief description of the current situation in forest management certification in the Baltic 21 member countries can be found in the Sector Report on Forests (Sector report... 1998).

During the last few years an interest in renewable energy sources has been growing. Various kinds of programmes, including research and funding, to promote the use of bioenergy have been established in many BSR countries. Wood-based energy mainly comes from forests as felling residues or from timber-processing industry as industrial waste. None of the countries have reported on a short-rotation energy crop cultivation. A general trend in the region is to increase the

use of wood for energy, and to improve methods of environmentally sound utilisation. Especially in rural areas, the use of fuelwood still contributes to the household energy consumption in all the countries.

4.2 Baltic 21 on Forests Action Programme

The Baltic 21 on Forests Action Programme contains a list of options for actions to be implemented at various levels and by various actors. The options for action strive for further sustainable forestry development through regional co-operation between the countries at various levels (governmental, regional authorities, advisory and extension organisations, scientific community, forest owners and managers, non-governmental environmental organisations and other interest groups).

The following key areas of interest were identified as a framework for the development of the Action Programme. They indicate the areas where most gaps and problems of the sustainable forest development were found.

1. Legal and policy frameworks, and the voluntary means that support sustainable forest management
2. Institutional frameworks
3. Education, extension and training
4. Criteria and indicators for sustainable forest management
5. Environmental aspects of sustainable forest management
    - 5.1 Maintenance and enhancement of biological diversity in sustainable forest management
    - 5.2 Forest conservation areas
    - 5.3 Water quality in forests
    - 5.4 Prevention of damages to forests (pollution and other)
    - 5.5 Forest management and landscape planning
6. Research
7. Forest and environment inventories and statistics
8. Use of wood-based energy
9. Socio-economic and cultural issues
10. Sustainably produced wood and forest products, and sustainable consumption patterns.

Under each key area, the current situation is described, challenges for the future identified and some options for action are proposed.

Six of the options for actions have been identified as priorities for the regional cooperation within Baltic 21. Their implementation has been elaborated further and these priority actions were proposed to be included in the final Baltic Agenda 21 report. They are:

1. Promotion of sustainable forest management and efficiency in private forestry within the BSR through

   a. Establishment of organisational structures or networks of forest owners and other leading forest parties.
   b. Exchange of information on ways and means of advisory services between organisations and authorities that advise forest owners and managers.

2. A gap analysis on forest conservation areas in the BSR should be conducted. It should include, inter alia, amounts and legal status of conservation areas in countries, classifications used in countries (with particular emphasis on applied forest management practices) and an analysis whether and how national classification systems correspond to the existing international terminology and classification systems.

3. Establishment of demonstration areas to illustrate ways and means of forest management practices and planning to promote sustainable forest management.

4. Establishment of a regional group for the exchange of experiences and technological know-how on and promotion of the use of wood-based energy.

5. Promotion of the use of wood, and wood-based products, as natural renewable resource and environmentally friendly material, and changing of consumption patterns to a more sustainable direction.

6. Exchange of information and national experiences on criteria and indicators for sustainable forest management.

6 The target situation in 2030

The target situation of sustainable forestry in the BSR in 2030 may be depicted as follows:

- All international conventions and agreements related to forestry and forest environment that are relevant to the BSR are ratified and implemented without delay in the member countries.
- Collaboration between forestry organisations, environmental and regional planning authorities, private forest owners organisations has been stepped up, as well as dialogue between different interest groups including NGOs and local people.
- Transfer of sustainable forest management know-how in many levels and between various interest groups including forest owners, workers and forestry and environmental organisations has been increased and well structured.
- National criteria and indicators are developed and used in the national policy making, reporting and in the context of national forestry plans and programmes.
- All the participating countries implement international and national agreements to promote forest biodiversity. All levels of biodiversity are adequately covered in forest and related legislation.
- Forestry in practice promotes the conservation of biodiversity and implementation of environmental objectives.
- The network of different types of forest conservation areas corresponds to the domestic and international conservation objectives.
- Forest health, vitality and growth potential are ensured through strengthened sustainable management measures, including satisfactory forest regeneration, and through reduction of air pollution.
- Research cooperation and share of results in the fields of forest ecology, multiple-use of forests and forest management practices is very active and provides a firm basis for sound sustainable forest management decisions.
- Nature conservation and forest research produce versatile and comprehensive information on forest biology, forest biodiversity and its development, and on the impact of forestry measures.
- The use of sustainably produced wood, especially in the energy sector, is significantly increased in each country and in the BSR as a whole.
- Sound economic environment for private forestry, in particular small-scale and farm-related forestry does exist.

- Local communities have improved opportunities to involve and influence the setting of objectives for forest management within their region.
- Non-timber values have been significantly emphasised in management decisions.
- The use of wood resources is based on sustainability and ecological principles in each country and in the BSR as a whole.

Based on the above targets, a number of gaps between today's situation and the future vision were pointed out:

- Even though in most countries of the region forest legislation and policy have recently been revised, legal and policy frameworks, as well as forest management practices still need to be improved in some parts of the region. Furthermore, control in logging operations needs strengthening in some countries.
- Institutional frameworks have to be improved in order to ensure appropriate flow of information and cooperation between different target groups and, in particular, between environment and forestry administrations.
- Because of the fragmented and small private ownership structures that are becoming dominant also in the transition countries there is a need to continuous and updated extension and training of foresters, forest workers and owners. Awareness building of the broad public on issues concerning the role of forests and forestry through educational programmes and public relations activities as well as improving the dialogue between different interest groups is also a challenge.
- Criteria and indicators for sustainable forest management as a forest policy tool are not used in their full capacity. They should be further developed and integrated into national and/or sub-national policies.
- There is a need for more information on biodiversity conservation and effects of forest management and other factors on forest biodiversity.
- Possible gaps in protection of forests should be urgently examined.
- Research experience between the BSR countries should be more actively shared, since the barriers for cooperation of scientists have disappeared due to the recent political changes in the region.
- There is a need to further develop comparable and compatible forest information and statistics to respond to the increasing need for information on resources, policy, industrial and market developments.
- There is a lack of proper incentives to increase the use of domestic renewable energy sources, and thus, to promote the use of wood energy.

- Socio-economic issues that cover, for example, rural development, sound economic basis for forest owners, non-wood products, employment, cultural and spiritual issues, development of recreational and ecotourism services, and safe working conditions need to be further emphasised in future forest policies and practices.
- Means and ways should be developed to promote the consumption of sustainably produced wood, at the same time trying to change consumption patterns into a more sustainable direction.
- Experience on certification issues should be shared between countries. Necessity, ways and means to implement certification should be analysed in each BSR country.

Successful sustainable forest development in the Baltic Sea Region until the year 2030 could be reached with implementation of the whole range of measures that could fill the existing gaps.

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The Finnish Forest Research Institute, Research Papers 704: 61-67.

Environmental ethics: implications for forest management

Christian Gamborg

Abstract

The paper gives a brief introduction to ethical problems and challenges in a forestry context. Nordic countries have a tradition of multiple-use forestry which is characterised by multiple stakeholders. Every stakeholder, including forest managers and forest owners have their own set of values and views on nature influencing the forest management and planning. An analysis of the values and set of beliefs behind different forest management schemes may help to suggest how different forest-related actions influence stakeholders. Two examples, pesticide use and preservation of biodiversity in forestry, are used to illustrate ethical dilemmas, and utilitarianism is given as an example of an ethical school of thought. The ethical focus is to resolve how appropriate attention can be given to all stakeholders as part of attaining social sustainability of forestry.

Keywords: forest management, values, environmental ethics, social sustainability, Denmark.

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1 Introduction

The utilisation of forests is slowly, but constantly changing as a consequence of different demands from society, for example demand for products and services like timber, firewood, recreation, preservation of biodiversity and carbon sequestration. Changes in the demands for forest functionality result in changes in the choice of silvicultural systems and forest management and planning procedures. New demands are constantly added, and forecasting tomorrow's societal demands may prove difficult for the forest industry.

Acceptance or rejection of forest management schemes seem to rest not only on the technical and economic feasibility but also to an increasing extent on the ethical attitudes of the public. The ethical dimension may loosely be described as accordance of society's values and views on nature intervention with current and future forest management practices.

2 Defining environmental ethics

Ethics is the part of philosophy concerned with the way we live, the way we act, and moreover the way we *ought* to live and act as morally responsible beings. Fundamental categories in ethical thinking are: rights, fairness, justice and utility. Ethical theories are implicitly embedded in common ways of thinking and reasoning.

Applied ethics is concerned with the relationship between fundamental ethical beliefs and specific problems concerning human behaviour not only towards other humans but also towards animals, plants, forest ecosystems, i.e. nature as such.

Generally speaking, *environmental ethics* is a systematic account of the moral relations between human beings and the natural environment (Des Jardin 1997). The underlying assumption in environmental ethics is that moral norms govern human behaviour toward the natural world (ibid.).

Several schools of thought in ethics exist. One of the major and most influential ethical traditions is *utilitarianism* dating back to the writings of Jeremy Bentham (1748-1832) and John Stuart Mill (1806-1873) in the nineteenth century. Utilitarianism in ultra brief is concerned with maximising the overall good. An act is the better the more people it helps. The ethical status of any act depends, ac-

cording to utilitarianism, on its consequences whereas right or wrong depends on the context. Des Jardin (1997) calls utilitarianism the unofficial theory of public policy in much of North America and Western Europe.

The spectre of ethics ranges from the *anthropocentric* to the non-anthropocentric view. The anthropocentric ethics holds that only human beings have moral value. Many environmental conflicts, for example connected to the dumping of toxic waste in the sea, have arisen from the anthropocentric perspective. An extension of this view is to include future generations, i.e. we have moral obligations to our children, grand children etc. regarding, for example, the state of the earth. This belief system can be seen in the context of sustainability, where general development and specific actions not only need to meet the demands of the present generation but have to do this without seriously reducing future generations' possibilities to meet their demands.

A step further away from the anthropocentric ethics is the *non-anthropocentric* ethics which grants moral standing to non-humans, i.e. to natural objects such as animals and plants, thus recognising intrinsic values of natural objects. This ethic is often connected with the Deep Ecology.

3 Forestry

Forestry is a human enterprise utilising forest ecosystems as a basis for providing several goods and services to society at large. The goods include a variety of natural objects: trees, berries, mushrooms, deer etc. and processes related to these natural objects: unpolluted ground water, shade, erosion control, carbon sequestration etc.

3.1 Forestry paradigms

Forestry may be characterised according to four major management paradigms: custodian use, sustained yield, multiple use, and ecosystem management (Sedjo 1996). The focus or the objective of forestry changes over time.

The custodian use and the sustained yield focus on the utilisation of forests for the benefit of man, primarily managing forests for wood production and timber sale, but also including conservation efforts, to make it serve the greatest good of the greatest number of people for the longest time. These views were pre-

dominant in the nineteenth and early twentieth centuries, fitting with the utilitarian tradition.

After the Second World War, multiple-use forestry became the leading paradigm especially in North America and Western Europe, and still is. The focus was broadened to include the provision of numerous other goods and services besides wood, and at the same time preserving the natural environment with an emphasis on wildlife to a greater extent than it was the case under the custodian or sustained yield paradigms.

The ecosystem management paradigm came into vogue in the early 1990s. It is difficult to give a precise and exhaustive definition of the concept (More 1996), but it can be seen as a response to public demands for forestry practices that are more aesthetically acceptable, more sensitive to actual multiple-use values, and more benign in environmental effects (Thomas 1997). This possible paradigm shift might represent a shift in management and conservation ethics (Czech, 1995).

4 Ethics and forestry

The ethical dimension of forestry is concerned with implications of the management actions taken in forestry for the different stakeholders, including the forest owners' and forest industry's vested interests. Two examples from Danish forestry illustrate the relation between ethics and forestry.

4.1 Danish forestry

The Danish forest area is approximately 10 % of the total land area. The aim is however to double the forest area within a forest generation, i.e. 80-100 years. The contribution of the Danish forest industry to the Gross Domestic Product (GDP) is less than 0.1 %. Roughly 4 500 people are occupied in the primary forest industry (Statistics Denmark 1996).

Hence, forestry is a very modest contributor to the national economy. However, forests play a significant role, for example as landscape element, as a part of the environmental protection, and as a means for recreation.

The Danish Forest Act from 1989, amended in 1996, states that forests besides increasing and improving wood production should be managed to protect land-

scape amenity, nature conservation, cultural heritage and environmental protection interests, as well as recreational activity interests (Miljøministeriet 1989, Miljø- og Energiministeriet 1996).

Danish forests are quite intensively managed with planting of exotic tree species as the predominant establishment method. Thinnings are frequent, and the clearcut system is prevailing. About 45 % of the forest land is privately owned, 23 % is owned by institutions and foundations, and 32 % is publicly owned.

4.1.1 Use of pesticides

The use of pesticides, for example herbicides, in Danish forestry is very limited compared with agriculture. An example of usage is weeding in the young stands, where pesticides are used for a couple of years out of a 50-120 year rotation period. Another example is the production of greenery and Christmas trees including application of pesticides especially during stand establishment period.

In what way should use of pesticides in connection with forest operations be evaluated? In the utilitarian perspective, the answer should be based on the effects of the action. Thus, does the use of pesticide increase the economic turn-over, decrease the loss of planted trees, have possible detrimental effect on wildlife or ground water if overused, or have consequences for the flexibility of future generations in terms of lowered resistance of the plants to different pests?

4.1.2 Preserving red-list species

By the beginning of the nineteenth century, the Danish forest area was less than 2 % of the total land area. The majority of the present forest land in Denmark was afforestated in the late nineteenth and early twentieth centuries. Less than 10 % of the forest area is considered natural forest, i.e. self grown forest composed of indigenous trees and shrubs. One percent of the forest area is to be set aside as untouched forests by the year 2000.

Since 1850, approximately 350 species of plants (e.g. lichens and vascular plants) and animals (e.g. insects, birds, fish) are considered to have become extinct in the Danish nature (Tal om Natur... 1994). The number of species demanding protection is by far the largest in forests, approximately 1 300 corresponding to 45 % of the total number of species demanding protection (ibid.).

Intensive forest management, including drainage, relatively short rotations, usage of exotic tree species, and homogenous forest structures, has lead to loss of habitats and loss of biodiversity (Christensen & Emborg 1996).

The question is whether Denmark has a moral obligation to preserve these species through "good" forest management (including non-intervention) for the benefit of society as such, global biodiversity, for future generations, or for the plants and animals themselves.

4.1.3 Ethical considerations

The right or wrong doing in these cases depends not only on the consequences in the chosen utilitarian perspective, but also on the context, and whether future generations and natural objects like plants or wildlife are granted moral standing. Inclusion of, for example, wildlife as a stakeholder or affected third party with moral standing depends on the choice of ethics. That is, whether it is an anthropocentric or non-anthropocentric approach. It is not the idea to develop the argument in this paper, but to illustrate the use of ethical thinking and analysis in relation to forest management.

5 Social sustainability

The examples illustrate briefly two aspects of current public interest in forest management and nature preservation. The social sustainability of forestry relies to a great extent on forest managers and forest industry keeping in tune with the public demand, hopefully preventing a polarisation between forestry and the public, as seen, for example, in the Pacific Northwest.

Every stakeholder, including forest managers and forest owners have their own set of values and views on nature influencing the forest management and planning. An analysis of the values and sets of beliefs behind different forest management schemes may help suggest how different forest-related actions influence the stakeholders.

Ethical skills are especially important in the long-term natural resource management of the land. Ethical considerations might prove useful in increasing the social sustainability of forestry. The current challenge is explicitly to integrate ethical considerations in forest management.

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Urban forests and forestry: a framework for a European comparative study

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Abstract

The importance of urban green areas (including forests) for multiple purposes in an urbanising society is increasing. This growing importance as well as a range of threats to urban green ask for an integrated approach to planning and management. The first comparative study of urban forestry in Europe is introduced in the article. The research project focuses on aspects of urban forest policy-making, and studies the forest element of urban green. For this purpose, the concepts of urban forests and urban forestry being different from forests and forestry at large have been developed and tested using both historical and contemporary data. Urban forests and forestry can be distinguished based upon certain criteria, which are location, structure and ownership, facilities, actors in the policy process, problems and issues, policy instruments used, dynamics of policy processes, urban forest use, and conflicts. Support for the concepts have been derived from case studies focusing on 16 European cities. From the study, the need for specific theories and practices for urban forestry emerges.

Keywords: urban forestry, definitions, conceptual framework, comparative research, policy analysis, Europe.

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1 Introduction

Human society is becoming increasingly urban; by the year 2000, over half of the world's population will live in cities (Netherlands Committee for IUCN 1994) for the first time in history. Urbanisation in Europe has already gone further. According to data from the World Resources Institute (1996), the population living in urban areas accounted for 89 % in the Netherlands, 87 % in Germany, and 85 % in Denmark. Even in Finland, the figure is as high as 63 %. In this context, the growing importance of urban forests and other green areas for recreation and other purposes is obvious.

More existing forests and green are incorporated into urban areas, especially by processes of urbanisation. Though urban green areas often fall victim to, for instance, urban development, new forests and green areas are established in and near urban centres. Urban green areas offer settings for recreation nearby for urban people, reduce erosion, wind as well as pollution, and conserve or enhance biodiversity. The forest elements play an important role in this. Several countries especially in eastern Europe mention urban forest ecosystems in their forest acts as special category of forests to be protected. Other countries, such as Denmark, the United Kingdom, and the Netherlands, have national afforestation policies, with particular emphasis on plantations in and near urban areas (Konijnendijk in prep.).

Though the net area of urban green and forests may expand, threats also increase. These result from a range of urban pressures and a high societal demand. Major threats to urban green include population pressure and urban development, traffic and noise, urban growing conditions, vandalism, and conflicts between values and interests (Nilsson and Randrup 1997). Konijnendijk (1995, 1997) in addition mentions, for instance, an increased and changing societal demand (leading to 'functional ageing' of green), physical ageing (high proportion of old trees), a lack of communication in a time of democratisation and a demand for participation, safety concerns, budget cuts, and growing environmental awareness.

This above described situation has asked for new, integrated approaches to urban green planning and management. As one approach, the discipline of urban forestry has gained ground over the past decades. It has its roots in North America, where it has been applied as a holistic, integrated approach to plan-

ning and management of the entire urban green structure, ranging from street trees to periurban woodlands (see later). North American urban forestry places emphasis on 'people and trees' (Miller 1996). Europe did not have a real urban forestry research tradition before the 1980s (Johnston 1997). Forestry and green-space management were often seen as separated fields - even at local level - and forestry science did not pay too much specific attention to forests and forest management in and near urban areas. However, recently the situation has changed. Through the establishment of a number of urban forestry research networks and groups - such as COST-Action E12 'Urban forests and trees' in 1997 (Nilsson and Randrup 1997) - urban forestry has been placed on Europe's scientific and forestry agenda.

Though the 'North American' approach to urban forestry is most widely applied, a somewhat different tradition and culture exists in large parts of Europe, especially in respect to the role of forests within urban green (Konijnendijk in prep.). In this paper, a more 'European approach' to urban forestry will be dealt with, as it constitutes the basis for a comparative study of urban forest policy-making in selected cities and countries of Europe. First, the study and its methodology will be introduced. Then the segment of the conceptual framework in which the concepts of urban forests and forestry are elaborated is dealt with.

2 Introducing a study of urban forestry in Europe

A lack of comparative urban forestry studies at the European level led to the European Forest Institute (EFI) to initiate the study 'Urban forestry: overview and analysis of European forest policies' in 1995. EFI is an independent research institute undertaking comparative research with 'additional value' at European level. Urban forestry was seen as a new and challenging field, in a time of rapidly changing societal expectations and interference regarding forestry. Partners for the three-year project were found in the Netherlands' Ministry of Agriculture, Nature Management and Fisheries, the Wageningen Agricultural University and - since 1997 - the University of Joensuu.

Rather than on urban green at large, the study focuses on forest ecosystems in and near urban centres or 'town forests'. The 'why' of this choice will be elaborated in section 4; it has to do with the particular European tradition and history of urban green and the special role of forests as a part of it.

Furthermore, the policy-making aspect of urban forestry is the main topic of the analysis. Among the subjects studied are policy processes related to urban forest ecosystems and their outcome and consequences, policy actors and their interaction, and conflicts of interests and values. Urban forest policy-making can be defined as the decision-making process for urban forests in terms of formulation and selection of objectives, instruments and time paths (based upon van Maaren 1984, Ellefson 1992).

The main objective of the research project is to provide an indicative, comparative insight into urban forest policy-making in Europe. Providing more information the various policy objectives and instruments used as well as on their consequences can assist when developing urban forest policies for a specific urban area, region or country. Insight into the policy-making process and the problems and conflicts that arise between groups of stakeholders during this process, as well as the ways in which these problems and conflicts are dealt with in various European cities and countries, is believed to help policy-makers to anticipate similar situations in the future.

Apart from the above mentioned 'societal' objectives, the following scientific objectives for the study have been formulated:

1. To develop a concept of urban forestry, focusing on the main differences with forestry at large; and to demonstrate the relevance of such a distinction.

2. To give an overview and analysis of differences and similarities - and their underlying factors - in the development and importance of urban forests in selected European cities and countries.

3. To provide insight into urban forest policies and the way in which they are formulated, decided upon and implemented in selected European countries, especially locally, and at regional and national level.

The study consists of different, subsequent steps. First of all, a conceptual framework is developed, and a historical overview and analysis are provided. Then an overview and analysis of the state-of-the-art of urban forest policy-making in Europe is given. In the third stage, development needs in urban forestry are the main focus. Finally, all results are summarised and combined.

The study of contemporary urban forest policy-making in Europe can be regarded to be the core of the research project. In order to provide a tentative overview and analysis, 16 European cities in 9 countries were selected for case studies (Table 1). These are distributed over 4 regions covering the entire continent in order to take regional biophysical, cultural, socio-economic and political differences into account (Konijnendijk in prep.).

Table 1. Overview of the selected countries and cities included in the study of urban forestry in Europe. Included is the number of inhabitants of the cities (for literature see Konijnendijk in prep.).

Country	Selected cities	Inhabitants
Finland	Helsinki	501,518
	Joensuu	51,000
Denmark	Copenhagen	464,566
	Odense	141,000
Netherlands	Amsterdam	715,063
	Arnhem	135,044
Germany	Berlin	3,500,000
	Freiburg	196,600
Austria	Vienna	1,539,848
Poland	Warsaw	2,300,000
	Gdansk	914,000
Czech Republic	Prague	1,200,000
	Brno	390,000
Russia	St. Petersburg	> 5 000 000
Italy	Rome	2,900,000
	Padua	214,614

3 Methodology: a qualitative approach

The research methodology followed in the study can be characterised as a qualitative approach (e.g. Wester 1995), both in data collection and analysis. It is believed that qualitative research might be most suitable for analysing a specific social situation, characterised by individuals and groups that interact. Along this line, Krott (1986) emphasises that qualitative research might be the best way to describe and analyse very specific or particular aspects of administrative behaviour. Urban forest policy-making can be seen as such a situation. Different actors are involved in the process of developing and implementing policies for

urban forests. This process is characterised first of all by the perceptions, objectives - and underlying values and norms - and actions of actors, and secondly by interactions between different actors in or in relation to the policy-making process. They are part of a *policy network* of actors and/or a *policy system* which can be distinguished from its surroundings.

While the term policy network refers more to interacting actors, policy system is a broader concept, including for example different stages of the policy process (Van den Heuvel 1994, Konijnendijk in prep.). The systems approach is one of the theories on which the analyses in the study are based upon. Others are the concept of rational-comprehensive decision making with policy actors taking rational decisions in a - more or less - structured and organised way (see for instance Ellefson 1992), and that of symbolic interactionism. The latter is a methodical and theoretic perspective for research of the natural social world of interacting individuals (Blumer 1969, cited by Wester 1995). Central themes are the individuals' interpretations and naming of their situation, as well as the interaction between the individuals studied. By studying both, a social situation can be described and analysed.

Qualitative study can be characterised as a continuing process of data collection, reflection and analysis. A conceptual framework has been developed and refined during the study. Theories are developed in an inductive manner, and tested and refined during the (joint) process of data collection and analysis. Throughout the process, so-called sensitising concepts become central elements and theories (Wester 1995).

The conceptual framework of the study of urban forestry in Europe consists of two main elements: a rational-comprehensive systems perspective of policy-making, and the concepts of urban forests and urban forestry. These two elements are interdependent; the concepts of urban forests and urban forestry with their criteria and indicators have largely been derived from the policy perspective. When developing the concepts, the central hypothesis has been that urban forestry differ from forests and forestry at large in a structural way.

The main research methods applied during the study - and therefore also relevant for the development and refining of the conceptual framework - are literature study and case studies in 16 European cities. The case-studies - carried out in 1996 and 1997 - consisted of field trips, literature study and focused, semi-structured interviews with 113 main policy actors representing urban for-

est policy-makers and managers, interest groups, and scientists and experts (Konijnendijk in prep.).

4 Concepts of urban forests and urban forestry

As discussed, the two main elements of the tentative theoretical framework are a theoretical representation of urban forest policy-making and the concepts of urban forests and forestry as being different from those at large. The concepts will be the subject of this section.

Other concepts of urban forests and urban forestry

As an exponent of the North-American approach, Miller (1996) defines urban forest as *"the sum of all woody and associated vegetation in and around dense human settlements, ranging from small communities in rural settings to metropolitan regions."* Consequently, urban forests include vegetation ranging from individual street trees to periurban forest ecosystems. Jorgensen (1970, cited by Madas 1984) follows the same main idea when defining urban forestry as *"a specialized branch of forestry [which] has, as its objective, the cultivation and management of trees and forests for their present and potential contributions to the psychological, sociological and economic well-being of urban society. These contributions include the overall ameliorating effect of trees on their environment as well as their recreational and general amenity value."* Other American authors (Grey and Deneke 1978, Bradley 1995) follow the same line when it comes to defining urban forests and forestry. The coordinators of the European urban forestry research network COST-E12 'Urban forests and trees' illustrate that the above mentioned approach has also become popular in Europe by stating that urban forestry is regarded to be the planning, design and management of trees and forest stands with amenity values, situated in or near urban areas (Nilsson and Randrup 1997).

However, the term 'urban forests' refers to a somewhat different approach in large parts of (continental) Europe. For instance in the Netherlands, Germany, Eastern Europe, and also in parts of Scandinavia, the focus has been more on forest ecosystems. The term 'urban forest' often has quite a long tradition as referring to forest ecosystems near and especially in towns and cities. Reference can be made to the terms 'Stadtwald' (German), 'stadsbos' or 'urbaan bos' (Dutch), 'forêt urbaine' (French), 'kaupunkimetsä' (Finnish) and 'bynaere skov' (Danish), among others. The history of town forests in Europe is long

and lively, and many cities have their 'own' forests with which they have established an intensive relationship (Konijnendijk 1997). Examples are the Grunewald in Berlin, Jaegersborg near Copenhagen and Castelfusano near Rome.

Independent from distinguishing between forest ecosystems or green areas at large, a central theme of urban forestry is the definition of 'urban'. Webster's International Dictionary (as cited by Bowman 1992) defines urban as 'of, relating to, characteristic of, or constituting a city'. History does show that urban forests are characterised by a close relationship between certain city and forest. Often the local population and government have been very much concerned with these forests and their use, and have tried to extend their influence on the use and protection of the forests (Konijnendijk 1997).

Lok and Mars (1989) describe that one can speak of urban forestry on a certain scale, when at least half of the decisions regarding the use of a certain forest or plantation are made according to the wishes of the population in the urban areas. Konijnendijk and Vlasman (1993) add that in the case of a true urban forest, the use of that forest is dominated by the population from one certain city.

The concepts of urban forests and forestry as applied in this study

When urban forestry is most commonly defined as planning and managing of urban greenspace as a whole, why does the EFI study focus on forest ecosystems? Some ground for this has already been provided. The main reasons for following a 'narrower' approach have been:

- The special and central role of forests within the development of Europe's urban green areas. Urban forests have played crucial roles in providing prestige and hunting grounds to nobility and rulers, recreation opportunities for urbanites, and so forth.

- The earlier discussed - historical - connection between the term 'urban forest' and actual forest ecosystems in many European countries.

- The hypothesis that it is worth demonstrating that forestry in or near urban areas structurally differs from forestry at large, thus requiring different theories and practises.

Support for the latter, i.e. urban forestry being different from forestry at large, can not only be derived from the historical study provided by Konijnendijk (1997). Smith (1984), for example, mentions the following differences between urban forestry and other forms of forestry: in urban forestry there are more people with a greater variety of demands, more harmful effects on the ecosystem, and less forestry knowledge than is the case in rural areas to which forestry is often relegated.

For the purpose of directing data collection and analysis, a working definition as well as a list of urban forest and forestry characteristics (criteria) was developed in the first research stage. The concepts were first elaborated with the help of the historical analysis of urban forestry in Europe. During the second research stage, in which contemporary urban forest policy-making in selected cities and countries in Europe was studied, the concepts were tested and refined, in the tradition of qualitative research. A list of criteria and indicators has been developed (see Table 2). Central theme when developing the set of criteria and indicators has been the comparison with forests and forestry at large, i.e. what makes a forest urban or what is special about managing an urban forest?

Before mentioning the criteria and indicators, we can say that 'urban' seems rather clear in the context of this study, as only larger agglomerations (all with at least over 50 000 inhabitants) have been subject of investigation (Konijnendijk in prep.). The criteria and indicators given in Table 2 will now be dealt with more extensively. For literature, see Konijnendijk (in prep.).

1. Location

Urban forests are situated in or near an urban centre. For the study, a maximum range of 50 km from the city limits was used, and most forests with a clearly 'urban' character proved to be within this radius. Few exceptions to this rule were found. For instance, the 'water protection forests' ('Quellschutzwälder') of Vienna are owned and managed by the city of Vienna, for the main purpose of protecting potable water resources for the city, even though these forests are over 100 kilometres away from the city. Fontainebleau is situated over 60 kilometres from Paris, but it has a clear and historical relationship with the city; its use is dominated by the inhabitants of the French capital.

Table 2. Criteria and indicators for distinguishing urban forests and forestry from other types of forests and forestry.

Criteria	Indicators
Location	• In or near an urban centre, with which the forest has a clear relation; most urban forests are situated within 50 kilometres of the city centre.
Structure and ownership	Forest structure differs from forests at large in terms of: • Fragmentation: more fragmented, smaller and more isolated areas. • Species and age composition: different species composition, more exotic trees, unbalanced age composition with more very young and very old stands. • Ownership: different from forestry at large, especially because of higher proportion of municipal ownership.
Facilities	• Higher density of especially recreation facilities than in most other forests.
Actors in policy process	• Dominance of local actors (and their interests) in policy-making process. Decisions are largely based upon these interests; local stakes dominate.
Problems and issues	• The set of main problems and issues in urban forestry differs from forestry at large, mainly due to the high urban pressures and societal demands.
Policy instruments	The policy instrument mix for urban forestry differs in the sense of: • A higher monetary input per hectare. • Higher importance of communication and public relations means. • Larger role for public participation, consultation structures and procedures. • Higher relevance of law, rules and regulations, for example to protect forests from urban pressures.
Dynamics of policy process	Urban forest policy processes are more dynamic, in terms of: • Urban pressures and high, rapidly changing societal demands influencing urban forest policy-making and requiring frequent adaptations of policies and management.
Urban forest use	• Urban forests typically will have multiple uses. • The main urban forest functions/uses are recreation and protection. • Wood production is only of secondary importance in most cases.
Conflicts	Conflicts are more frequent regarding urban forests than for forests at large. See also the specific problems of urban development and a high (recreational) use.

2. Structure and ownership

Urban forests can often be described as being very fragmented. Urban forest resources are often small, dispersed and isolated. When looking at the entire urban forest resource of a city, this results in a long border, which increases the influence and pressures extended by the urban areas. The (tree) species composition of urban forest mostly differs from the average forest. Often it hosts a higher proportion of deciduous trees, a higher species variety and range of exotic species. Furthermore, urban forests in average seem to have differing, more unbalanced age class distributions, with over-representation of very young and very old stands, as was noted in the case studies.

In terms of urban forest ownership, the higher - and often even dominant - share of municipal ownership is typical.

3. Facilities

Being such popular and intensively visited forests for recreation, urban forests have denser and better developed networks of recreation facilities. Often, there are special facilities and attractions, such as sports complexes, zoos, amusement parks and the like.

4. Actors in policy processes

A very essential aspect of urban forestry is the dominance of local actors and their interests in processes of determining, deciding upon and realising preferred functions. Inhabitants, interest groups, governments, and local media are key players in the urban forest policy arena. Over the ages, the influence of local actors has steadily increased, and continues to do so in, for instance, Eastern European countries.

5. Problems and issues

Urban forestry has to deal with its own, specific range of problems and issues. These are often typically urban and/or resulting from a higher societal demand. The 'top 5' problems and issues derived from the study of contemporary urban forest policy-making illustrate this. Most frequently mentioned by interviewees and others were budgetary problems (not typically 'urban'), urban development, recreation pressure, illegal activities, and recreational conflicts.

6. Policy instruments

The mix of instruments used in urban forestry to realise policy objectives also differs from the one used in forestry at large. Mostly there is a higher monetary input per hectare, resulting from establishing and maintaining facilities, safety and such. Means of public relations and communication, as well as participation are needed with a large and often committed public nearby. In order to guide the intensive use of urban forests and to protect them from all types of threats, an extensive set of rules and regulations is mostly in force.

7. Dynamics of policy process

Given the many and constantly changing urban pressures and high, varied societal demands, it is not strange that policy objectives change within relatively short terms when compared to 'rural forestry'. Urban forestry is very much about (local) politics, and quite often forestry has to adapt its rotation times to those of politicians and their electorate.

8. Urban forest use

The study of urban forestry in Europe has shown that multiple use has become a well-established concept with a longer tradition than in forestry at large. Main urban forest functions are recreation and protection. In all 16 cities studied in detail, actors mentioned recreation as primary function. In contrast, wood production is mostly of secondary importance, taking place within the framework of recreation and protection purposes.

9. Conflicts

Forest conflicts can be defined as reflecting structural imbalances within the values and policies in respect to forests and their use (Hellström 1995, cited by Konijnendijk in prep.). Conflicts seem to occur more frequently when forests in or near urban areas are concerned. Examples of large-scale, dramatic actions - often against urban and infrastructural development threatening forests, such as the construction of highways - are known from all over Europe. But mostly conflicts are smaller scale and less dramatic and have the character of minor disputes. According to the study, the most common types of conflicts are: conflicts over forest planning and management, forestry versus urban development,

conflicts between different types of recreation, and recreation versus conservation.

In the study of contemporary urban forest policy-making in Europe, the criteria 1, 2, 4 and 8 have been systematically compared with national forestry data. Characteristic 9 has been compared with general forest conflict literature, while aspect 5 is rather obviously due to the occurrence of specific urban problems. For criteria 3 and 6, support has also been found in literature, and through communication with urban forestry actors and experts. However, no systematic comparison to national forestry information has been carried out (Konijnendijk in prep.).

Characteristic 7 is the most 'intangible'. Though the dynamics of urban forest policy processes have clearly emerged from the study - in terms of occurrence of conflicts, rapid changes in policies and main objectives, increased participation, continuing pressures and such - no clear indicators could be developed (so far).

When regarding the role of local actors and interests as key elements, an urban forest can be briefly described as a forest ecosystem in or near a specific urban area, of which the use and related decision-making processes are dominated by local urban actors and their interests, values and norms. This implies that - though rarely - urban forests might even be situated at a larger distance from a specific city, as the examples of Fontainebleau near Paris and the water protection forests of Vienna illustrate.

5 Conclusion

From the paper it can be derived that urban forestry - as a new, integrated approach to the planning and management of urban green in a time of continuing urbanisation - is hard to define. When focusing on forest ecosystems in or near urban centres, a set of criteria and indicators for describing urban forests and urban forestry can be provided. Support for the concepts introduced has been provided by a comparative study of urban forest policy-making in Europe, which has delivered both historical and contemporary data.

As the introduced and tested concepts of urban forests and urban forestry have been made plausible, this has both theoretical and practical implications. Forest policy-making, planning and management theories and practices cannot be ap-

plied to forests in an urban setting without being adapted according to the specific needs and limitations of the urban situation. This has also clearly been supported by research findings. Interviewees in the comparative study were aware of the essential differences between forestry at large and urban forestry, and complained about shortage of specific expertise, knowledge and research. In some cases, managers try to carry out 'forestry as usual' (with wood production and thinnings), but do still realise that the situation is different, if only due to high recreation pressure. Therefore, 'forestry as usual' can only take place within a specific framework of the urban situation.

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Planning as learning: a new paradigm for implementing sustainable forestry

Jukka Tikkanen

Abstract

The article presents four approaches to planning called predictive-empirical, constructive, systemic and institutional planning. The mainstream of forest management planning has followed the premise of the predictive-empirical approach. Sustainability forms a new wider framework for resource management and planning. Forest management planning research has produced new flexible planning tools which have features from the systemic approach and emphasise the learning effects during the planning process. However, Scandinavian planning research has not consistently built foundations for more holistic learning-centered planning that could open new, useful scenarios for developing forest management planning, focusing also on social sustainability. Development of a learning-centered approach in forest management planning requires new themes to be included in planning research.

Keywords: forest planning, learning, paradigms, research, Scandinavia.

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1 Introduction

The foundations of natural resource management are now in transition; the amount of stakeholders is increasing and therefore more values and goals are involved in management than before (Pukkala 1994). Traditional planning procedures are not efficient enough to support decision making in this new, more complex situation. Resource management is said to be undergoing a shift in paradigms (Kessler 1992).

A paradigm is an implicit theory or conceptual framework from which other theories or understandings derive their validity (Galindo-Leal and Bunnel 1995) or a collection of beliefs, values and principles adopted by the scientific community (Saarinen 1994).

Sustainability which combines ecological, economic and social approaches forms a new, wider framework for resource management and planning. This framework emphasises the wholeness of the system, that is both ecological and social. Complexity and adaptive multi-level connections are the main features of the system to be managed (Walters 1986).

It is recognised that the success of sustainable development depends on public participation (Macnaghten and Jacobs 1997). Therefore a learning approach to management would considerably benefit present and future decision making and planning (Gough and Ward 1996, Galindo-Leal and Bunnel 1995).

Some researchers have developed learning-centered planning procedures for land resource management, but there exist only a few explicit presentations of theoretical foundations for these procedures (Daniels and Walker 1996). The existing planning as learning approaches have their roots either in institutional economics or in constructivistic sociology and psychology.

When the foundations of planning are in transition, the development work must be recommenced from "a clean sheet" so that the theoretical framework, methodological setting and practical planning view form a consistent wholeness (Leskinen 1994). The aim of this paper is to 1) clarify different approaches to planning, 2) analyse the development trends of forest management planning, and 3) evaluate what kind of consequences a new learning-centered approach would have for research and planning practices.

2 Planning paradigms

Hahtola (1990) defined three categories for planning studies: 1) philosophical commitment, 2) special theoretical premises and 3) methodological setting, including the method for analysis. Furthermore, according to Leskinen (1994) three issues have to be analysed in developing environmental planning: 1) the functions of planning organisations, 2) decision support procedures and 3) public involvement procedures.

In planning studies these dimensions should expilicitly be chosen and argued. Special philosophical planning expectations are in this paper called a planning paradigm. Many dimensions can be included in a planning paradigm, because a consistent comparison of planning approaches is not easy. For example, organisational aspects can be seen to be either in the core of planning (e.g. Leskinen 1994) or they can be totally excluded like in the studies of Kangas et al. (1992).

Quite often scientific formulations have been divided into two categories. Banuri (1987) defines two cultural orientations for research and planning: non-personal and personal maps. Hahtola (1990) and Leskinen (1994) define human science and natural science concepts. Classifications like this are rough and both dimensions are present in every study, but simplification helps to highlight inconsistencies in research projects, by forcing to analyse the premises of the studies.

2.1 Predictive-empirical planning

The core of natural science is the Cartesian dualism which differentiates objective reality from metaphysical values, attitudes, goals etc. Natural science follows an empiristic-analytical method, which divides reality into categories that can be studied by empirical experiments. So, natural science is atomistic. The basic goal of science, according to the natural science approach, is a general mathematical model explaining the functions of nature. Science is used to show these causalities of the world. (Heidegger 1977, Luukkanen 1994, Leskinen 1994, Saaty and Kearns 1985).

Analytical science has been very effective in many areas of society. Also in natural resource management and decision making this approach originating from natural sciences has been the mainstream. This approach has many specific implications on the planning practices of today. This sort of planning ap-

proach has been called routine planning (Leskinen 1994), predictive-empirical planning (Inayatullah 1990), formal planning (Saaty and Kearns 1985) or conventional planning (Walters 1986).

From the predictive-empirical view planning is seen as a procedure, where alternative courses of action are presented and consequences surveyed so that the best possible course of action can be chosen (Pukkala 1994). According to Saaty and Kearns (1985), this kind of formal planning assumes that problems can be described by quantitative models. Therefore, alternatives and values handled in planning are limited to those that can be objectively measured. The optimal course of action is selected in terms of precise criteria and maximum benefit. Normative decision making is seen separately as another phase (Kangas et al. 1992, Pukkala 1994, Leskinen 1994). However, in conventional planning decisions are seen to be taken on the basis of "universal" values, which are changeable on certain fixed ratios and which can be included in the models of planning systems. Values, attitudes and other "relative" characteristics have not been focused upon in predictive-empirical planning practices and planning research (Söderbaum 1986, Luukkanen 1994, Saaty and Kearns 1985).

The basic assumption of conventional planning is that the more information we can integrate into the planning process the better plans we get as a result (Inayatullah 1990). The role of a planner is mostly to be an expert who gathers data and analyses it so that the optimal course of action can be presented to decision makers (Walters 1986). There is no real need for stakeholders to participate in planning because of the universal goal and value structure. According to Inayatullah (1990) and Leskinen (1994), this kind of planning practice leads to bureaucracy.

2.2 Institutional planning

The institutional approach emphasises that there are not universal criteria of truth. Reality is dependent on the cultural definitions that are often latent and unconscious. Therefore, planning can be studied only in the context of certain organisations and societies (Leskinen 1994). The goal of planning is to interpret culture-based reality and reveal cultural conditions for changing them, if wanted. Institutional planning is critical when emphasising the role of power in the social contruction of truth and systemic when emphasising the holistic nature of human action.

Expertise is also seen as a source of hegemony. Therefore, institutional planning emphasises the possibilities of people to participate. Planning situations have to be arranged so that also those outside the mainstream of cultural power can participate (Hahtola 1990, Leskinen 1994, Turtiainen 1991, Söderbaum 1973, 1986, 1993, Forester 1989). According to Leskinen (1994), the learning organisation is an alternative to the traditional, bureaucratic organisation. Learning organisation is open and has a network structure.

In terms of decision support, the institutional approach is holistic, i.e. planning and decision making cannot be separated (Leskinen 1994). Planning has to be done so that it supports learning from experience and learning in a democratic communication process. Understandability and efforts to manage subjective values and goals are requirements of good planning. Therefore, institutional approach criticises aggregative methods used in cost-benefit analyses. Disaggregative planning tools have been developed under the institutional framework.

Söderbaum (1973, 1986) and Hahtola (1990) call the institutional, disaggregative planning method *"situation analysis"* or *"position analysis"*. According to Hahtola (1990), the phases of planning are 1) definition of decision-making situation, 2) value analysis, 3) analysis of resources and impacts, 4) power analysis and 5) definition of decision-making procedure and information available. The main purpose of position analysis is to ensure interdisciplinary, systematic handling of values and information connected to the system to be managed. Disaggregative decision support does not give one solution for decision making but leads to democratic deliberation, with the help of which decisions are taken. Rules for planning communication have to be defined to ensure openness and equity (Leskinen 1994).

2.3 Systemic planning

From the systemic approach the reality is seen as a complex wholeness, that cannot be defined as the sum of subsystems. Because of the complexity and multilevel connections, the consequences of actions cannot be predicted accurately. Therefore, the goal of systemic planning is to learn about the connections between the components of the system and between the system and its environment, as can be seen from the definition given by Saaty and Kearns (1985):

> *"Planning is a thinking and social process of aligning what is deduced to be the likely outcome of a situation, given actions, policies and environmental forces, with what is perceived as a desirable outcome which requires new actions and policies".*

The prerequisite of this kind of learning and aligning process is, on the other hand, the analytical phase, where the structure of the system is defined in as detailed a way as possible and, on the other hand, the synthesis where the consequences of each course of action are defined in terms of the whole system (Saaty and Kearns 1985). According to Saaty and Kearns (1985) and Walters (1986), quantification and modelling of the system make this kind of analysis more effective by making it possible to study the importance of risk and uncertainty when comparing the alternatives. Models also make it possible to learn from trial and error, which is not normally possible in natural resource management.

The systemic approach emphasises well defined social interaction in planning; planning processes have to teach and help participants to articulate their values and problems connected to the planning situation. Systematic group work techniques are often presented in connection with systemic planning methods (Saaty and Kearns 1985, Walters 1986, Kangas and Mononen 1997).

2.4 Constructive planning

Systemic thinking and learning from experience are emphasised in the fourth planning as learning approach, here called constructive planning. This planning approach has been connected to such concepts as ecosystem-based management (Galindo-Leal and Bunnell 1995) and collaborative learning (Daniels and Walker 1996). This approach serves as a tool for assessing strategic land-use planning practices especially when conflict resolution is needed (Daniels and Walker 1997).

According to the constructive approach, development occurs via local improvements rather than via searching for an optimal solution. In a consistent way, management should be carried out so that it supports an adaptive process with minimal disturbance to complex systems.

Constructive planning is deduced from the basic assumptions of cognitive psychology and pragmatic philosophy. According to these starting points, planning should be implemented in a way that supports the cumulative learning process, i.e. the aim of planning is to encourage people to think systematically and to learn actively with one another about the particular system, that is both ecological and social. Learning is an active process where analytical system thinking and implementation of these thoughts (either in an abstract or in a concrete way) vary (Figure 1).

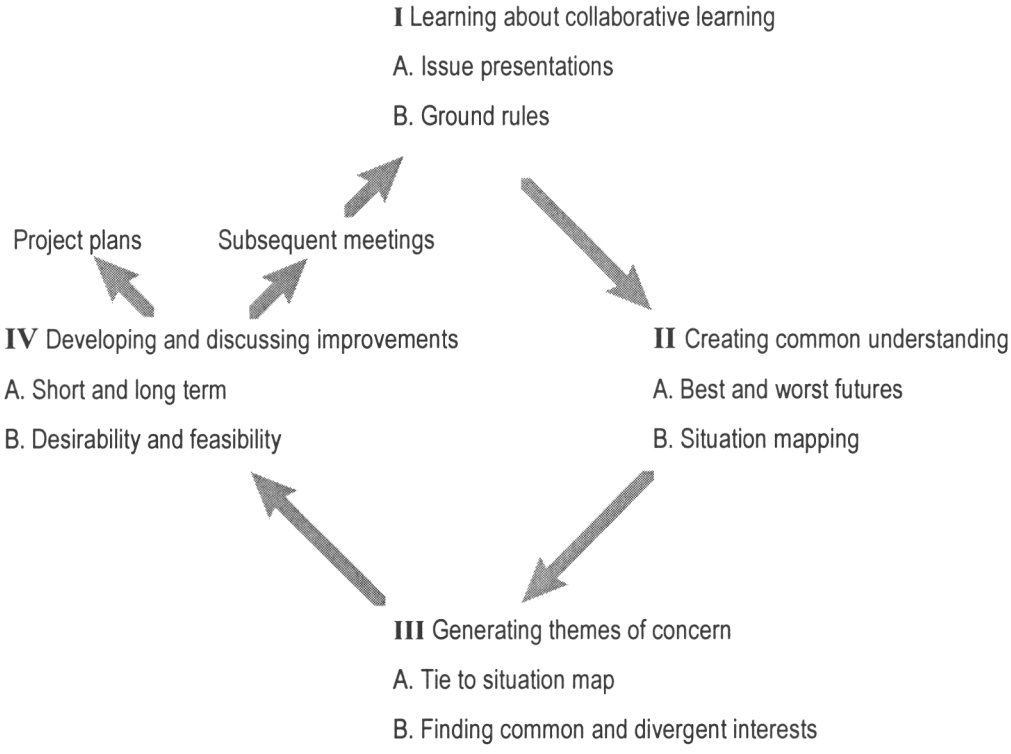


Figure 1. Collaborative learning (CL) in planning workshops (Daniels et al. 1996).

3 Planning approaches in forest management planning research

Basic features of planning approaches can be presented in simplistic categories for guiding the analysis of forest management planning studies and practices (Table 1). The dichotomy assumption separating human and natural science is now narrower than before because of systemic thinking. However, systemic

NATURE SCIENCE APPROACH	HUMAN SCIENCE APPROACH
Nature science relativism Systemic planning paradigm • Emphasises complex connections in objective reality, wholeness is something else than the sum of components. • Emphasises adaptive features of systems and learning about the functions of systems. • Systematic, structural planning procedure where expert planners are building model construction and interactive learning. • Organisation principles are not in the focus	**Human science relativism** Constructive planning paradigm • Holistic planning emphasising interactive social learning where planning, decision making and action form a consistent wholeness. • Contents and boundaries of planning are defined during the process. • Planner is one participant among others. • Self organisation is one of the basic goals of planning, the underlying idea is participatory democracy.
Nature science realism Predictive-empirical planning paradigm • Planning is handling objective, measurable variables, that are suitable for modelling. • Planning is separated from decision making. • Knowledge, techniques and experts are prerequisities for planning. • Participation is necessary only in analysing goals. • Leads to bureaucratic organisation	**Human science realism** Institutional planning paradigm • Planning is an open discussion forum for equal cultures. • Planner shows how concepts and statements are based on cultural values; so the planner is guiding the social interaction. • Truth is defined in discourse where possibilities are not equal; power creates truth, therefore planning is the procedure for revealing these power-based concepts and for supporting people, who do not have equal possibilities. • The underlying ideal is free democracy.

Table 1. Planning paradigms in their theoretical framework.

planning emphasises more aggregative modelling and therefore has more realistic, nature science like features than institutional or constructive planning.

Forest management planning research has applied mostly the nature science approach focusing on technical development. This kind of planning ideal has especially influenced the planning tools utilising linear optimisation. Some economic goals, mostly concerning incomes, can also be integrated in these calculation procedures. The development phase "forest planning as optimisation" (Figure 2) can be seen in forest management and planning books from the 80s (Buongiorno and Gilles 1987, Kilkki 1987). Effective information processing capacity and good models explaining relevant functions of nature are prerequisites for planning using optimisation. Before the 80s these prerequisites were not fulfilled and planning was mostly based on rough calculations with universal goals, such as "normal forest" and sustainable timber production.

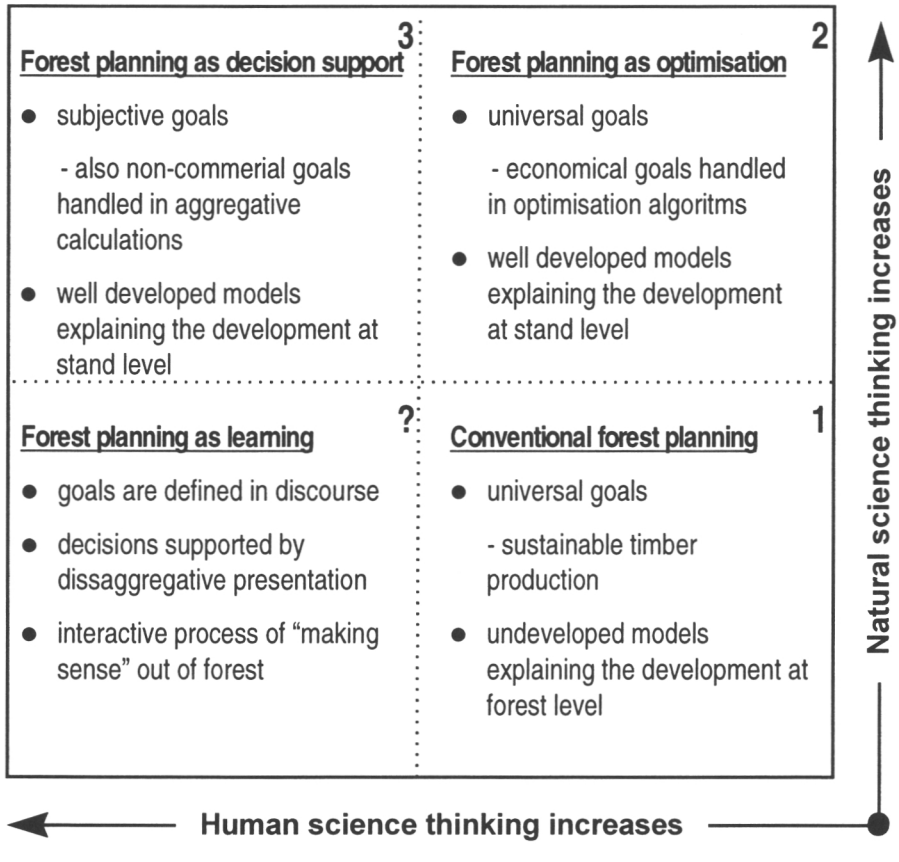


Figure 2. Approaches to forest management planning.

This kind of planning approach has been criticised, on the one hand from the human science point of view (Simon 1956, Saaty and Kearns 1985) and on the other hand from the institutional-environmental point of view (Söderbaum 1986; Leskinen 1994). Forest planning as optimisation has not focused very much on ecological aspects, partly because of the lack of suitable models for biodiversity. Social aspects have been totally excluded.

Forest planning research, also in Scandinavia, has produced methods, which enable the integration of personal preferences of decision makers into decision support systems (Mykkänen 1994, Kangas 1992, Pukkala and Kangas 1993). A participatory approach has been applied so that participants have been integrated into utility functions as a criterion (Kangas et al. 1992). Furthermore, in most recent research methods there is the possibility to formulate interactively expert-based production functions to be included in the decision support systems (Kangas and Mononen 1997). A development trend in planning towards a more personal and more relativistic direction has been clear also in the comments on how methods should be implemented; a good planning system should teach participants to achieve better decisions. The analytical, aggregative method has been seen to be effective in terms of learning (Kangas 1992, Pykäläinen and Kangas 1995), and consequently the systemic thinking has increased.

This planning approach, here called "forest planning as decision support" (Figure 2) makes it possible to integrate different values and goals into planning. Social and ecological aspects can also be handled quite flexibly in a participatory planning process. However, Scandinavian forest research has not consistently built the basis for a more holistic, learning-based planning procedure, which would be suitable for Nordic forestry and societies, like the ecosystem-based management or colloborative learning approaches in North America.

4 Consequences of the learning-based planning paradigm to the research of forest management and planning

There are different opinions as to whether the four fundamentally different approaches can be integrated. In this paper the assumption is that integration is possible, but methods have to be implemented in a consistent way, so that the other approaches are applied in the framework of the chosen, explicitly argumented theory of planning. This kind of integrative planning idea emphasises "situation analysis" where planning tools are chosen after critical analysis of

the system to be managed. Environmental management in general and also forest management is human, responsible activity. So, a learning-based humanistic approach to planning could open new, useful scenarios for the development of forest management and planning.

Besides theoretical research on planning as learning, the following themes should be studied in Scandinavia:

1) Values and attitudes concerning forests.
2) The role of planning organisations and planners in practical planning situations.
3) Collaborative interaction and integration of modern analytical model-building techniqies into planning as learning.

The research approach implemented in the studies should be consistent with the basic assumptions concerning the nature of planning. If it is agreed, that a forest is a social construction by its nature, so hermeneutical research and qualitative methods should be implemented to a greater degree than has been done until now in Scandinavian forest research.

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Issues in data collection on non-wood forest products

Celeste Lacuna-Richman and Katri Karkinen

Abstract

The collection of sufficient data about non-wood forest products (NWFP) is generally considered a necessity. However, there has been little material published about it, since it is a relatively new aspect of assigning values to forests. There are numerous NWFP species, from berries to wildlife, and different levels of use, from subsistence to commercial level. Therefore, establishing the scope of different studies in the context of one project is difficult. For a project concerning the social and economic uses of non-wood forest products in five very different countries including Finland, Estonia, Russian Karelia, Laos and the Philippines, some common terms are necessary. The researchers in this project are trying to formulate data collection instruments such as interview schedules and survey questionnaires which will have enough in common so that future data analysis will yield information that can be compared. On the other hand, these interview schedules and questionnaires should also reflect the specific conditions of the people, forests and countries where they will be used in.

Keywords: non-wood forest products, socio-economic data, questionnaires, interviews, biases, international comparative study.

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1 Introduction

The topic of this paper is a result of informal discussions on the methodology for a project entitled "Between subsistence and global markets: grassroot economies, social structures and national policies in sustaining non-wood forest products". The project is funded by the Finnish Academy as a part of the Biodiversity Research Programme. There are five countries within the scope of the project, which are Finland, Estonia, Russian Karelia, Laos and the Philippines. The countries studied are very different from each other in terms of population size, forest area, economic system and government policies for forest use - all of which affect the sustainability of their non-wood forest products collection. At a more basic level, even the types of forest are different. Finland, Estonia and Russian Karelia have boreal forest, and Laos and the Philippines have tropical deciduous forest. The type of forest alone seemed enough to discourage any comparisons of the sustainability of NWFP collection and use among these countries.

Nevertheless, as the overall goal of the project is to assess the value of non-wood forest products in the above-mentioned countries, the project researchers had an urgent need to prepare data collection methods for their respective studies. Since the socio-economic studies require information from various respondents, questionnaires and interview schedules were regarded as essential tools for collecting data. The following discussion deals with some of the concerns we have faced in preparing the samples, forming the questions, fine-tuning the data collection tools (questionnaires and interview schedules), and issues of concern when implementing the surveys.

2 Samples and populations

In countries such as Finland where population statistics are readily available and communication technologies highly developed, sending out questionnaires is a feasible way of getting socio-economic information. This is not to say that it is easy - the proper sample size and sub-sample sizes in a country where the forest is plentiful in some areas while the population is concentrated in another area raises a special concern. Also, the return rate in sending out any questionnaire is never a complete certainty. Since our project is concerned with the use of non-wood forest products, it is essential to reconcile disparities between highly forested areas with small populations and less forested areas with high populations so that both are well-represented in the sample. It may be that there

are well-established statistical methods for establishing an ideal sample size for a given population. However, in Finland as in other industrialised countries, the collectors of, for example, berries may not necessarily be the consumers of these berries. Because of this likelihood, knowing whether a certain area in Finland has a big consumption of berries does not present an indication of the NWFP value of that area's forests since the berries may not be collected there. In addition, establishing the present subsistence value of the berries in a specific area is not as straightforward as knowing the current market price.

In Russian Karelia and the Philippines, where socio-economic profiles of selected communities will be done, the problem of sampling is different from that of the country-wide surveys in Finland (and possibly Estonia). The populations in the villages themselves would represent the sample size, and the collectors and users of non-wood forest products will comprise the sub-sample. In the Russian Karelian and Philippine cases, the main concern was how to choose the respondents from the general population. This matter is also not as simple as merely picking the names of respondents who say that they collect and use NWFPs. As an illustration, we will use the project component in Russian Karelia, where researcher Katri Karkinen has already collected data.

Including unsettled village people within the group of respondents is a problematic issue. In Russian Karelia, the population is registered in their respective hometowns, but not in the towns where they stay during the summer, cultivating land and collecting NWFPs. These individuals are not automatically included in the study sample, since they only stay in their forest huts for summertime. Katri believes that datcha villagers, however temporary their stay in the village may be, should be included in the study since they influence the surrounding forest and practice NWFP collection as a survival strategy.

There are also other characteristics and qualifications that make a respondent ideal for an interview or for receiving a questionnaire. However, it is not always clear whether "handpicking" such respondents will be beneficial to the study as a whole - it may mean an increase in the qualitative value of the data to have a few such well-suited respondents, but limiting the number of respondents to such individuals may harm the quantitative validity of the data. The information received may be so specialised that it cannot possibly be used to form inferences for a larger group. Every researcher doing socio-economic surveys should try to determine the right balance between the qualitative and quantitative value of the data when achieving both to an equal degree is not possible.

Unfortunately, a decision arrived at in the beginning of a study may not necessarily be the right one as more information is received. Pre-testing the questionnaire or interview schedule makes the initial decision about the sample size and quality easier.

3 Questions and how they are answered

The questions asked in a survey, whether in an interview or a mailed questionnaire, should accurately reflect the objectives of the study. This may be stating the obvious, but achieving it is easier said than done. Questions, especially for team studies, reflect the interests of the various authors, and this may have two negative effects. First, there may be too many questions included in the questionnaire or schedule, thus taking too much valuable time from the respondent who may become too bored to give well-considered answers. Secondly, the questions asked by various researchers with their own interests and reference points may be confusing at best, and conflicting at worst. Not only could the respondent feel burdened by too many questions, but he/she may feel confused about the purpose of the questionnaire. Either way, a respondent who is presented with lengthy and disorganised questionnaires/interviews will not be very cooperative.

We have found that a reasonably easy way of improving the questionnaires/ schedules is through peer review. Before meeting, the members of the research team give copies of their questionnaires to everyone. During the meeting, each one has the opportunity to criticise each questionnaire in turn. This may result in making terms more specific, adding more questions, removing others, phrasing some questions better, or, combining some research concerns into one well-stated query.

The above discussion on preparing questions is applicable to both questionnaires and interview schedules. However, there are specific benefits and disadvantages to either one. The choice of the data collection tool depends in this study on the following considerations. As mentioned earlier, the geographical scope of the study and the efficiency of postal services in Finland made questionnaires an ideal tool for the Finnish study. For the Russian Karelia and Philippine studies, the limited geographical scope, the concentration of respondents in particular villages, and the need for actual observation of surroundings make the interview a better-suited data collection method. Questionnaires have the advantage of enabling the researcher to amass a greater amount of information presented in a fairly uniform way in a specific amount of time. However, using

a questionnaire also requires a more thoroughly reviewed format because it is close to impossible to request people to return faulty questionnaires or send notices of erratum concerning questions which may be misleading.

Researchers using the interview method have the advantage of asking more open-ended questions, those that ask "why" or require explanations of processes. Therefore, although ideally an interview schedule should be well-structured before it is ever used, it leaves the researcher more allowance for revisions during the interview itself. The person conducting the actual interview, however, has the responsibility both for keeping the conversation in track while at the same time being encouraging enough to allow the interview to flow. As for disadvantages, interviews are often done with fewer respondents than a questionnaire because of the high costs of hiring interviewers. Also, with mailed questionnaires, the reality that the effectiveness of the data collection tool might be based on something as undefinable as personality is not an issue. For this reason, while an interview schedule has the possibility of eliciting more information, it also has a bigger scope for failure than a questionnaire if the interviewer is not very competent or is disliked by the respondent.

Whatever the data collection tool, though, there are some concerns that are faced by all researchers needing socio-economic information, and these issues will be discussed shortly.

3.1 What are we talking about?

There is a truism that anything involving several people can be messy. Thus, it can almost be expected that any study combining two or more disciplines (in the case of our NWFP project, forestry, economics and sociology) needs plenty of coordination to make sense. At best, the combination of different methods culled from the various disciplines result in that presently popular word, *synergy*. In the context of a multi-disciplinary team involved in studying an aspect (e.g. NWFPs) of an idea that is not yet so well-defined (like social sustainability), synergy can be described as that blessed state when the different members of a group work at their best for a purpose that makes sense to everyone involved. Achieving synergy requires effort but the effort pays off handsomely.

The first step in achieving this synergy is defining the terms for, and of, each project member, so that arguments do not erupt because of problems in semantics. For example, when we talked about *forest households* for the question-

naires, it seemed so simple a term that anyone should know what it means. However, "forest households" could cover everything from a family living in the forest physically, but getting its livelihood from a source other than the forest - or - it could mean, as in some Philippine situations, a family which lives in a village, but collects non-wood forest products such as rattan from a forest several kilometers away[1]. Another term is *collection time*, which in Finland and Estonia could mean either the time spent actually picking lingonberries from the forest, or could include the period spent driving, bicycling or walking to and from a good collection site. Establishing basic terms and concepts will not only encourage more productive discussions among the project members, but will also simplify the analysis of data for the individual researcher in the long run.

The second step in achieving this synergy has to do with establishing common ideas with the respondents. A mistake most people, but particulary academics, make is to assume that current ideas are common currency, and thus could be used freely without explanation. Examples of these trends in ideas are *biodiversity, economic feasibility, extinction of endangered species, environmentalism* and the topic of this workshop itself, *social sustainability*. It does not help anyone to ask about these ideas directly in questionnaires and interviews, without a long and possibly to the respondent, boring explanation of what they mean.

For instance, we are almost completely certain that if we ask a Palawan hunter, "Do you think that hunting is a socially sustainable activity in your village?", we will receive an empty stare. If we are stupid enough to go on in this vein and ask, "How do you think your hunting affects the biodiversity situation in Palawan?", we will be lucky not to be chased out of the village. One of the most valuable advice we have ever received as researchers is to "Never assume that anyone else is as interested in your topic as you are". Perhaps this advice should be applied more stringently to the group of people classified as respondents, who are often treated like a captive audience. Yet, the very nature of research

[1] The term "household" is a key concept in the data analysis of various components in our study. In the Philippine component, the definition used by the National Statistics Office (NSO) is used, according to which household (or family) is, "a group of persons living together and composed of the head and other persons related to the head by blood, marriage or adoption. The extended family concept is followed. A single person living alone is considered a separate family". In the Russian Karelian component of the project, the village level approach is used so that a household "is synonymous with the persons living on the same farm or plot" (Katri Karkinen).

work, wherein the researcher is intimately involved with the subject matter for most of the workday and often during leisure time as well, makes it difficult to remember that not everyone shares the same concerns.

Sometimes, it may be so that the researcher and the respondent do share the same concerns, for example, both may be thinking about how the environment affects their own lives. Yet, they may use different terms and explanations for this common topic. In these situations, discussing the meanings of words and phrases is even more crucial, because the respondent already has an opinion on the subject.

Although it may be attractive to researchers to find a term or a phrase that seems to embody their ideas well, these terms should be used sparingly. In fact, in questionnaires and interview schedules they should be avoided if possible. Instead, the use of indicators, or questions based on everyday phenomena, should be encouraged. For example, it is not productive to ask, "Does the forest meet your basic needs?", since what could be considered basic needs are different from person to person. However, breaking this question down into several small ones including, for example, "Are you able to collect food from the forest?" "Can you get enough firewood for cooking from the forest?" "Are there any medicinal plants in the forest that you use for colds, headaches, etc.?" can yield more realistic information.

Using indicators does not imply that the respondent is too ignorant to understand academic ideas. On the contrary, it is an act of respect to learn a language, in this case, the language of the respondent, before attempting to communicate and ask information. Of course, it is given that before the questionnaire is even sent or the interview started, the purpose of the data collection should be explained to the respondent. It is the least a researcher can do in terms of courtesy. If it is necessary to include abstract terms in the introduction, then they should be explained, but not used indiscriminately thereafter.

3.2 Where are we coming from?

"Objectivity" is a highly valued aspect of science. It could even be said that most scientists consider it as the adjective that best describes good science. However, it should be realised that objectivity is just that, an ideal, and not a built-in quality of the pursuit of scientifically valid information. In multi-disciplinary studies where there is a social component, objectivity is an even more

elusive characteristic. A researcher involved in such a study should be aware that everything about himself/herself affects the data collected: the disciplinary perspective, nationality, age, gender, even the fact that it was not possible to get the kind of coffee one is used to in the study village. More importantly, it is good to remember that the respondents are very aware of such differences, especially the most basic one: that the researcher is in the position of an "observer" and he/she, the respondent, is the "object of study." When seen from the respondent's point of view, it is not so surprising that many studies are not accurate reflections of the real situation, that no one wants to talk to interviewers, or that return rate of questionnaires is low.

There are no easy answers to this question either. It is not possible to escape limitations imposed by disciplinary boundaries, change one's genetic legacy or social position (nor would the researcher wish to, in the first place). In addition, often the limits themselves define the problem. If limits were not present, there would not be any well-defined subject matter and the result would be chaos. Scientific inquiry often cannot afford to be all-inclusive and mystical, and the process of data collection even less so. However, the researchers should be aware of the effect of their social and disciplinary background on their study. These things should be taken into account in the design of the data collection tool, and while conducting the survey itself. This way, biases could be corrected if they are too large and affect the data collected.

The problems of perspective perhaps can only be solved if researchers looked at respondents as partners in the data collection process so that the respondents would not feel "objectified". In some studies, this approach has been so successfully accomplished that respondents have turned from being research objects to such valuable informants that their names are rightfully included in the credits for the study.

3.3 What are we responsible for?

Research on a subject like non-wood forest products, which has a strong social aspect, often gives rise to moral dilemmas. As mentioned earlier, objectivity is a characteristic of the data collection process that has to be worked for and not taken for granted. In addition, when discussing the responsibility of a researcher, objectivity becomes a luxury. Each researcher has his/her own threshold of if, when, and how to get involved with the respondents and, as the saying goes, the line is drawn on sand.

One easy rule to remember is to avoid saying or doing anything that would affect the data. However, this rule is easy to remember but hard to follow. For example, in the Russian Karelian component of our study, Katri Karkinen is bothered by the situation where a villager collects berries in September to sell them to tourists, but instead of saving his money, the villager buys vodka instead, partly because he is afraid that inflation will soon decrease the value of the money drastically. Katri has to remind herself that she is not a government representative, nor an elected leader of the village. Her duty is to get the facts, not to tell the villager how to spend his money. Establishing friendly relations with the village inhabitants means resisting the urge to give them a lecture on what the researcher regards as "good for them".

Another example illustrates the problem of a researcher affecting the subject village regardless of attempts to avoid doing so. In the Philippines, we have often encountered some individuals in a study village who are more outgoing than their neighbours. Thus, they become the natural spokespersons for their village, and sometimes they use this personal ability to benefit themselves and to the disadvantage of their neighbours. In trying to establish the local prices for a non-wood forest product such as honey, for instance, it is best to ask in what capacity the respondent can answer this question. He/she might not be only a honey collector, but a middleman for honey sales as well. Being obliged to buy honey from the informant as an exchange for being allowed the interview is not wrong. However, if other respondents also want to sell their honey to the researcher, and he/she cannot (or will not) buy from them, it will result in very bad feelings in the village - especially if these respondents have already agreed to give an interview without compensation. On the other hand, buying the product which is the topic of the study, to promote good relations between the researcher and all of the respondents, will definitely affect the information about the marketing of such products.

A researcher who has to deal with social phenomena will sooner or later find him/herself confronted with moral issues. There are no rules stating that it is forbidden to help respondents in one way or another, if they asked for it. However, the researcher should be constantly aware of the data needs of the study, even though he/she is conscious of the responsibilities of being a decent human being first. Some individuals who have been involved in socially-related research have desperately wanted to see immediate positive effects of their study and gone into activism instead, in the form of community work or advocacy. Other researchers have been so negatively affected by the moral issues of

social research that they purposely avoid collecting "baseline" or first-hand data. Yet, many more researchers will have to deal with these dilemmas during their whole professional life - and it is best to realise that they do not go away if ignored. Needless to say, if the researcher for some reason knows that the study he/she is doing will affect the lives of respondents negatively, then maybe it is better not to do the study at all, or perhaps change the methods of data collection so that it does the minimum damage possible.

4 Conclusion

Conducting studies with a social component cannot be completely value-free, objective or harmless. Although it is unproductive to avoid doing research because there may be problems, some problems can be avoided or solved with some effort. In preparing data collection methodologies for commercial use of non-wood forest products, we have considered:

- sampling problems,
- choosing data collection tool best suited for our type of study,
- finding questions that will best reflect our research objectives,
- formulating questions in a way that makes sense to all the researchers in the project and the future respondents,
- identifying the biases that are a part of studying the social aspects of NWFPs, and
- recognising that there are moral issues involved when research has social impacts.

Some of the ideas here are discussed in more detail in social research methodology publications, such as those on Farming Systems Research (FSR), geographical locality studies, and the twin methods of Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA). FSR is a good source of material on how to organise multi-disciplinary studies. Geographical locality studies give an indication of how the environment affects the social aspects of a particular area, while RRA and PRA are methods of collecting socio-economic and environmental data designed for optimum use of research funds, personnel and time. PRA is often considered the more advanced method of the two, because it involves the people of the study area collecting and analysing information about their own locality.

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The Finnish Forest Research Institute, Research Papers 704: 111-121.

The role of forestry in the economy of Lithuania

Algis Gaizutis

Abstract

The article describes the role of forestry in Lithuania. Changes in the economic, social and political development of the country, the value orientation of the government expressed by the forest policy, the availability of resources, and the demand - supply situation in markets, all greatly affect the social sustainability of forestry and development of multiple-use management of forest resources to the favour of society. The paper examines the present situation in which the Lithuanian forestry exists and the evolution which is taking place. The important changes of the social environment and ownership structure in the forest sector of Lithuania are also discussed.

Keywords: forestry, forest policy, land reform, market economy, Lithuania.

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1 Introduction

Forest is one of the few available natural and renewable resources in Lithuania and covers one third of its territory. Forestry and forest industries have considerable importance in the economy of the country. The wood trade balance is positive in opposite to the whole trade balance. Lithuanian export of wood and wood products accounts for 10 % of the export value.

After the restoration of Lithuanian independence in 1991, the structure of forest ownership has been considerably changed. The land reform in forest sector was started from the nearly 100 % of state-owned forest. After the completion of the land reform it is foreseen that 0.6 - 0.8 million ha of forests will be private which corresponds to 35 - 45 % of total forest area.

Main part of the woodworking industries are private owned in Lithuania. Particularly sawmilling is one of the most important industries at the moment. It is one from the few industries in which new investments by Lithuanian as well as foreign businessmen take place. The rest of forest industries need large-scale investments to change their technologies to a level acceptable by western markets, especially in paper and panel industries. All forest related industries are important for the social sustainability, especially if we think about unemployment. A significant amount of people is employed in forestry and forest industries, especially in rural areas (some 50 000 jobs).

2 Short description of forestry in Lithuania

Forestry and forest industries are very important for the economic development of Lithuania. At the process of integration of Lithuania to European Union, forestry should ensure existing biodiversity, and sustainable, economically viable and ecologically sound management of forest. The efficiency of forestry greatly affects the social sustainability and developing of multiple-use management of forest resources to the favour of society.

2.1 Forest resources and landuse

Forest occupy 1 970.3 thousand ha (1994) or 31.4 % of land area, while commercial stands comprise 1.86 million ha. The growing stock is estimated to be 334 million m^3 o.b. or 180 m^3/ha with average annual increment 6.3 m^3/ha. Average volume of mature stands is 244 m^3/ha and average volume in mature

pine stands is 285 m^3/ha (Rutkauskas 1995). The productivity of Lithuanian forests is higher than, for example, in Finland, England, the Netherlands, France, Italy (Vasiliauskas 1995). Since Lithuanian population reaches 3.7 million inhabitants, the average forest area is as high as 0.53 ha and the average volume about 90.3 m^3 per capita.

According to prognoses of the development of the Lithuanian landscape, forest cover will increase by 2 % (120 000 ha) in nearest 2-3 decades (Kenstavicius 1992). The attempts to reduce the impact of transboundary air pollution from Europe and oversupply of agricultural production will lead to afforestation of less productive agricultural land. The potential possibilities of afforestation are even bigger - estimations are made to some 500 000 ha.

The forests in Lithuania are distributed unevenly. The major part of forests is located in southern and eastern part of the republic due to prevailing poor and dry soils. The woodiness there is as high as 45 % and the pure Scots pine stands are most common. In west, north and central Lithuania, spruce and mixed spruce-deciduous stands prevail.

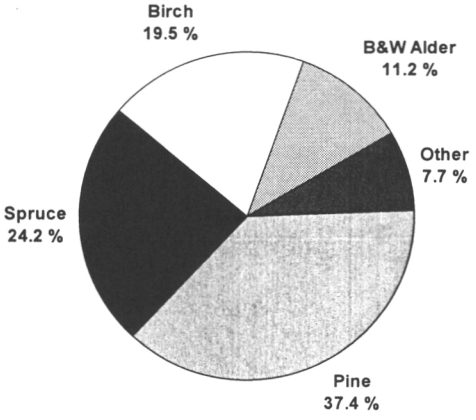


Figure 1. Composition of main tree species in Lithuania. Source: Lithuanian Forest Management Planning Institute, 1994.

Conifers occupy 61.6 % of the total area covered with forest (and 66.9 % of volume). Hardwood species cover only 4.4 %, among them oak stands 1.7 %, and ash stands 2.7 %. Other deciduous tree species comprise 38.4 %, among

them birch stands 19.5 %, black alder 5.6 %, white alder 5.6 %, and aspen 2.7 %. Stands of other tree species make up 0.6 %.

The distribution of age classes in Lithuanian forests is good for wood supply: young stands comprise 27.8 %, middle-aged 44.7 %, premature 17.9 % while the mature ones cover 9.6 % of the whole forest area.

2.2 Supply of roundwood

State forests are the dominating supplier of roundwood to the domestic market, owning more than two thirds of productive forest area and delivering major part of raw material. State forests are supervised by the Lithuanian Ministry for Agriculture and Forestry through 48 state forest enterprises. There it is a strong tendency of increasing the role of private forest owners in roundwood supply. Private forest owners cut some 15 % of removals in 1996 (see Figure 2).

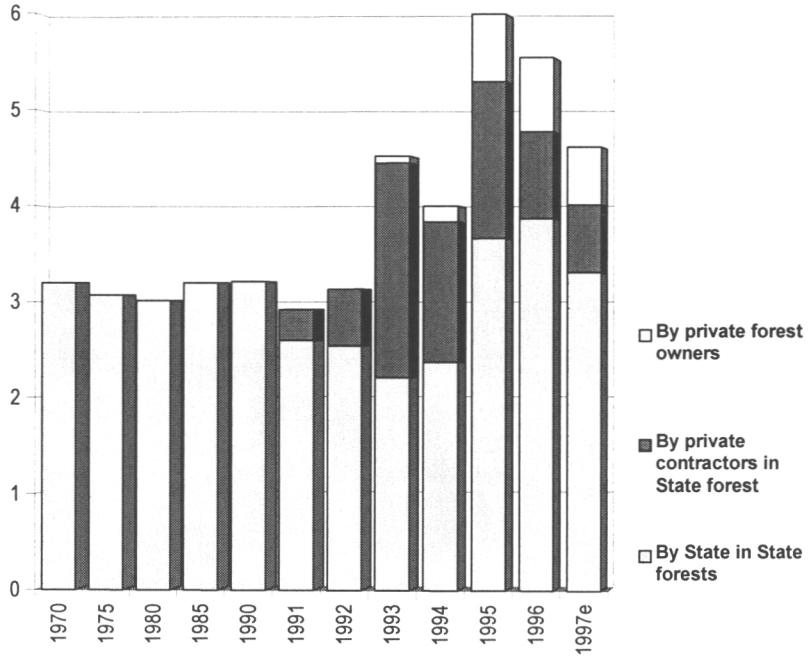


Figure 2. Roundwood supply in Lithuania 1970-1997, million m^3. Source: MEC naujienos.

The present situation with roundwood supply is rather good. The conservatism of foresters in privatisation has resulted in stable operating conditions for State Forest Enterprises (SFE). The SFEs have been able to guarantee a delivery of constant quantities of roundwood to the market.

At the moment, Lithuanian foresters are changing the orientation of forest management practices from biological forestry ("as big volume as possible from the area unit" -thinking which prevailed in Soviet time) to market-oriented approach, in which the value of wood plays the most important role.

Due to favourable age-class structure in forest, harvesting can be increased both in the short and long term. The growing conditions and the production capacity of the forest land are good and should allow for a considerably higher annual cut than the current cut.

On the basis of the forest inventory data from January 1993, the State Forest Management Planning Institute has calculated volumes for cutting for the years 1994-2023 as follows:

1994 - 2003 - 5.05 million m^3 per year,
2004 - 2013 - 5.52 million m^3 per year,
2014 - 2023 - 5.86 million m^3 per year.

These calculations have taken into account silvicultural and environmental protection requirements.

3 Ability of forestry to meet demand of wood

Following the most conservative estimations, the roundwood supply from local resources will be some 5.5 million m^3 (3 million m^3 of pulpwood and fuelwood; and 2.5 million m^3 of sawlogs). This volume could increase if forest management practices were changed by shortening the rotation ages. Lithuania can reach a balance between the wood processing industrial capacity and its own forest resources.

The modernisation of the existing sawmills and the tendency to establish new ones has caused an increase in saw-milling capacity. The resources of raw material allow for the annual sawn wood production of 1.1 - 1.5 million m^3, or

even more. Domestic consumption of sawnwood could increase in the future, due to changes in house building strategies.

In the future, the most important products for export should be furniture, wood fibre boards, chipboards, and the products of paper industry (if a new plant is built). The export of sawnwood as well as pulp wood will be also significant.

The current capacity of production of wood mass, wood fibre boards and chipboards allows for the annual utilisation of about 1 million m^3 of wood (including secondary raw materials). It is expected that in the future in the domestic market there will be no demand for 2.5 million m^3 of raw material, excluding fuelwood. In order to utilise it, it is necessary to increase the production of wood fibre boards and chipboards (up to 500 thousand m^3) and to build a new paper and cellulose plant of average capacity (500 thousand tons). For this purpose, however, a significant investment (about 1 billion USD) is needed (Morkevicius 1995).

The product quality of the board industry should be further improved, primarily through an improvement of technology and fibre raw material (for instance, the installation of barking equipment). The estimation is that the production of plywood could be doubled (up to 50 - 60 thousand m^3). Enough raw wood resources are available.

Separate business and developmental plans should be elaborated for each wood working enterprise. Wood energy production and use should also be given high priority. Wood fuel consumption could increase up to 2.0 million m^3/year or even more in the year 2000 and beyond.

Finally, the following can be concluded with full probability:

- in the nearest future, the demand for industrial wood of different sorts will increase (up to 2.0 million m^3/year) due to an increase of construction of individual houses,
- fuelwood consumption could increase up to 2.5 million m^3/year,
- the export of wood products as well as raw materials could increase up to 0.5 - 1.0 million m^3/year.

The domestic wood consumption in Lithuania's nearest future will correspond to the allowable cutting possibilities.

4 Changes in trade patterns

During the Soviet period, Lithuania was a net importer of wood. Some 2 million m^3 of wood and wood products was annually imported from the Russian Federation. In last few years, foreign relations have changed. The import of wood raw material from Russia has almost stopped and export has increased to be about as big as the import before.

The share of export is growing annually. Over the last few years, a major share of the production of the forest sector has been exported (Figure 3 and Figure 4). For example, one third of the produced roundwood, 80 % of sawnwood, 44 % of chipboards, 81 % of fibreboards, 66 % of furniture, and 100 % of plywood were exported in 1995 (Morkevicius 1996). Forestry products comprise 10 % of the total value of export of Lithuania and utilise some 3 million m^3 of wood. The import is quite small.

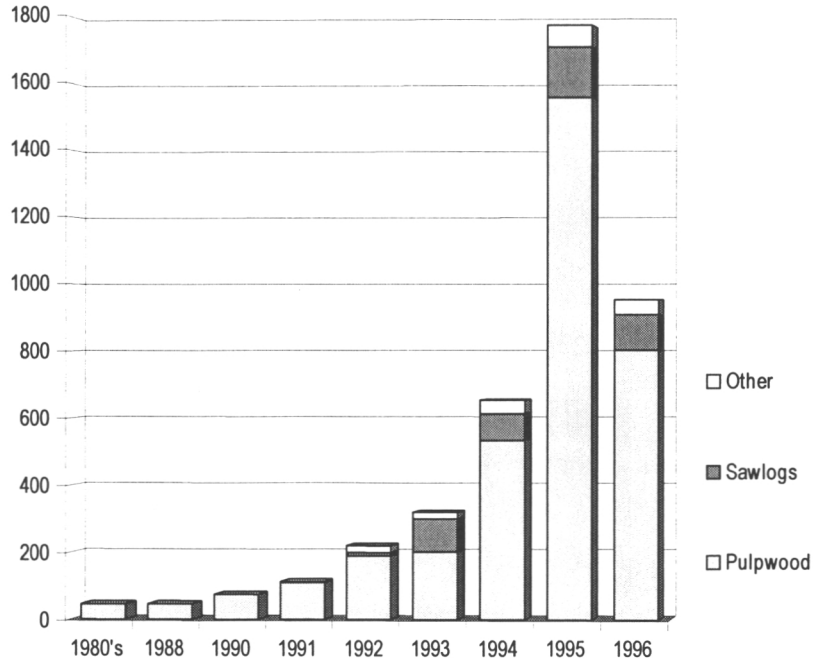


Figure 3. Roundwood export from Lithuania, 1 000 m^3 (1980s-1996). Source: MEC naujienos.

The main markets for roundwood (mainly-pulpwood) are Sweden, Russia (Kaliningrad district), and Ukraine, and for sawnwood Germany and UK.

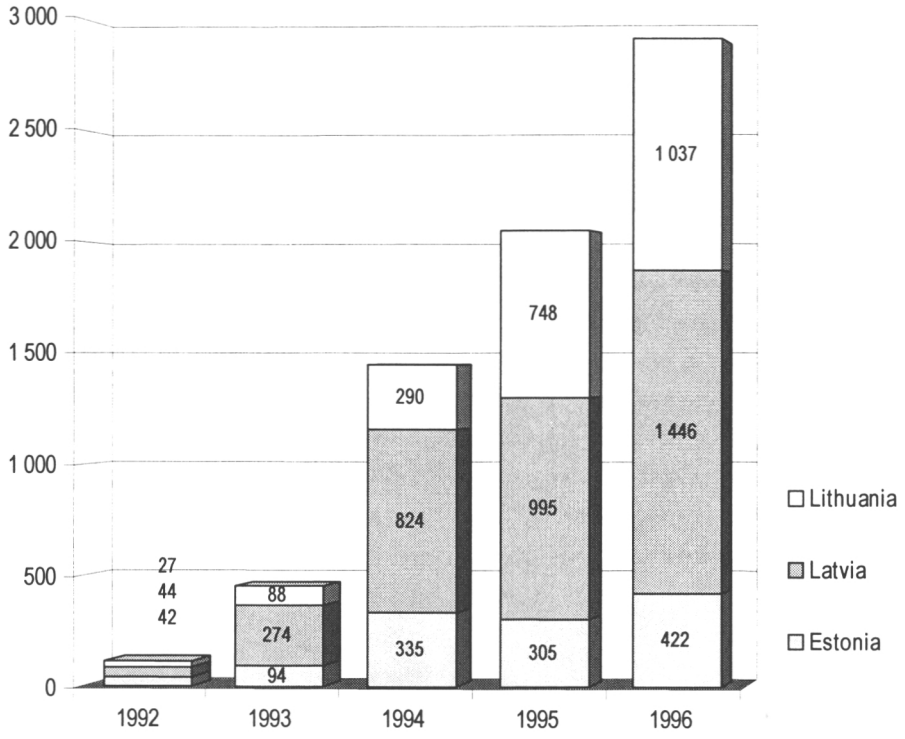


Figure 4. Export of sawnwood from the Baltic countries, 1990-1996 (1 000 m^3).

5 Ownership and problems arising from changes in ownership structure

After the restoration of Lithuania's independence in 1991, the structure of forest ownership has changed considerably. The land reform in forest sector was started from the nearly 100 % of state-owned forest. According to the Law of Restitution, ownership rights are being restored to the former forest owners or their inheritors. More than 200 000 ha of forest has been privatised, some 150 000 ha are in the process of restitution. The current number of forest owners exceed 80 000 and is expected to be more than 120 000. The share of private and being-privatised forests has reached 18.7 % of total forest area. After completion of the land reform it is foreseen that 0.6 - 0.8 million ha of forests will be private, which corresponds to 35 - 45 % of total forest area. Main part of the wood-working industries are private owned in Lithuania.

The changes in ownership will naturally lead to a changed attitude towards the management of forests. However, it will take time to resolve the problems arising from the changes. The process of forest privatisation is related to certain

problems and Lithuania has no traditions and experience to solve them properly.

The most apparent problems are:

1. Forest owners are not able to use advanced and economically effective forest management methods because of very small size of forest estates.

2. There are no organisational structures to administrate the private forests and to meet the demands and needs of private forest sector in Lithuania.

3. Most forest owners have no or very little experience and knowledge on forestry and forest economy. This often leads to inappropriate resource allocation and inefficiency in forest management.

Small and wide-spread woodlots make it very problematic to use advanced forest management methods in private forests in Lithuania. Even more, there is an obvious risk for a short-term approach to forestry and the owning of forest. With average size of only 2.5 ha of forest property, forest owners are not able to feed their families. With no experience in forestry, often with a necessity of another job in another place, private forest owners are not able to manage their forests in a sustainable way. There is no clear perspective, how and where compact areas of private forests could be formed.

The existing legislation also does not allow to form large-scale forest estates for the separate forest owners or for the forest owners cooperatives. There is an urgent need to prepare a general scheme for the whole Lithuania, in which the assessment of the resources in private forests and territorial planning for the further development of private forest sector should be done. The afforestation of arable land should also be considered in the future. Because of private ownership of agricultural land, the share of private forests could be increased substantially.

There does not exist adequate organisational structures to administrate private forests at the moment. The establishment of the institutional framework for the private forest sector is just beginning. In Lithuania, as well as in other post-communist countries, there exist specific psychological difficulties concerning establishment of organisational structures. After the long-lasting Soviet exper-

iment people are tired of collectivism and in many cases do not like to join any form of cooperation.

Some measures aimed at the development of the institutional framework for the private forest sector have been undertaken both by forest owners an by the government. The Association of Private Forest Owners was founded in April 1993. The Consulting Service for Private Forest Owners and the Division of Private Forests within the Department of Forestry of the Ministry of Agriculture and Forestry have been established recently. However, the lack of knowledge, resources and practical experience on how to develop well-functioning private forest sector affect the results of activities of the above institutions.

Due to the very specific situation, with great number of new, inexperienced forest owners, the demand for training and extension among private forest owners is substantial and urgent. Futhermore, the Lithuanian state forestry institutions have very limited capacity and scarce resources to provide necessary consulting and advisory services. Also, the methods and means for training and extension must be adapted to private owners' specific conditions.

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Sustainability and private forestry in Latvia

Lelde Vilkriste

Abstract

Today important issues in the forestry sector are sustainable management and the multiple use of forests. It is important to provide different combinations of forest benefits both for ecological and also for economic and social reasons. Latvia is one of the countries where some years ago significant changes in forest ownership structure started. It is important to know and forecast what private forest owners want to do with their ownership and how to manage their forests. The target of this paper is to show the interaction between the transition process and the development of private forest management.

Keywords: non-industrial private forests, forest policy, sustainability, Latvia.

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1 Need for new forest policy

Forests cover more than 46 % of Latvia's total area. Ongoing land reform is changing the forest ownership structure and at the end of the privatisation process approximately 40 to 45 % of forest land will be under private ownership. After these changes in ownership structure Latvia will become a state with many small forest holdings. Each private owner will own approximately 6 hectares of forest land.

This change in property ownership leads to many problems for the new owners as well as for the state forest policy. The socio-structural change and fragmentation of forest ownership demand new means of public forest policy.

Two basic objectives must be considered in public forestry regardless of the structure of the national economy and the role of forestry in it. In countries dominated by private non-industrial forest ownership, a forest policy problem is how to affect the behaviour of forest owners to accomplish national goals. The general goals for the forest policy in Latvia are sustainability and efficiency. It is necessary to find new means to realise these principles in the private forest sector.

2 Why is the state interested in the private forest sector?

The demand for forest products is increasing and non-industrial private forests (NIPF) will become an important timber source. At the same time, the forest is not only a source of commercial products, but also of non-commercial benefits. It provides employment, economic development, income, as well as recreation, berry and mushroom picking, hunting, tourism and other non-market benefits such as beauty, open space, pollution filtering, oxygen production, etc.

During the past years actual cuttings have fallen below the allowable cut and the growing stock has increased. That is, the cuttings have been smaller than the increment. Increased timber utilisation would be an important factor in national economic development.

Thus, the state is interested in forest outputs from its own forests and from NIPF. Forest owners not only sell timber, but they pay taxes to the state. But this is not the only reason why the state is interested in the development of

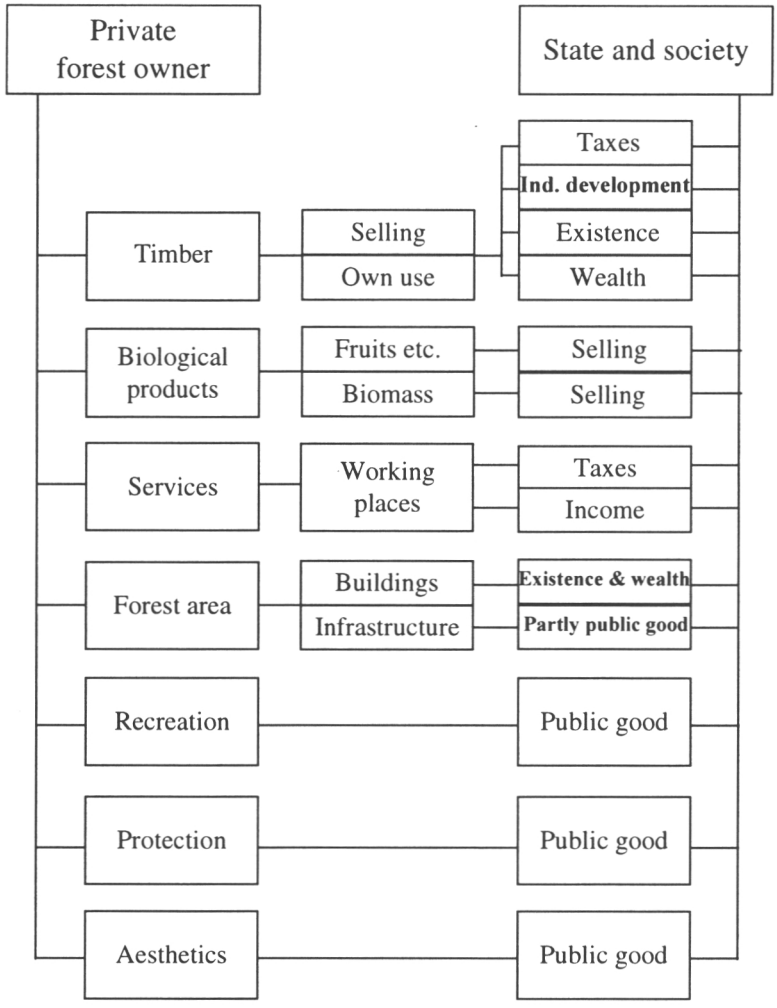


Figure 1. NIPF outputs and "benefits"

private forest sector. Some of the benefits from NIPF are shown in Figure 1. For this, the classification of forest outputs by U. Mantay is used.

As seen from this figure, state and society receive direct and indirect benefits from various kinds of forest outputs produced by the private forest owner. In many cases, the only investor of money and time is the owner, but society uses these benefits without paying. As the demand for non-wood forest products in society increases, the NIPF owners are expected to supply these products. Yet, in most cases the NIPF owner is interested in managing forests to get income. The owner is not interested in producing benefits that cannot be sold in the

market. It is necessary to find solutions that will encourage owners to manage their forests according to the interests of all society.

3 Forest size and management

Distribution of forest estate size groups and the number of forest owners and "users" (persons waiting for property registration in the Land Book) has been analysed for the Valmiera region (Figure 2). It is possible to predict that the situation in other regions is quite similar to that in Valmiera.

The largest group is owners/users with forest holdings of less than 5 ha. There are no problems with the forest management in this group if owners live in or near the property. The forest area is so small that in many cases it is possible to

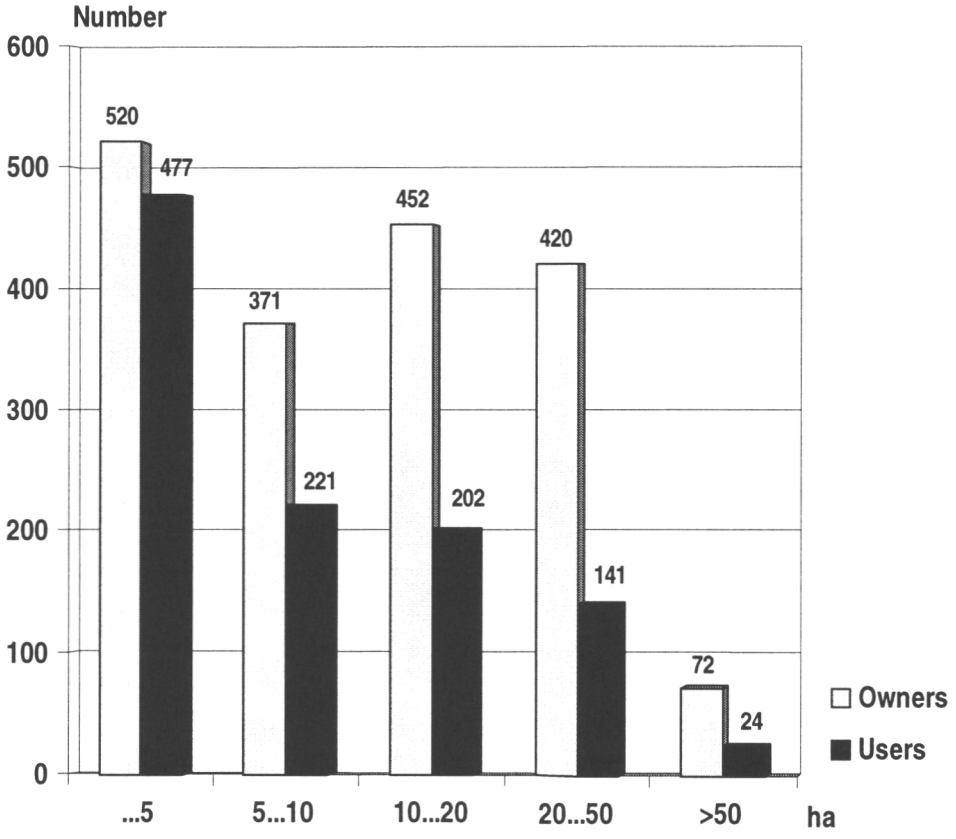


Figure 2. The number of owners and "users" in different forest estate size groups in Valmiera region (According to statistical data from 1.5.1997).

use the timber only for domestic needs, such as firewood and building material. If the owner does not live near the property there are problems with the forest management when the forest area is not productive. It is not profitable to do anything in such forests. Therefore, landowners have little incentive to take care of these forests.

Quite a similar situation exists in the next forest size class. There is no possibility of receiving regular income from these forests. Sometimes, the management of small forests requires much more attention than larger forest areas. One reason are the difficulties in concentration of work and low efficiency in areas with small properties because of which the costs are high. The second problem is connected with the timber selling. These is not a faintest chance to sell high quality assortments of roundwood for market price because the transportation costs for such small amounts of timber are higher than those for a full truck load. More than half of the forest properties in the Valmiera region are less than 10 ha and, according to statistical data, the average size of forest ownership in Latvia is in this group.

The number of forest owners and "users" in the small forest areas are fairly close (520 vs. 477 and 371 vs. 221). In other forest size classes (larger than 10 ha), the difference between forest owners and "users" is much greater. This means that larger forest areas are more suitable for generating income than the smaller areas. Higher efficiency in cutting and transportation and the possibility to get more regular income by selective cutting is more feasible from a large forest than small one.

The various owner groups include owners with different "forest behaviour". There are large differences in how individual owners implement their forest management plans (FMP). It depends not only on the forest estate (productive forest area, site conditions, location), but also on the owner's characteristics.

4 Forest owner and forest management

For NIPF owners forest land with its timber production is a capital asset. The economic results play an important role in the decision making of the forest owners. For the time being the FMPs in Latvia do not include economic analysis and motivations.

There are two possible ways for forest owners to manage their property. The decision has to be made by the owner to invest either money or time. The main factor in determining this choice is distance between the owners and their property. Only rarely is the size of the forest area a major consideration.

According to results of two questionnaires (Barvikis 1997, Vilkriste 1996), forest owners use their properties for different purposes. In many cases it is their residence (full or part-time). This means that time investment by this group is greater than money investment. Owners living on their property are more likely to carry out the forest management activities themselves. The amount of engagement depends on time budget and other possibilities to get income (Gong 1995). A lot of owners are holding their properties for future uses. Only a small number of the owners want to sell their forests. The main reasons for selling are the lengthy distance to the forest and the very small size of the forest area.

For most of the small forest owners the forest results in economic losses rather than income. With forests, the time period from planting to harvesting is long. Interviews of forest owners show that owners do not calculate their time as a cost of forestry production! Many owners think the time spent performing forest work as recreation. This is because in many cases it is done together with family and friends. Joint work is one of Latvian traditions. Also, for rural people it is a chance to meet friends, while for the town people it serves as an active holiday.

5 Rural development

In Latvia, the rural areas are characterised by higher unemployment and lower incomes and standard of living than cities and towns. The situation is different and varies from one rural region to another, but in every region the forest sector has an impact on regional employment and economic development.

ECOVAST (European Council for Villages and Small Towns) proposals for policy and action in "A Strategy for Rural Europe" assert that forestry should be seen as a multi-purpose activity. Among other things, forestry is concerned with production of timber, stimulating local economic activity, control of soil erosion, amelioration of climate, habitat for wildlife, and provision of recreation and tourism.

Many traditional uses of forest products have decreased. The commercial use of woodlands is increasingly focused on large-scale logging. An important factor in sustainable development of forestry is to improve the quality and effectiveness of output. In this case, as the economic efficiency goes up, the employment supported by forestry decreases.

It is necessary to seek a balance between social (people) and economic objectives. More efficient use of forests through natural forest management and cost effective techniques means fewer employment opportunities for the rural population. Can we balance this by giving priority to the increased efficiency in forestry while developing new rural industries? One possibility to improve the situation in rural areas could be to give priority to economic side of forestry and get higher profit using effective trucks. Other possibility could be to organise more working places for rural people. What would be the best for rural people?

6 Conclusions

Forests cover much of the land and are a major element in the landscape and national culture of Latvia. They are also a habitat for wildlife. It is hard to prepare forecasts of future development of the Latvian forest resources and their utilisation. The key factors affecting both demand and supply for wood are population, income, and pricing, technology and policy matters.

It is necessary to analyse sustainable development of forestry from several viewpoints: forest owner, government, society and forest. From each perspective, there are a lot of differences. If we look from the owner's standpoint, the best management is concerned with maximising timber production. From society's standpoint, in many cases, situation is the opposite. Government is interested in the production of both timber and non-wood forest goods and benefits. There is only a small chance to combine all three principles of sustainability (biological, social, economic) to satisfy all interested sides.

It is necessary to continue research on forest owners. It is important to classify individuals and predict their behaviour. But it is also important to understand the motivations of NIPF owners. Understanding the situation and decision process of private small forest owners is very important in finding the means to realise forest policy successfully.

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Private forestry as an employment guarantee in countryside of Latvia

Ilze Silamikele

Abstract

The forest and forest-related activities have played an important role in Latvia's economic and social life since the first Latvian Republic up till today. According to prognoses of the Land Service statistics, approximately half of Latvia's forest area will belong to private owners in near future. The countryside has great problems in economic and social life. Developing small private enterprises can be one way to solve them.

Keywords: private forests, forest management, employment, rural areas, Latvia.

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1 Introduction

Since the beginning of the 20th century, the forest area of Latvia has increased from about 25 % to 44,6 % in 1996. The percentage will be growing also in future. This process is connected with unutilised agricultural lands which are transformed to woodlands. The land-use classes are shown in Table 1.

Table 1. Land-use classes in Latvia (according to statistical data from 1996).

	Area (1 000 ha)	%
Agricultural land	2 505.7	38.8
Actual forest land	2 881.7	44.6
Scrubland	111.7	1.7
Bogs, swamps	315.9	4.9
Bogs for peat production	47.9	0.7
Inland waters	237.2	3.7
Roads, buil ding site	263.3	4.1
Waste land	10.7	0.2
Other	84.8	1.3
Total area	6 458.9	100.0

Wood resources and wood products formed 20 % of Latvia's export in 1994 and 26.4 % in 1995. Therefore our society must develop economical and rational uses of forest resources. Private forests play a central role in this and their importance is increasing year after year. The number of land owners, and forest owners, is also growing.

2 Description of private forests

The distribution of farm forests began during the period of the 1st Republic of Latvia. As a result of the agrarian reform from 1920 up to 1938, 370 324 ha of forest was divided among new farmers. This process was interrupted by the Soviet occupation in 1940 and by World War II. New period in the history of these forests began with the renewal of Republic of Latvia in 1991. Since then Latvia's forest ownership structure has been facing essential changes. In 1994, about 57 % of the forest area was state property, and private forests covered only 15.5 %. Communities' and other owners' forests covered 27.5 % of the forest area. Changes in forest property structure can be seen in Table 2.

Table 2. Forest ownership structure 1935-1995 in Latvia.

	1935		1988		1994		1995	
Owner	1000 ha	%	1000 ha	%	1000 ha	%	1000 ha	%
State	1 390.3	79.6	1 744.9	63.3	1 606.3	57.0	1 626.2	56.4
Private	306.4	17.5			440.3	15.6	642.9	22.3
Agriculture enterprise			916.4	33.2	215.2	7.6	46.1	1.6
Other	50.5	2.9	96.2	3.5	557.8	19.8	566.5	19.7
Total	1 747.2	100.0	2 757.5	100.0	2 819.6	100.0	2 881.7	100.0

In 1st of January 1996 there were 17 000 registered forest owners. Many are so called users who are waiting for the legal registration of their ownership. It is estimated that by the end of the century there will be 80 000-120 000 private forest and land owners. According to prognoses of the Land Service, private forest area will be 0.8 million ha, communities and other owners will have 0.4 million ha and state forests will cover 1.8 million ha in the year 2000. The majority of private forests are small woodlots within lands used in agriculture. Average land property will be 11 hectares including forests with an average size of 3.1 ha. Private forestry of Latvia can not be separated from agriculture.

Private forests can not be evaluated only as a source of timber production. They are also important means in formation of microclimate. For example, they block winds and retain humidity in the bordering agricultural lands. These forests are also integral part of Latvia's landscape. The amount of timber harvested from Latvian forests is shown by Table 3.

Table 3. Forest harvesting volume in 1996.

	Final cutting		Intermediate cutting		Other	
	m^3	%	m^3	%	m^3	%
State forest	2 728 904	66.1	1 633 461	72.5	998 251	58.8
Private forest	1 217 403	29.5	235 848	10.5	148 815	8.8
Other forest	181 175	4.4	382 696	17.0	551 462	32.5
Total	4 127 482	100.0	2 252 005	100.0	1 698 528	100.0

3 Changes in economic and social situation in the countryside

Before the land reform, the number of state farms and statutory companies (reorganised kolkhozes and sovkhozes) was around 800, and they produced up to 80 % of the total agricultural output. Presently their number is steadily decreasing, as they are privatised and liquidated. These changes have affected the social situation of Latvia's rural people. One third of Latvia's population is living in rural areas, and 16 % is employed in the agricultural sector. After the liquidation of the big agricultural enterprises many of them lost work and need to find some other means for living.

As a result of the land reform, many small individual farms have been established. Large agricultural areas are divided into small pieces usually not bigger than 10 ha and seldom more than 30 ha. Sometimes the land properties have been divided among several heirs. Experts estimate that the share of small farms is about 70 %. Big part of their production is consumed by the owner families. This way of management was customary at the beginning of the century but the question is if it is feasible now.

The Latvian agricultural policy is not clearly defined. The question of the status of the agricultural sector in Latvia has always been closely tied to the independence movement and to notions of how the Latvian state should be organised after the regained independence. With the persistent view that the Soviet enforced industrialisation was alien and unworkable in a country with so few natural resources and no history of heavy industry, the attitude that "Latvia's future lies with the land" developed. Historically and ideologically a large proportion of the nation today has a strong belief that Latvia will be an agricultural country. On the cultural level, new farmers have been seen to embody Latvian values in terms of mentality, lifestyle and environmental values.

These hopes were dramatically dashed a couple of years after the independency. Even the most efficient agricultural producers can not be sure of their future, because the basic issues of ownership are not settled. There has been great endeavour by the state to organise the necessary infrastructure such as government, and financial and banking systems, but little attention has been given to agriculture. Farmers sometimes have to orient their activities to subsistence and barter. Generally there is great disappointment in the government's agricultural policy and little belief that anything can be done to change the situation.

Problems are also caused by the behaviour of the owners. They do not have traditions and knowledge of agriculture and forestry, and part of them live far away from their properties.

4 Activities related to forest in rural areas

As mentioned above, the average size of land property is not large. Agriculture and forestry do not guarantee sufficient income in small holdings and people must think about additional ways to earn income. It is possible to separate several groups of people employed in enterprises related to private forests:

- small property owners who work in agriculture in summer and in forest in winter, therefore they get income around the year,
- people specialised only in forest harvesting working as contractors in local forests,
- people who own a little sawmill and process timber from near-by areas, and
- people who base their management on recreation and tourism.

All these groups contain often family-owned small enterprises. They can not compete with big firms. In many cases the owners are self-educated and their enterprises drop behind from big firms with quality and amount of production. However, at the same time this is a way to create working places.

Table 4. Advantages and disadvantages of small family enterprises

ADVANTAGES	DISADVANTAGES
• working places	• poor quality
• income	• low efficiency
• self sufficiency	• poor knowledge
• management of small forests	• hard to control tax payment

For example, according to an evaluation done by the State Inspection Board of Forests and Hunting the situation in private forestry in 1996 was the following:

- 36.9 % of thinnings in private forests are done with mistakes; biggest trees are taken out, after which the stands are very thin and unstable against wind falls.

- the situation is the same in selective cuttings; 27.7 % from evaluated areas are unstable and clearcut is needed.

- reforestation works are not done in most clearcutting areas.

This situation shows that a large part of new forest owners are not ready to manage their holdings. They need practical training and education in basics of forestry.

5 Conclusions

Rural areas of Latvia are experiencing great changes now and developing in different ways. There is a need for clear state agricultural and forest policies which include private forestry. The legislative and tax systems need changes according to the demands of the new situation. New land and forest owners need more information, and possibilities to participate in field training and theoretical courses. Statistical information about privately owned forests is also needed.

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The Finnish Forest Research Institute, Research Papers 704: 137-144.

The role of forest rangers in the Latvian state forest sector

Ilva Konstantinova

Abstract

The article describes the tasks of the State Forest Service (SFS) and the Forest Department of the Ministry of Agriculture in Latvia. The main focus is on the role of forest rangers in the forest districts of the SFS. The article introduces an optimisation model to define the optimal amount of rangers per ranger district. The main conclusion is that the amount of rangers has to be increased. One important reason for this is the recently started process of forming private forest estates. The SFS rangers should inform and advice the new private forest owners to manage their forests sustainably.

Keywords: forest rangers, State Forest Service, forest policy, Latvia.

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1 Introduction

Forest management and activities connected with it are one of the significant spheres in the economic and social life in Latvia. Total area of the actual forest land is 2 882 million ha or 44.6 % of the area of the country. More than half of the forests (56.4 % in 1996) is owned by the state. The State Forest Service has the responsibility to manage Latvian state forests and to carry out sustainable forest management.

From the viewpoint of forest economics, sustainable forest management refers to systematic reproduction of resources. It can be explained as a) realising such state macroeconomic politics which provides stable or improved percentage of forest lands, b) providing forest management that improves forest productivity or keeps it in current level, and c) providing a forest policy which coordinates the various ecological, social and economic functions of forests.

2 Functions and structure of the State Forest Service (SFS)

Until February 1997, SFS was the main executor of state forest policy. SFS had four basic functions:

1. legislation function - to make legal regulations and acts,
2. supervision function - to supervise the realisation of forest policy and the legislation,
3. owner's function - to manage, protect and guard state forests,
4. response function - to support forest science, education and other forest owners.

A new Forest Department has recently been established in the Ministry of Agriculture. The obligations of the Forest Department are to take care of the legislation function and to lead the forest policy-making process (Figure 1).

Latvia's territory is divided into 35 State Head Forest Districts of SFS. The average size of the forest area in State Head Forest District is 88 thousand ha. State-owned forest land covers nearly 60 % (59 thousand ha) of them. Head Forest Districts are composed of 262 Forest Districts. These Districts are divided into 1852 ranger districts. Each ranger district is managed by a SFS employee - a ranger. Rangers form the lowest level of the SFS staff. They are

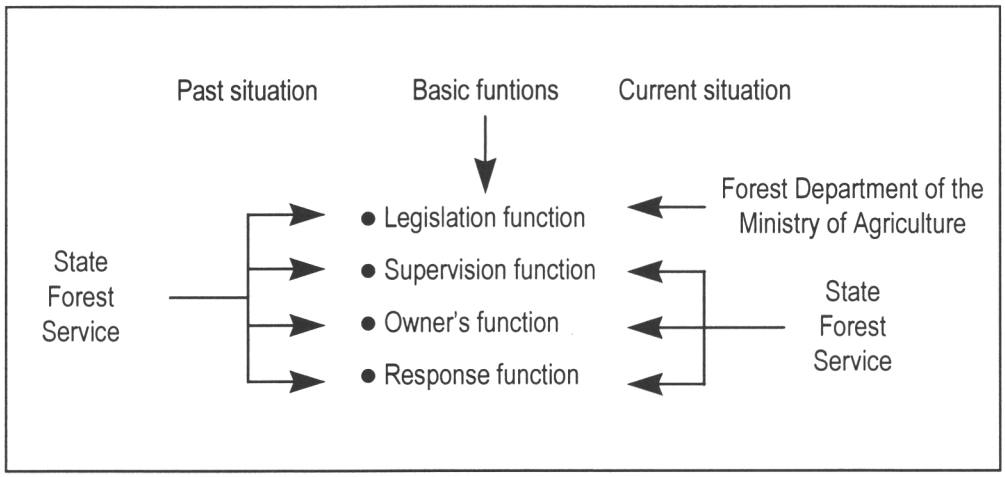


Figure 1. Functions of the State Forest Service and the Forestry Department of the Ministry of Agriculture in Latvia.

responsible for the forest management activities, forest protection and guarding, nature protection and other tasks in the ranger district.

3 Motivation for the optimisation study on the amount of rangers

The biggest part (60 %) of the staff of SFS are rangers. The amount of rangers is not strictly defined unlike the amount of other staff (every Head Forest District has one chief forester, a fixed number of engineers etc.). The reason for the need of optimisation model studies is the big variation in the numbers of rangers in relation to the sizes of ranger districts in the Head Forest Districts (Figure 2). This means that an equal quantity of work is done by varying number of workers.

At the beginning of 1997, approximately 10 % of rangers were fired from each Head Forest District. The reason for this decision was insufficient financing. It was not possible to reduce the level of the rangers' salaries; the Latvian legislation norms prescribe a fixed level for state officials' and rangers' salaries.

4 Principles for the calculation of the optimal size of a ranger district

The problem to calculate the number of required SFS officials and employees is complicated. This number depends on the labour-consuming character of the functions entrusted to employees and the size of the working area. A mathe-

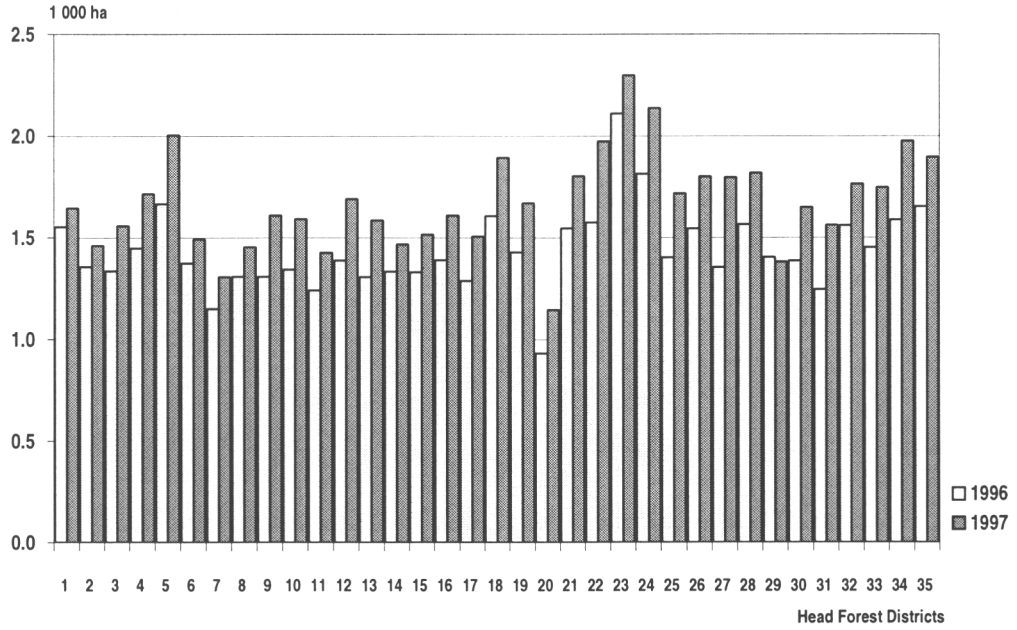


Figure 2. The average size of the forest land in ranger districts of the 35 State Head Forest Districts.

matical approach developed by Dr. F.Bludins (1973) is used to calculate the optimal size of a ranger district. This mathematical method has been adapted in accordance with the ranger's tasks nowadays using data from the Saldus Head Forest District. The changes in the model were based on defining more exactly the tasks and competences of the rangers. Rangers' obligations consist of

1. general supervising of all forests,
2. supervising forests under SFS's authority (state forests),
3. cooperating and consulting with other forest owners,
4. organising and managing forestry activities.

The size of a ranger district is dependent on the labour-consuming character of these tasks. The labour-consuming character depends upon a) the amount and complexity of forestry work, b) fire danger and c) the territorial dispersion of forests. These criteria are used in the calculation of the optimal size of a ranger district.

5 The model

The algorithm which serves as the basis for the calculation of the optimal size of a ranger district (S_{rd}):

$$S_{rd} = A_{tfl}/K_y * Q_{ms},$$

where

A_{tfl} - total area of all forest land of Head Forest District,
K_y - integral coefficient,
Q_{ms} - subjective index, which shows the amount of forestry work to be done.

Integral coefficient K_y depends on five other coefficients:

$$K_y = K_{gc} * K_d * (a + b * K_{fd}) * 100,$$

where

K_{gc} - the coefficient of the type of forest growing conditions,
K_d - the coefficient of the dispersion of forest area,
a - shows how much time is spent for organising and controlling activities,
b - shows how much time is spent for guarding and protecting the forest,
K_{fd} - fire danger coefficient.

$$K_{gc} = (A_{olig} * K_{go} + A_{mezot} * K_{gm} + A_{aut} * K_{ga})/A_{fg},$$

where

A_{olig} - the amount of oligotrophic forests types,
K_{go} - coefficient of the labour-consuming character in oligotrophic forests,
A_{mezot} - the size of mesotrofic forests types,
K_{gm} - coefficient of the labour-consuming character in mesotrophic forests,
A_{aut} - the size of autotrophic forests types,
K_{ga} - coefficient of the labour-consuming character in autotrophic forests,
A_{fg} - area covered by forest growth in Head Forest District.

$$K_d = (A_{tl}/A_{tfl}) + (N_t/A_{tfl}),$$

where

A_{tl} - total administrative area of Head Forest District,
N_t - total number of large tracts of forest and forest owners and users.

$K_{fd} = (\sqrt[3]{B} * K)/\sqrt[3]{B_v}$,

where

B - the average number of forest fires per one year during the last three year period in Head Forest District,
K - average degree of the probability of forest fire (depends on forest type),
B_v - the average number of forest fires per one year during the last three year period in Latvia.

$Q_{ms} = (Q_t/A_{sff})*(A_{sfl}/100)$,

where

Q_t - total amount of finances used for carrying out forestry works per year in SFS,
A_{sff} - total area of state forest fund,
A_{sfl} - total area of state forest land.

6 Results of the calculation and discussion

The results of the calculation to define the optimal size of a ranger district consists of the average size of ranger districts in each Head Forest District and the optimal number of rangers in each District. The visual comparison of the results and the current situation is given in Figure 3.

The results show that the total number of rangers have to be increased in average for 60 %. However, there are some exceptions; the model prescribes less rangers for 5 Head Forest Districts.

The main conclusion is that the number of rangers has to be increased. The current amount of rangers can not carry out forest management and other tasks successfully. One important reason for the need to increase the number of rang-

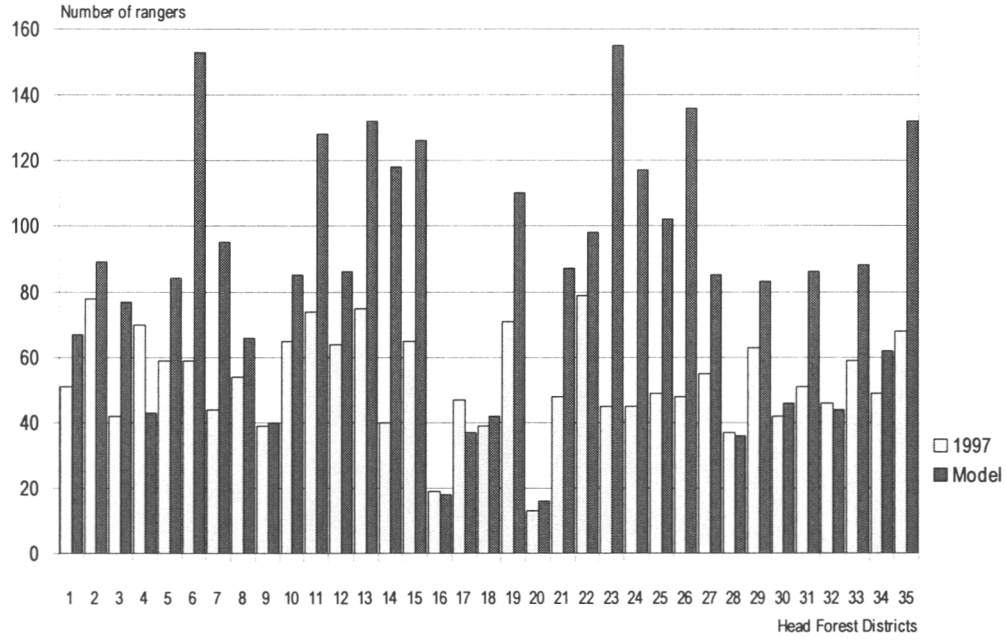


Figure 3. The amount of rangers in Head Forest Districts in 1997 and according to the calculation.

ers or to decrease the sizes of ranger districts is the forming of private forests (up to 45 % of total forest area). The new forest estates are small and forest owners' knowledge on forest management mostly narrow. The task of the SFS staff and rangers should be to supervise all forest areas and to inform and advise private forest owners about necessary forest management activities. This and other rangers' tasks in SFS are not well taken care of. It is necessary also to carry out other activities to improve the sustainability of forest management in all Latvian forests. One of the main problems is the lack of motorvehicles for the forest rangers. This and other problems have to be solved to improve the service provided by the Latvian SFS rangers.

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The Finnish Forest Research Institute, Research Papers 704: 145-152.

How human impact is reflected in forest dynamics in Estonia

Kalev Jõgiste

Abstract

The article discusses the influence of human activities on forest vegetation and how social changes are reflected by vegetation dynamics. The mechanism of changes in ecosystems and possible concepts to set the management goals are treated. It is emphasised that modern methods to analyse social sustainability are needed. The development of quantitative indicators and measures is an essential issue in sustainable development.

Keywords: forest vegetation, succession, forest management, structural retention at harvest, sustainability, Estonia.

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1 Introduction

Secondary forest succession takes often place under intensive human impact. There are specific plant communities in Estonia which are the result of agricultural and forestry operations. An example is the wooded meadow: the grassland or pasture with sparse tree cover.

The composition of species in forest plant communities depends on human activity. If the agricultural lands are abandoned, the approximate duration of the period without tilling can be estimated on the basis of species composition.

A number of variables can be utilised as indicators of human impact on the forest communities. The biomass of forest resources or the age structure of the stands in a certain region tell about the intensity of forest management. Usually the area and biomass of forests drop with high density of human population. More wood is needed in the daily activity of society. The mean age of stands is lower and the stands are even-aged.

The theoretical framework to describe plant community development was coined by Clements (1916). However, the purely natural dynamics of vegetation is an idealisation. The real changes in forests are more or less affected by human activity in every point of our planet.

To plan the strategy for sustainable development of society we have to understand the mechanism of vegetation (e.g. forest) dynamics and biological background of these phenomena to be able to evaluate the outcome of our activities in ecosystem dynamics. Ecological research is focused on the understanding how the forests are responding to management regimes in different temporal and spatial scales of observation. The sustained development can be achieved only if we know what are the consequences of alternative management regimes.

This paper discusses the sustainability of silvicultural systems and forest dynamics in short temporal and small spatial scale. The understanding of the mechanisms in forests supports the decision making in bigger temporal and spatial scales (e.g. landscape and global level) needed for ecosystem management and planning.

2 Forest succession

One may ask what is the desired state of forest; the alternatives vary from untouched forest with very strict protection to deforested area. The answer could be: the desired states are continuous, stable forest ecosystems which support social sustainability and provide necessary resources for future generations.

According to the classical Clementsian approach (Clements 1916), vegetation dynamics proceeds through certain serial changes of communities and the endpoint of the succession is the climax phase, the character of which is controlled by regional climate. Nowadays a more detailed and pragmatic approach is focused on site-specific environmental effects and response of plant community or ecosystem to a unique combination of site conditions (Spies 1997).

The concept of steady state stage of forest ecosystems (Borman and Likens 1979) describes the mosaic whose structural elements dynamics is in equilibrium (Spies 1997). Shifting mosaic steady state (Oliver and Larson 1990) is relatively stable endpoint of succession. It does not mean the absence of changes in ecosystem, but there are numerous processes on different levels. This endpoint of succession is the outcome of plant population processes and growth characteristics (Glenn-Lewin and van der Maarel 1992, Jõgiste 1998). The stable state of ecosystems has a positive feedback connected to social processes. Thus, a shifting mosaic could be a target from the point of view of social sustainability as well.

The composition of woody species in the vegetation depends on grazing and hey cutting. It is possible to predict the main trends in compositional change of vegetation according to the intensity of agricultural operations and farming. The afforestation of abandoned agricultural lands takes several decades in Estonian growth conditions. The forest succession in areas without intensive human impact has several specific traits, for example, broad-leaved tree species in shallow coastal soils (Jõgiste 1993).

The amount of accumulated biomass could be kept on certain level by a management regime. It means that the accumulation rate is zero. Such a reasoning can lead to a wrong conclusion that the productivity is zero too. In fact, the net primary production (production of harvestable biomass) can be calculated by considering removed and dead biomass of the stable ecosystem (Peet 1992, Jõgiste 1998). The main point is that new growing biomass replaces the mortal-

ity (removed and dying biomass). Namely, the mature forest destined to die is potential harvest from the point of view of stable ecosystem management.

Deforestation has usually been seen as an example of non-equilibrium state of forest threatening social sustainability. This negative process could be understood as the concurrent effects of several factors, for example excessive cutting and immoderate grazing (Fritzbørger and Søndergaard 1995). However, the continuity of forest cover in time might include forest communities of different quality and management purposes. The decision how much we must have forest area is a political one. The contents of this politics is the answer to the question what is the purpose of forest management and how to achieve the management goals.

3 Silvicultural systems in forest management

After becoming independent state there have been great changes in socio-economic behaviour in Estonia. This change affects the forests and forestry to a high degree. In more narrow meaning, the socio-economic behaviour means the prescription for forest management.

Forest utilisation could support the sustainable development of society. The main question is the continuity of the utilisation. Deforestation is a problem for many regions in tropics today. Deforestation in the past has been a negative process in the Nordic countries also (Fritzbørger and Søndergaard 1995).

The alternative systems in silviculture include the structural retention at harvest. It means retaining the structural elements of the harvested stand (single trees, groups of trees) for at least the next rotation to achieve specific management objectives (Franklin et al. 1997). Such treatment leads to continuous resource consumption and continuous employment for people in forestry sector. Once again the question about the scale of the phenomena is approached; the "groups of trees" can be regarded as woodlots of several hectares.

The concept of shifting mosaic mentioned in the previous chapter could be applied in management scenarios in different scales. The cutting systems of structural retention result in a mosaic of trees and tree groups of various age classes. However, a long time period accommodates the concept of woodland development (Fritzbørger and Søndergaard 1995) which is the dynamics of forest cover from the viewpoint of the history of human society.

On the other hand, the retention of the harvest causes problems. The retained structural element can be sensitive for wind and pests. Several aspects have not been studied sufficiently, for example, what is the necessary retention level (number of trees remaining after harvest) to effectively maintain the hydrological balance (Franklin et al. 1997). Further research is needed also to clarify the dynamics of forests with alternative management systems.

Regeneration patterns of forests are affected by the structural retention at harvest to a high degree. There exists a variety of methods to regenerate forest after structural retention. Natural seeding, planting and release of advanced regeneration can be used (Tappeiner et al. 1997). However, high retention levels (many trees are retained) favour shade tolerant species. By applying the retention harvest system the even-aged forests are converted to uneven-aged forests. Shade tolerant advance regeneration could be suitable for high levels of retention.

As it was mentioned, the quality of forest stands is affected to a high degree by human activities. Silvicultural measures are meant to regulate wood production. Usually they aim to accelerate the growth. This is the approach of the industrial forestry era. But the growth of forest is an essential aspect to be kept in mind in setting other management targets as well. The advent of multiple-use forestry is connected to the shift of forest ownership from companies and state to private persons in Estonia. The principles of sustainable management for timber production, recreation, berry picking and other objectives are often different in private and state-owned forests depending, for example, on the size of the forest estates.

4 Sustainability and nature conservation

One of the most important questions in developing the concept of sustainable development of society and forestry is the defining of criteria and indicators for sustainability.The measures allowing the evaluation of sustainability are based on three main components: economics, ecology and society. Combined measures can be used as indicators (e.g. forest area per capita) but it is particularly difficult to insert measures of social dynamics to combined variables.

The concept of sustainable forestry is connected to the term biodiversity. For instance, retention harvest is effective in maintaining biological diversity (Franklin et al. 1997). Thus, biodiversity is a good indicator of efforts for sustainable

use of forests. In a way, the higher diversity indicates that the forest is much closer to natural conditions. But this is not the case always. Some ecosystems have very low natural biodiversity. The conservation must be thoroughly planned, otherwise the diversification can all too easily become homogenisation (Noss 1993).

There are two main aims in planning conservation regarding biodiversity. Firstly, we can protect the existing biodiversity situation (usually species-rich communities with high diversity). This is the true meaning of conservation; we try to maintain the existing situation for some valuable aspect which is believed to be important for us. Secondly, we protect the area to increase (or sometimes decrease) the biodiversity as a result of successional dynamics to achieve a desirable state. The conservation in the latter case alters the situation and causes changes in the community.

Although biodiversity is an important indicator of the state of a forested ecosystem, it is not the only objective of conservation. In some cases other aspects serve as priority objectives. Anthropogenous landscapes can be protected and in this case the protection includes cultural heritage aspects. For example, protected pastures as landscape elements allow the farmers to continue the grazing of domestic animals and support the traditional land use.

However, the social targets can be contradictory in some cases. For instance, the protection of a picturesque landscape could save the unique view for many recreationist but means loss of jobs for loggers.

There are always changes in forest ecosystems called natural processes. The main aim of nature conservation is the protection of endangered species and communities to maintain biodiversity. Research on how traditional wood production and modern multiple-use targets (recreation, grazing, etc.) fit into general diversity pattern is an important task. Dynamic aspects of conservation biology must be applied in planning the sustainable management of forests. Thus one may conceive that conservation of biodiversty is meant to facilitate the possible increase of species populations occurring in certain region in natural conditions.

5 Concluding remarks

Ecological research is directed to find causal relationships and predict and model natural processes. However, there are random events which influence or even start new ecosystem processes. The source of many such events are the human forces, deliberately or non-deliberately. On the other hand the development of society is affected by random effects too. If we know how the forested ecosystem operates, the impact of probable interferences and disturbances coming outside of the system (also natural catastrophes) can be predicted. Thus, the random factor coming from outside becomes a part of the system.

The understanding of the joint functions of ecological, social and economic systems is an extremely big challenge and today we stand on the threshold of this interdisciplinary research. This is the time for setting the goals for discussion and the time to initiate methods to analyse the complex system of man and nature.

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Development of forest conservation area network in Estonia

Henn Korjus & Kaili Viilma

Abstract

In the new Estonian forest policy an effort has been made to formulate a biodiversity assessment of forest communities and to develop a forest conservation area network representing all forests in the country. The problems connected to the selection of the conservation areas and social aspects of forest conservation ideas are discussed in this article. As maintaining a particular area outside the common management regime is always complicated and needs comprehensive calculations, certain basic problems have to be considered before making any management decisions. Forest biotopes are quite diverse in the temperate climate zone in Estonia and there are a lot of rare and endangered species inhabiting these forests. The new Estonian forest policy has stated that 4 % of the total forest area of Estonia should be strictly protected for maintaining the biodiversity. The protected areas should be chosen, inventoried and analysed during the next few years.

Keywords: forest conservation, protected areas, biodiversity, forest policy, Estonia.

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1 Introduction

The history of forest protection in Estonia goes back to medieval time when the first cutting restrictions were set to reinforce and regulate ownership relations. Before that only some holy trees or stands with very old and big trees - mainly oak and limetrees - were protected against cuttings. In the 17th century, the abstract idea of forest protection came to state forest policy level and the aim was to avoid overcuttings in state forests and to maintain valuable tree species such as *Quercus robur*, *Malus sp.* and ship building trees (Meikar 1987). This line continued more or less through the 18th century, but during the last third of the century forests were treated already more as separate, independent management units.

The birth of classical forest management with expansion of large clearcutting areas dictated the need for keeping some areas under permanent forest cover because of state and later on environmental considerations. Cuttings were prohibited, for example, on 100 m wide coastline on the island of Naissaare as it was used as a daytime seamark. In the 19th century forest cuttings were prohibited in Curonia and Livonia to fix dunes and to protect the coastline, and a 300-2100 m wide protection forest belt was established. Only collecting of rotten and dead wood was allowed in the belt. Besides these protection forests there existed also around 40 000 ha (about 17% of state forests) of "ship forests" or protected forests. At the end of the 19th century, 13 000 ha of protection forests were created with a law aiming to sustain forest. The data on these forests have never been analysed scientifically.

From the beginning of the 20th century new conservation ideas have been coming to Estonia but there does not exist any satisfactory system of developing protection areas network (Viilma 1997). The existing conservation areas are separate units and they do not make an interconnected system. So we can not tell if the forest or landscape types are protected in relevant spatial extent. There are no calculations to define what is the sufficient area of a forest type to be protected and where the protection area should be located. There is still a lot of work ahead to develop a representative network of conservation areas to maintain biodiversity of Estonian nature.

2 Biodiversity of Estonian forests

Estonian forests are quite variable because of differing water regimes and soil conditions. Also the commonly used management regimes have made the forests even more variable. Average size of a forest stand is around 1.2 ha, which has been determined mostly by the size of cutting areas. The new Estonian forest policy (1997) does not allow bisecting of the existing stands any more. This means that the further forest management should be based on standwise treatment of forests.

The terms 'site type' and 'forest type' are used in forestry. Site type is mainly determined by soil and water regime. Forest type is defined by site type and dominant tree species growing on this particular site type. Most of the Estonian forest types are secondary forests, i.e. they are result of human activity or environmental changes. Most similar to initial forests are marshlands and swampy areas where human activity has been very low because of extreme environmental conditions (Laasimer 1965). Human impact on forest types on fertile soils has been intensive because of agricultural use of the areas. Many forest types would not exist on site types where they are found now without human activity. In a way the diversity of Estonian forests is artificial and supported by human beings.

Since the first forest typology made by Cajander in 1926 there have been several different site type classifications, for example Sukatchov 1938, Pogrebnjak 1955, Karu & Muiste 1958, Katus & Tappo 1965 (Lõhmus 1984).The present classification of Estonian forest site types is by Lõhmus (1984). According to this classification, the forests are divided into forests on mineral soils and peatland forests. These two classes include 22 forest site types in total.

Besides the official classification used at state level and forest inventories, there are some site types which are not determined in this classification, for example clint forests and flood-plain forests. These site types have characteristics of a forest site type but some unique features as well. Paal and Kalda (1997) have made a list of 23 endangered and rare forest types which should be protected and maintained for future. They are mostly representatives of alvar forests, flood-plain forests, clint forests and broad-leaved forests. The broad-leaved deciduous tree species are dominant on 0.58 % of total forest area. Kalda and Paal (1997) presume that we have not lost any forest types due to the human impact and management activities in Estonia.

Experts of different fields have listed endangered species in Estonian forests. These lists include 496 species (85 vascular plants, 25 mosses, 55 lichens, 101 fungi, 77 insects, 113 birds, 5 reptiles, 8 amphibians and 27 small mammals) and most of them are already protected in a various ways. These lists are not to be considered as complete because we know still too little about the distribution and habitat preferences of many rare species. Even if the existence of some species has not been recorded for decades it does not mean that it has disappeared from Estonian fauna or flora. Altogether 196 of the endangered species are mentioned in different European lists of endangered species (e.g. EU directive species, species of Bern and Bonn conventions, Red List of Lichens).

Estonian forests are quite diverse because of relatively mild climate and varying growing conditions. There are species typical to central Europe and arctic zone. Estonia is located in a transition area from one climatic zone to another. The influence of the Baltic sea has big importance to forest biodiversity.

3 IUCN protected area categories I and II in Estonia in 1997

There are six broad IUCN (International Union for Conservation of Nature and Natural Resources) protected area categories based on management objectives (IUCN 1994). As these categories are meant to cover different protected area types all over the world, it is essential to be aware that every region has its own characteristic features, management and protection regimes, natural conditions etc. Protected areas in different regions inside one category are not totally comparable. Affiliation of a protection area to any of these categories is always a matter of discussion.

Many new strict forest reserves which are not presented in the calculations have been established in last two years by new protection rules. As we do not know exactly which areas are renamed to reserves we can not consider them here. Also, as it was mentioned above, the territories of protection areas change continuously because of the new protection rules and privatisation processes.

Estonian forests are divided into three forest categories: protected forests, protection forests and commercial forests (Metsaseadus 1993). In protected forests, the objective is to protect the forest itself and there are the following subcategories: gene funds, forest reserves, wilderness protection areas, scientific and historical forests, habitats of protected wildlife, plants and birds, national parks, protected and nature conservation area forests, memorial forests,

and urban and recreational forests. Protection forests protect some objects and the subcategories are the following: soil protection forests, road protection forests and water protection forests. The main function of commercial forests is timber production.

Protected and protection forests cover around 316 790 ha. According to the new forest policy (1997), at least 4 % of the total forest area of Estonia should be protected forests where no forest management is allowed. In addition, 15 % of the total forest area should be protection forest, i.e. at least 19 % of Estonian forest will have restrictions on timber production. On the basis of the available national park and nature conservation area data, about 52 000 ha, or 2.5 %, of the total forest area of Estonia belonged to the IUCN protected area categories I and II in 1997. Data of all specially managed zones of conservation areas is not yet included in these figures.

Additional research to has been carried out to update available data on strict forest reserves and other strictly protected forests in Estonia. Three of four national parks - Lahemaa, Karula and Soomaa - were asked to give an overview of forests and distribution of forest land into different protection zones in their territory. Also Haanja Nature park and Nigula State Nature Conservation Area were asked to specify the areas of forest reserves in their territory. The list of strict forest reserves from 1994 have been changed according to these data. Distribution of forest land of national parks into protection categories is given in Table 1.

Table 1. Distribution of protection categories on forest land in national parks.

National park	Total area (ha)	Forest area (ha)	Distribution of forest area (ha)			
			Reserves	Special management zone		Limited management zone
				Unmanaged	Managed	
Lahemaa	49 000	31 635	76	9 350		22 209
Soomaa	37 121	11 700	78	3 120	2 146	6 356
Karula	11 097	7 770	110	2 690	2 805	2 165
Total	97 218	51 105	264	15 160	4 951	30 730

Forest areas in the Table 1 are not exactly measured and in many cases these numbers are only expert opinions.

Updated data at 1.11.1997 concerning the strict forest reserves is given in Table 2. It has to be pointed out that new forest reserves have been established in nature conservation areas with new conservation rules but the collection of this data was too complicated to be carried out within such a short time. Major changes in comparison with data from 1994 are caused because of the division of Lahemaa National Park into three different protection areas - Lahemaa Nature Park, Ohepalu Nature Conservation Area and Viitna Landscape Protection Area.

Table 2. Strict forest reserves.

Forest reserve	The year of establishment	Conservation area/ forest district	Forest area (ha)
Vainupea	1973	Lahemaa National Park	273.0
Järvselja	1924	Järvselja Forest District	19.3
Tuhkrimäe	1991	Haanja Nature Park	19.9
Nigula marsh islands	1957	Nigula Nature Conservation Area	100.0
Aruküla heath forest	1979	Saru Forest District	32.0
Pautsjärve	1993	Karula Forest District	110.0
Ihamaru old-growth forest	1981	Põlva Forest District	143.0
Jänijõe flood-plain forest	1972	Kõrvemaa Landscape Protect. Area	331.0
Vällamäe	1991	Haanja Nature Park	52.0
Tuhamaa	1993	Soomaa National Park	78.0
		Total	1,158.2

The area of the IUCN protected area categories I and II can be calculated on the basis of Tables 1 and 2. The special management zone forests (Table 1) are protected because of many reasons and may have many protected forest subcategories, for example habitats for protected wildlife, birds, plants etc. The area of strictly protected forests where no management activities are allowed is 15 160 ha. In comparison with 1994, the total area of the strict forest reserves has decreased.

4 Selection of new conservation areas

Selection of new forest areas for protection purposes is not as simple as it may seem. It has to be realised that only state-owned forests are under consideration. If we would protect 19 % of the total forest area of Estonia, it means 35-

40 % of the state forest area. Of course, also specific private forests should be managed according to the protection regimes determined by the state.

There are a lot of problems concerning selection of protection areas in Estonia. Some considerations we have to think over are presented below.

If we would like to protect biodiversity of all Estonian forests it is important to realise that a great part of the existing forests are result of human activity. We have to decide if we try to maintain the existing situation, restore some other stage of forest history or protect only the most natural forest types. Maintaining of the existing situation or protection of the most natural forest types are the easiest solutions today but there will be problems in the future as nature develops continuously and it is hard to predict the development directions despite our protection efforts. Due to the protection of natural forest types we will loose some very interesting secondary forest types which are a natural part of Estonian landscape and habitats of many rare and endangered species. Restoration of the previous stages of forest history is expensive and extremely complicated because of lacking knowledge about forest development processes and how to change them.

Another aspect of the problem described above is the protection of processes or existing conditions. If we protect processes we will loose some forest types, for example productive pine stands on sandy soils which will develop to spruce stands. So the diversity of forests declines, and the forests will look more similar. Protecting a succession stage and avoiding common disturbance by humans will lead to disappearance of certain stages. If we protect existing conditions we need to manage certain types of forests to maintain the existing composition and look of the stand. This work is very complicated and results are not always predictable.

A forest type is not really an existing unit in nature - it is only a model. All transitions are continuous in nature. We cannot use forest types as a basis of selection of natural protection areas because some subtypes and transition zone forests will be then eliminated. It has been calculated that during 40 years forest types have changed towards some other forest type, mostly drier and more fertile (Kiviste & Korjus 1997). We have to be aware that the site type selection does not look the same in the future. Also the assessment of rare species to evaluate the value of a stand should be used with reservations. Due to climatic changes, the distribution and rarity of species will change.

The area of protected forests is determined by the Estonian forest policy (1997). The decision to protect not less than 4 % of the existing forest area is made considering the existing situation in forestry. More than one million hectares of forests have been reforested during the last century in Estonia and there are still plans to afforest about 400 000-500 000 hectares of abandoned agricultural lands (Korjus 1997). It has to be thought if we should maintain the percentage and the area of protected forests on the same level even if the total area of the Estonian forests would grow in the future.

Nature does not follow state borders and the same vegetation types we have in South Estonia (including forest types) can be found in North Latvia. Thus, the creation of forest or other conservation areas should be planned at regional level (e.g. Baltic level) when the natural and environmental conditions are similar.

A practical problem in establishing forest reserves is the size of the reserve. It is clear that reserves should be made as big as possible and reasonable considering natural conditions, i.e. to minimise the number of units. Every protected forest needs transition zone of buffer forests to minimise human impact, and also guarding and monitoring is easier in larger areas.

The overall selection of conservation areas is a matter of planning and optimising. It can also be described with a passive experiment through speculating what happens if we do this or that. The selection should be planned so that the continuity will be represented as well as possible because nature is a continuous phenomenon.

More philosophical problems are connected to the development of environment. People are one part of nature and the influence of human activity should be looked as natural. Besides all economic aspects of forest conservation we have to be aware of social impacts on local people and communities. An analysis has been made on the economic and social aspects of forest conservation areas in comparison with managed forests on the basis of information obtained by studying the really existing Karula national park (Ahas 1996). This analysis concludes that the costs and revenues differ very little in a conservation area and in managed forests. At the same time it is extremely complicated to evaluate revenues from untouched nature. Strictly protected forests are not meant for ecotourism or recreation.

The conservation regime should be thought over very carefully. We cannot ignore the attitudes of local people. If they are not interested in cooperation with authorities to minimise human impact on certain area it is hardly possible to create an untouched area. Negative attitudes to nature conservation are quite usual among countryside people and it is understandable, but we cannot establish conservation areas only in places where "nobody ever goes" as some people suggest. That is why we have to summarise all contra and pro arguments when choosing forest areas for strict protection.

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Private forest ownership in Finland and Estonia: comparative analysis

Heimo Karppinen

Abstract

The article describes non-industrial private forestry in Finland and in Estonia by comparing forest resources, owner and holding characteristics, forest owners' objectives and their cutting behavior. Conclusions are drawn from the point of view of social sustainability. The results suggest that the structure of private forest ownership is rather similar in both countries, in spite of the different histories of private ownership. Finnish owners emphasise economic objectives and income from timber sales, but in Estonia most of the timber is used in private households for heating.

Keywords: private forests, objectives of forest owners, cutting behavior, social sustainability, Estonia, Finland.

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1 Introduction

The Finnish economy is very dependent on private forests which provide about 80 % of the domestic roundwood used by export-oriented forest industries (Sevola 1996). The roots of private forestry in Finland can be traced back to the late 18th century, when the official demarcation of forests began. Since then the redemption of leasehold properties in 1918 and huge settlement activities after the Second World War have had a tremendous impact on the structure of private forest ownership (Karppinen 1988, Ripatti 1996).

During the past thirty years, the main trends in the rapid socio-economic change affecting non-industrial private forestry (NIPF) have been occupational and regional differentiation as well as urbanisation of the population. The main characteristics of the structural change among Finnish private forest owners have been the transfer of forest ownership from farmers to non-farmers through the inheritance mechanism, the fragmentation of forests, the aging of forest owners, an increased ownership by women, and an increase in absentee and joint ownership (Ripatti & Järveläinen 1997).

The structural change of forest ownership is often considered to be the most important reason for changes in forest owners' values and objectives. Different kinds of people with different values and objectives, education and occupations become forest owners through ownership transfers. According to a long-lived assumption, the structural change should be reflected in a reduction of roundwood supply due to an increased emphasis on non-timber objectives. Such a decrease in NIPF timber supply can neither be detected from statistics nor is it supported by the empirical studies (Ovaskainen & Kuuluvainen 1994).

The independence from Russia in 1919 changed radically the forest ownership conditions in Estonia. The feudal estate owners were forced to give up their land ownership, including also forests, for a nominal compensation. In fifteen years, a little more than ten percent of the total forest area was privatised and handed over to small-scale farmers to provide them with firewood. The state was the major forest owner: around 80 % of the forests were in state ownership before the Second World War (Neuschäffer 1991).

After fifty years of Soviet occupation, land reform program was initiated in 1991 in order to restitute former land ownership, including non-industrial private forests, to their original owners before the occupation in 1940, or their

descendants. The forest area to be restituted is, however, clearly larger than the area of private forests in 1940. A considerable part of the former agricultural land has turned into forests during the past 50 years. The estimates on time needed for completing the restitution process vary between 5 to 8 years, although the government is presently contemplating means to speed up the process (Puustjärvi et al. 1997, Esa Puustjärvi, personal communication). The Estonian private forestry revives and is making a big jump directly to the post-industrial society.

The recent history of private forestry is quite different in the two countries, which creates an interesting starting point for the comparative approach. The aim of this study is *to describe non-industrial private forestry in Finland and in Estonia by comparing forest resources, owner and holding characteristics, forest owners' objectives and their cutting behavior*. Conclusions are drawn from the point of view of social sustainability. The comparisons are based, besides statistics, on the mail inquiry data from Finland collected in 1990 (Karppinen 1997) and personal interview data from Estonia collected in 1995 (Karppinen 1996).

2 Forest resources

Finland is characterised except by thousands of lakes also by large areas of forest. Two thirds (66 %) of total land area is covered by forests, and their proportion is clearly larger if scrub and waste land is included (86 %) (Sevola 1996). Estonian forests cover around half (48 %) of total land area (Puustjärvi et al. 1997). The most striking difference concerning forest resources between the two countries is naturally the size difference (Table 1). Estonian forests account to only one tenth of the Finnish forest area. The differences in the amounts of growing stock and annual increment are, however, smaller due to the more favorable climate in Estonia. The mean growing stock per hectare and annual increment per hectare are therefore larger in Estonia. Whereas Finnish forests are characteristically coniferous dominated by Scotch pine, in Estonian forests coniferous species and birch are more evenly distributed. In both countries private forests are located on relatively fertile soils, which is indicated by the comparison of the estimates of the mean growing stock and annual increment per hectare in Table 1 and Table 2.

Table 1. Forest resources in Finland and Estonia. Sources: Hepner 1996, Sevola 1996, Development... 1997.

		Finland	Estonia
Forest area	mill. ha	20.0	2.1
Growing stock	mill. m^3	1 840	277
Mean growing stock	m^3/ha	92	153
Annual increment	mill. m^3	77	9.5
Mean increment	m^3/ha/a	3.8	5.0
Tree species dominance, % of forest land			
Pine		65	38
Spruce		26	24
Birch		8	30
Others		1	8

Table 2. Private forest resources in Finland and Estonia. Sources: Eltermann 1996, Sevola 1996, Development... 1997.

		Finland	Estonia
Forest area	mill. ha	12.4	1.0 [1]
Growing stock	mill. m^3	1 302	176
Mean growing stock	m^3/ha	104	176
Annual increment	mill. m^3	55	5.8
Mean increment	m^3/ha/a	4.4	5.8

[1] Includes former private areas without a restitution claim (approximately 300 000 ha). Source: Development... 1997.

3 Structure of forest ownership

The number of non-industrial private forest holdings, exceeding 1 ha of forest land, is around 440 000 in Finland. Their proportion of the total forest area is 62 % (Sevola 1996). Forest can be owned either alone, together with the spouse and/or children, or as a member of heirs or family concern. There are around 800 000 persons who own forest, in other words every sixth Finn is a forest owner (Ripatti 1994).

In Estonia, private forest ownership is characterised by three owner categories: *forest owners, forest users and forest subjects*, each with different types of utilisation rights (Puustjärvi et al. 1997). Owners with full title to their land are

entitled to carry out cuttings on their forest property provided that they have an officially approved forest management plan. The so-called forest users have acquired their property during Soviet regime. Although a few of them have been granted full ownership rights, the future status of their holdings has not been conclusively defined. Forest users are allowed to utilise their forest property, provided that they have a management plan, but they are required to disburse 50 % of their net income to the state. The forest subjects' (former owners or their descendants waiting for restitution) utilisation rights are restricted to carrying out various types of thinnings.

The state will probably retain ownership to areas in its possession before Soviet occupation in 1940, but most of the remaining forest area is likely to be transferred to non-industrial private forest owners. It is foreseen that the privately owned forests will cover 52 % of the forest area in the future. The restitution process is expected to bring into existence a total of 80 000-100 000 forest owners with an average woodlot size of 8-12 ha. By mid-1997 approximately 27 000 holdings covering 350 000 ha have been handed over to their owners.

At the first glance, the structure of private forest ownership is rather similar in both countries, in spite of the different histories of private forestry (Table 3).The proportions of rural and urban owners, male and female owners, as well as retired owners are almost the same in the two countries. (The share of farmers in Estonia is probably larger than presented in Table 3, see footnote).

Estonian forest holdings are, however, clearly smaller than the Finnish ones, but the area of arable land belonging to holdings is twice as large in Estonia as in Finland. Although permanent residence on the holding is as common in both countries, the proportion of those owners residing in the same commune but outside the holding is greater in Estonia. Furthermore, Estonian owners have, on average, higher formal education than their Finnish counterparts.

4 Objectives of forest ownership

Estonian forest owners regard the provision of household timber as the most important objective of their forest ownership: 95 % consider it either rather or very important (Karppinen 1996). Owners also emphasise aesthetic values (82 %), inherent value (74 %), economic security (73 %) and recreation and leisure opportunities (66 %) provided by their forests. Income from timber sales does not rank high: only half (47 %) of the Estonian owners consider it important.

Table 3. Owner and holding characteristics in Finnish and Estonian private forestry. Source: Karppinen 1996.

		Finland	Estonia
		Mean	
Forest area	ha	31	14 [1]
Area of arable land	ha	7	14
Age of owner	yrs	54	51
Duration of ownership	yrs	20	3
		% of the owners/holdings	
Farmer		48	48 [2]
Non-farmer		52	52
Male		72	73
Female		28	27
Retired		35	30
Other occupation		65	70
Permanent residence:			
On the holding		59	56
In the same commune		18	27
In the same province		12	11
In another province		11	5
Rural resident		81	84
Urban resident		19	16
Education:			
Basic education		49	29
Medium level education		43	57
Academic education		8	14

[1] Probably overestimated. The mean size of forest holdings is often assessed to be 10-12 ha.

[2] Probably underestimated. The proportion of farmers may be around 60 % or even more if retired farmers are included (Analyses... 1996).

Forest owners in southern Finland (to the south of Oulu province) could be divided into four groups based on their objectives of forest ownership (Karppinen 1997). First, landowner objectives were condensed into three dimensions: non-timber objectives, sales income and self-employment opportunities, and economic security and asset motive. Second, based on these objectives, four groups could be identified: multiobjective owners, recreationists, self-em-

ployed owners and investors (Figure 1). In northern Finland, landowner objectives could be described by two dimensions, i.e. economic and non-timber objectives, but no grouping of forest owners was established.

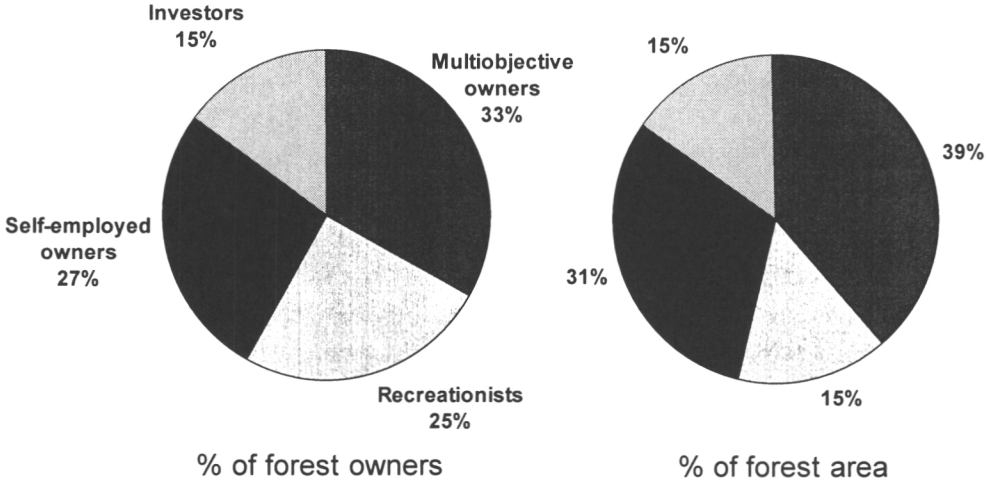


Figure 1. Forest owner groups based on landowner objectives in southern Finland.

Multiobjective owners value both the monetary and amenity benefits of their forests. All three dimensions of objectives are considered important. *Recreationists* emphasise the non-timber and amenity aspects of their forest ownership. On the other hand, *self-employed owners* value regular sales and labor income as well as employment provided by their forests. *Investors* regard their forest property as an asset and a source of economic security.

Whereas 75 % of the owners in southern Finland emphasise in a way or another economic aspects of owning forest land, the importance of timber sales income is not highly assessed by Estonian owners. However, the most important objective, provision of household timber, also indicates the economic importance of forest resources.

5 Cutting behavior

The annual total cuttings per hectare are at the same level in both countries (Table 4). However, cutting possibilities, measured by annual growth per hectare, are greater in Estonia than in Finland. Forest resources are obviously not

Table 4. Actual cuttings in Finnish and Estonian private forests. Source: Karppinen 1996.

		Finland	Estonia
Total cuttings	m3/ha/a	2.9	2.7
Timber sales	m3/ha/a	2.6	1.0
Household timber	m3/ha/a	0.3	1.7
Mean size of sales item:			
	m^3/holding/a	120	
	m^3/holding/sale		31
Sales interval, yrs		3.0	1.2

as intensively utilised in Estonia as in Finland, and actual cuttings are well below cutting potentials in both countries (see also Analyses... 1996, Karppinen 1996).

The main difference in the structure of cuttings between the two countries is the dominance of household use in Estonia.[1] Household timber consists mainly of firewood. Sales amount to around 40 % of the total cuttings in Estonia, compared with 90 % in Finland. However, the proportion of industrial roundwood sales (logs and pulpwood excluding firewood) represent only one fourth of the total removals in Estonia (Puustjärvi et al. 1997). Although the mean size of sales item is rather small, Estonian owners sell frequently in comparison with their Finnish counterparts.

Timber sales behavior in both countries can be further elaborated by comparing timber supply and sales probability models (Table 5). The comparison is handicapped by the lack of relevant variables in Estonian data (e.g. price variables). According to the Estonian logit model, the probability to belong to roundwood sellers increase along with the forest area. Economic objectives of forest ownership and the person being a farmer have also a distinct positive effect on the sales activity. The young are more eager to sell than the old, as is indicated by the negative sign of the age variable. Being a forest subject as well as urban residence seems to diminish the probability to sell.

[1] Another Estonian study suggests that the proportion of household timber would be clearly smaller in total cuttings (Analyses... 1996). It is probable that all cuttings for household use could not be taken into account in that study. It is, however, reasonable to expect that the estimates of household timber presented in this paper are, to some extent, overestimated.

The Finnish results are based on Tobit models taking into account both timber sales amounts and probability to enter the market. The models suggest the importance of cutting potential measured by the growing stock (+), owner's age (-), present timber prices (+), price expectations (-), non-forestry income (-) as well as income expectations (+). A dummy variable indicating assignment to multiobjective owners has also a positive effect on timber supply.

Timber sales are positively affected in both countries by cutting potential (growing stock or forest area). Also the young seem to sell more (or more often) than the old in both countries. This negative relationship between an owners's age and cuttings has traditionally been interpreted as a change in cutting behavior during the course of a forest owner's life (so-called life-cycle effect, Kuuluvainen 1989). Recent studies suggest, however, that this behavioral difference would be mainly due to intergenerational differences in timber sales (Kuuluvainen & Tahvonen 1997). The comparison of cutting behavior further reveals that economic objectives increase the probability to sell in Estonia, but in Finland owners emphasising both economic and amenity values of their forests sell more than single-objective owners.

Table 5. Timber sales behavior of Finnish and Estonian forest owners (+ timber supply/sales probability increases, - timber supply/sales probability decreases). Sources: Kuuluvainen 1989, Karppinen 1996, Kuuluvainen et al. 1996.

Finland Timber supply m3/ha/a	**Estonia** Timber sales probability
+ growing stock, m3/ha	+ forest area, ha
- owner's age, years	- owner's age, years
+ multiobjective owners	+ economic objectives
* * * * *	
+ present timber price	+ farmer
- timber price expectations	- forest subject
- non-forestry income	- urban resident
+ wealth (income expectations)	

6 Social sustainability of private forestry

As agreed widely, sustainability has three main dimensions: ecological, economic and social (including cultural and spiritual). However, it is hard to draw an exact line, for example, between social and economic aspects of sustainability. The social aspect of sustainability can be defined as "the ability of forestry to continuously contribute to social welfare of people" (Saastamoinen 1996b). Lack of social welfare is indicated, for example, by unemployment, poverty, mental distress and social exclusion (Hytönen 1997). From the point of view of forestry, key concepts include democratic ownership of forests, multiple use of forests, public participation in resource management, everyman's rights, community stability and employment (Saastamoinen 1996b).

Private forest ownership is basically undemocratic: there are those who have and those who have not. In Finland, everyman's right guarantees certain rights for the public also in private forests, such as free picking of berries and mushrooms, and hiking and camping possibilities. There are also similar everyman's rights concerning Estonian private forests (e.g. berry-picking).

On the other hand, family ownership dominated by small forest holdings is as such socially sustainable (Saastamoinen 1996a). In both countries, the majority of private forests is owned by local rural residents and the number of owners is (or will be) large. In Estonia, local residents have first refusal right on the former private forests without a restitution claim (approx. 300 000 ha) (Esa Puustjärvi, personal communication). The local ownership of forests contributes to community stability. Furthermore, cuttings and other forest management activities seem to be sustainable due to strong bequest motive. This seems to be the case both in Finland and Estonia (Karppinen 1996).

From the point of view of the forest owners, the scope of the benefits provided by their forests is wide. The economic importance of forests, regular timber sales income or economic security, is highly emphasised by most of the Finnish owners. Self-employment aspects of forestry are especially underlined by one owner group (so-called self-employed owners). The delivery cuttings, where the seller does the logging and hauling, comprise half of the total cuttings in this group (Karppinen 1994). Another group labeled recreationists emphasise non-timber and amenity aspects of their forest ownership, which include, for example, outdoor recreation, aesthetic values, solitude and meditation, nature protection, and berry-picking. These forests can be considered to be private

multiple-use forests. However, the emphasis on non-timber values seems not to exclude timber sales (Karppinen 1998).

The majority of Estonian forest owners are rural residents living in their own detached houses heated by firewood (Karppinen 1996). The provision of household timber from their own forests is naturally important. It is also probable that during the land restitution process cuttings of the border lines in forests supply large amounts of firewood for domestic use. The importance of household use may, therefore, decrease along with the modernisation of heating systems and the implementation of the restitution.

The multiple use of forests is emphasised by the Estonian forest owners. Besides the importance of household timber, they underline aesthetic and inherent values, economic security, and recreation and leisure opportunities provided by their forests. Income from timber sales does not rank high. However, roundwood sales income amount to, on average, ten percent of the net income of the households. The majority of forest owners also carry out logging themselves or together with their family members (Karppinen 1996).

Cultural and spiritual aspects of sustainability are no doubt remarkable in both countries (Reunala & Virtanen 1987, Moor 1995). The spiritual and emotional relationship towards trees and forests is, however, perhaps more eminent among Estonians. For instance, the majority of Estonian forest owners believe that trees are living creatures, and some of the owners have even apologised to the tree if they have had to cut it down (Paas 1995). This kind of spiritual involvement is hardly common among Finnish owners.

ACKNOWLEDGMENTS

I thank Mr. Esa Puustjärvi and Mrs. Tuija Sievänen for their valuable comments on the manuscript.

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The Finnish Forest Research Institute, Research Papers 704: 177-181.

Recent changes in social welfare of the forest sector of the Russian Federation

Elena Kopylova

Abstract

During the Soviet era, the employees of forest sector were entitled to housing, medical care, pensions, social and sport facilities, paid holidays and pre-school education. In 1985 these benefits were abolished. The "perestroika" also led to problems in running forest industry enterprises, increased unemployment and low salaries in forestry sector compared to other sectors of industry. Salary delays have also been common. The changes have hit hard especially the ethnic minorities, because they had become dependent on the incomes and welfare systems provided by forest industries. The indigenous peoples are now returning to their traditional livelihoods to alleviate poverty.

Keywords: forestry, forest industry, market economy, social policy, indigenous people, Russia.

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1 Background

The current economic transition towards a market economy and the rejection of the system of strict centralised planning has brought new perspectives and new sets of priorities to the Russian society. Rooted in the fact that during the Soviet era the same kind of social policy was applied to all sectors of the economy, it is not surprising that the social security systems found in the forestry and forest industry sectors today are still very similar. Accordingly, employers were responsible for the welfare of their staff. Employees were entitled to housing, medical care, pensions, social and sport facilities, paid holidays and pre-school education.

2 Social problems

In 1985, with the introduction of *perestroika*, this system changed rapidly. Almost all the social guarantees, including security of employment, the provision of education, medical care, etc. were diminished, although not abolished, under the new doctrine of "paying one's own way".

Along with the reduction of state subsidies, and the introduction of new forms of management, responsibility for the provision and maintenance of social services was transferred to regional administrations. However, regional authorities were only able to maintain a minimum of services because of an imperfect system of taxation. It meant that the forest enterprises were unable to provide sufficient funds to the public exchequer. Further, much of the forest industries' production capacity was standing idle. Thus, a cumulative process existed in which the labour market contracted at the same time as social welfare services were radically reduced. The result was a rapid increase in unemployment, homelessness and poverty, as well as an increase in social tension.

During the period 1990-1995, the number of people involved in the forest industries has been reduced almost by one fourth (Table 1). The situation is made even worse by the so-called "hidden unemployment" that is hard to monitor and is almost impossible to record.

Salaries have remained rather low and do not reflect the labour and skills invested. Earlier, labour involvement used to be encouraged by an elaborated system of rewards, prizes, bonuses and privileges (e.g. access to sanatoriums and resting houses). These often amounted to a considerable "income". Governmental

Table 1. Employment in the Russian forest sector in 1990-1995 (1000 employees).
Source: Goskomstat, 1996.

	1990	1995
Logging	841.8	540.3
Wood processing	821.6	707.8
Pulp and paper production	188.9	171.6
Forest chemical production	8.9	7.1
Forest industries	1 861.2	1 426.8

awards (medals, honorary titles, etc.) were designed to motivate the people involved in the forest sector. For example, the title "Honoured member of the forest industries of the Russian Federation" was awarded by the Edict of the President for long-standing and active work within the forest industry sector. Nowadays, almost all of these practices have been terminated while salary delays can now vary from months to years.

New forms of social support have arisen, and most of the institutions try to support their staff by providing land allotments and meadows for private use, by granting uniforms, fuel, and construction wood on preferential terms. The development of the average salary rates from 1991 to 1995 is shown in Table 2.

Table 2. Average salary within the forest industries, and the fuel and power supply industries, 1991-1995 (100 roubles), ranked by 1991 figures.

Branch of industry	1991	1992	1993	1994	1995
Wood chemical	0.53	7.3	50.7	195.0	463.0
Logging	0.56	6.9	50.4	182.0	468.0
Wood processing	0.57	6.3	56.5	180.0	405.0
Industry as a whole	0.59	7.3	58.7	232.0	554.0
Pulp and paper	0.67	8.0	66.7	256.0	777.0
Electric power supply	0.88	13.9	128.0	467.0	1 023.0
Coal	1.00	17.3	145.0	499.0	1 125.0
Gas	1.05	25.5	251.0	964.0	1 924.0

P.S. Only the figures in columns are comparable.

Forest industrial enterprises (e.g. logging enterprises, pulp and paper mills and wood processing enterprises) belong to that group of industries which has "town and settlement planning responsibilities". This means that they are obliged to

cover all the expenses of building and maintenance of their own infrastructure. Currently there are more than 3 300 forest settlements dependent upon forestry enterprises. Nonetheless, forest industry employees are now less well provided with accommodation and are less secure compared with other sectors of economy. The costs of providing and maintaining housing, etc. are becoming too heavy burden on the budgets of forestry enterprises. To make matters worse, local social service networks can no longer be maintained, so stores, canteens, cafes, bakeries and subsidiary farms are being closed.

Yet another problem is the absence of state investments which has resulted in a major slump in construction of public infrastructure, and so communications are becoming increasingly difficult in distant regions where logging sites are located.

3 Ethnic aspects

Ethnic concerns are always present as Russia is a multinational country embracing tens of nationalities and national minorities. Although the role of indigenous peoples in the economic welfare of the Russian Federation is rather insignificant, questions concerning national minorities are currently being seen in a new context. The current socio-economic transformation in the Russian Federation has hit the minority nations very hard as they had become dependent upon the incomes and welfare systems provided by the forest industries.

With the change to market economy and the associated stagnation of the forest industries, many regions now suffer a lack of fuel, food, medicines and education. Consequently, indigenous people are returning to their traditional livelihoods and cultures as a means to alleviate hardships. The indigenous peoples are therefore seeking to preserve extensive areas of virgin forests in order to sustain those traditional economies. The Russian government and the local administrations are supporting the indigenous peoples in their aims by setting aside forest areas and granting rights to practice traditional forest management. For example, more than 10 million ha of forest lands in the Sacha Republic (Yakutiya) were transferred to the Council of the National Clun Community in 1995. However, while the Federal Forest Service of Russia has been invited to cooperate in such transfers, there are certain fears that the loosening of state control in such forests will lead to more overcuttings. The most acceptable solution for combining forest protection with forest utilisation is still an open question.

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The Finnish Forest Research Institute, Research Papers 704: 183-188.

Changing attitudes of Russian foresters

Maxim Lobovikov

Abstract

Objective sociological surveys of the attitudes of the delegates at the All-Russian and regional meetings of foresters, which were started in 1990, help to understand the socioeconomic problems of the Russian forestry branch, and the dynamics and possible changes in forest communities. Though the economic organisation of forest management has not changed much during the 1990s, the attitudes of Russian foresters toward market economy have become more negative compared to the situation at the beginning of the reforms.

Keywords: sociological surveys, foresters' attitudes, quality of life, forest policy, market economy, Russia.

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1 Background

During the Soviet era all sociological surveys in the Russian Federation and entire Soviet Union were subject to severe censorship. The democratic changes in the late 1980s allowed the USSR State Committee on Forest to start a series of large-scale and objective sociological studies on the image of forestry, and on the living and working conditions of forestry personnel. The first surveys were made in 1989-90 at the All-Union and regional meetings of foresters. These studies were carried out under the title "Social portrait of a forester" and provided for the first time real picture of the living and working conditions of foresters and their attitudes towards ongoing changes in economy, society and forestry (see VNIILM 1989, 1998, 1998a).

2 Social and economic challenges in forestry

About 120 000 specialists and managers are working in Russian forestry sector. Excluding top managers, these people do not design forest policy, but forestry activities dealing with the often highly controversial local issues entirely rely on their knowledge, experience and competence. The image of Russian forest policy and perspectives of sustainable development of forestry are significantly dependent on the abilities, professionalism and competence of the field managers.

The fourth All-Russian Meeting of Foresters, dedicated to the 200th anniversary of the Russian Forestry Department, was held in 1998. The meeting, which was preceded by regional meetings of foresters, has brought about a wide range of social repercussions in society concerning forestry issues. The addressed problems and discussions have had profound impact on the development and implementation of forest policy towards securing social sustainability of forestry and forest communities.

Totally 575 participants of the meetings including 331 foresters from all over the country participated in the recent sociological study (VNIILM 1998a). The survey shows that the dominating part of foresters (57.0 %) evaluate the impacts of the governmental reforms on the economic position of the country as negative. The rest regard changes as positive or they find the question difficult to answer.

Forest management reforms

The reorganisation of the forest management structures was not unanimously supported. About 48.1 % of foresters responded pro and 38.8 % contra. The rest 13.1 % gave neutral responses.

The new Forest Code of Russian Federation (approved 1997) requires the separation of forest management from commercial logging and primary wood processing. Industrial activity was considered to create negative economic incentives, which divert Forest Service foresters from forest ecology and cause damage to social sustainability.

At the beginning of 1990s, when the reorganisation started, the prospects for separating logging from forest management seemed to be more optimistic. Then 70 % of foresters hoped that relief from industrial production would lead to better forest management. Today, almost one third suppose that due to exceptionally poor machinery forest managers are unable to achieve planned figures without help from technically better equipped loggers.

The survey shows that 64.2 % of foresters consider that the banning of clear-cuts has improved the general level of forest management. Meanwhile 29.8 % of the respondents are sure that forestry suffers from the adopted measure. The rest 6.1 % gave no clear answer.

Economic aspects

About half of the foresters regard the level of market relations in forestry to be extremely low (45.8 %) or satisfactory (19.1 %). Only 3.4 % of the respondents consider the level to be good. The rest 31.7 % failed to answer.

The economic organisation of forestry has not changed much during the 1990s. Market changes, such as leasing, bidding and increased stumpage, have affected only logging. Forest management, as also before, gets 60 % of financing from state budget. This covers only a quarter of the minimum necessary expenses. According to the Forest Code, 60 % of forest revenue goes to the federal budget and 40 % is left for the local budgets. Local departments of Forest Service (leskhozes) are eligible to exercise thinnings only if there are no independent logging contractors available.

According to the opinion of majority of foresters, ways to raise forestry revenues are:

1) rising the stumpage prices and directing 50-100 % of forest generated revenues to leskhozes,
2) forwarding up to 100 % of fines and forfeits to leskhozes,
3) introduction of payments for game species lands,
4) allowing leskhozes to harvest and process timber from clearcuts, and
5) granting more financial rights to the ranger districts (lesnichestva) and developing their wood processing activities.

Corporate merchantable interests are clearly visible in the above list of priorities. Foresters can no more rely on budget financing. If the logging rights were granted to leskhozes, better off would be those of them who cut more and not those who cultivate better forests. These economic incentives might easily entail violation of the basic principles of sustainable development.

The delegates of the meetings regard as the most urgent problems the following:

1) deficit of budget means for forest management,
2) low salaries,
3) low technical level, and
4) insufficient legal security of forestry personnel.

It is interesting to note that subsidies and salaries have moved from fifth position eight years ago to first and second positions and that technical issues have moved from first to third place.

Foresters as decision makers

About half of foresters (46.4 %) consider their role in decision making to be essentially significant. Another 45.8 % suppose that their opinions are considered but are not decisive. The rest 6.2 % complain that their opinions have no impact on the decision making.

Foresters would like to have more influence on the following issues:

1) defining logging and other procurement volumes,
2) preparing auctions, leasing contracts and bidding,
3) compilation of the annual plans for regeneration and cutting, and
4) selling forest products and calculation of forestry expenses.

It is worth noting that according to this list, as before when addressing clearcut issues, foresters would like to be more involved in selling forest products. These provisions could, however, impede their current duties in the field of forest cultivation and regeneration.

Living conditions of foresters

Average wage of a forester at the beginning of 1998 was about 130 USD per month. Downfall of ruble in summer 1998 has dramatically aggravated the situation. In this respect majority of foresters rely primarily on their subsidiary farming for livelihood. Normally foresters have subsidiary farming: land plots (87.7 %), cattle and poultry (71.3 %), and bee-garden (11.4 %). Average size of a land plot is 1.9 ha.

Foresters consider unsatisfactory the following conditions of their life:

- housing - 19.9 %
- service supply - 54.7 %
- food supply - 15.2 %
- medical services - 45.6 %
- transport services - 30.4 %
- communication services (telephone, post) - 30.3%.

About 47.4 % of foresters live in state apartments or houses. Another 44.3 % dwell in private houses, and 6.3 % of foresters have no own dwelling place. Almost 2/3 of foresters (58.9 %) live in the countryside, 41.1 % reside in towns.

Average work experience of foresters is 19.5 years. About 16 % have more than 20 years of experience, 26.1 % have worked 11-20 years, 21.8 % have worked 6-10 years, 23.6 % have worked 3-5 years, and 12 % have worked less than 3 years. Average age is 44.8 years. Only 8.5 % are younger than 30 years, and 79.3 % are 30-49 years old. Nearly half of foresters (47.2 %) have university degrees and 46.6 % have high school diplomas. The rest are "practitioners". Among university educated foresters 81 % have forestry as major subject.

Conclusion

The sociological surveys confirm that the situation in Russian forestry is getting worse. Foresters play no leading role in forestry decision making. They would need higher social and legal status. Low salaries and poor quality of life are major reasons for high fluidity of forest managers. Survival issues essentially set off problems of proper forest management in the very complicated economic atmosphere. Market reforms have not fulfilled the expectations of foresters. Technical basis of forestry continues to deteriorate. However, despite the evident difficulties, the sociological research also shows that the forestry branch still retains necessary potential for highly educated and dedicated professionals.

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Hytönen, M. (ed.). 1998. Social sustainability of forestry in the Baltic Sea Region.
The Finnish Forest Research Institute, Research Papers 704: 189-195.

Sustainability from the viewpoint of southern Swedish forest owners

Gunnar Isacsson

Abstract

The article discusses the meanings of the concept of *sustainability*, and presents different definitions of sustainability regarding land use by private forest owners at Linderödsåsen in southernmost Sweden during this century. The definitions of the concept of sustainability have changed over time. From the private forest owners point of view the concept could until recently be defined as economic and technical support for daily living today in combination with creating an economically valuable forest for the next generation. In today's society most private forest owners can no longer depend on forestry as their single source of income, and this may imply difficulties to maintaining social and economic sustainability in the provinces. On the other hand, knowledge on how to maintain ecological sustainability has improved. The interested and caring forest owner who wants the next generation to inherit her/his forests, tends the forest in a long-term and sustainable manner. However, values and preferences of the modern society set limits for the possibilities to enforce sustainability in forestry.

Keywords: private forests, sustainability, landscape history, forest owners, Sweden.

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1 What characterises sustainable forestry?

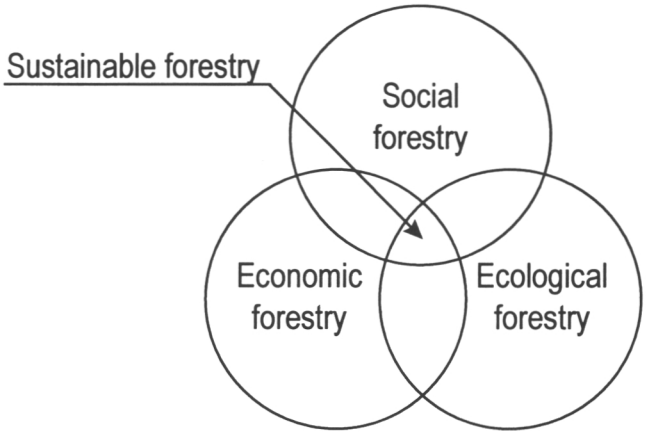
Sustainable forestry of today must be carried out in a manner which takes into account the economic, ecological and social needs of both our generation and those to come.

Before forestry can be defined as sustainable, it must fulfill three different conditions:

1. **Social**: Forestry must be accepted both by the people who make a living from forestry as well as by the people who are interested in preserving forests. Forest should provide recreation and aesthetic, cultural and social values for all the different categories of users.

2. **Economic**: Forestry (as well as agriculture) must provide a good enough standard of living for local inhabitants, and should optimise the access to timber, fuel, hunting, fishing, mushrooms, berries etc.

3. **Ecological**: Forestry must be implemented so that biodiversity and forest ecosystems will be maintained. Other ecosystems, for instance rivers and lakes, must also be maintained.



Methods used in forestry and agriculture before the industrialisation are from the nature conservationists' point of view often regarded as good and sustainable. The proof for this are the long periods of time with traditional land uses. In this paper, I will give a summarised overview of sustainability of forestry in the area of Linderödsåsen.

2 Land use in Linderödsåsen during the last millenium

Linderödsåsen is a hilly ridge of granitic origin and relatively poor soils in the eastern part of central Skåne, the southernmost province of Sweden. The area belongs to the nemoral region usually with beach (*Fagus silvatica*), birch (*Betula spp.*), elm (*Ulmus glabra*), oak (*Quercus spp.*), alder (*Alnus glutinosa*) and ash (*Fraxinus excelcior*) as dominating tree species. During the last 150 years, large areas of decidous forests, pastures and arable land have been replaced by spruce (*Picea abies*) plantations. Almost 100 % of the land is owned by private individuals since hundreds of years, mostly as small estates. About 48 % of the investigated area is productive forest land.

Maps of the area exist since the beginning of the 18th century. These maps show an open landscape characterised by grazing and cultivation. The trees in this landscape have had a multitude of uses over time. Single large beech and oak trees produced acorns for the grazing pigs. Smaller trees of mainly *Carpinus betulus, Alnus glutinosa, Fraxinus excelsior* and *Ulmus glabra* were cut down to be used as fuel and to make tools. They were regenerated from stumps (coppice). Limbs of various decidous trees were cut to provide food in winter for livestock. Stands of dense forest existed only in the most remote areas, in steep ravines and on land owned by the state or by noblemen with very large estates.

Recent research as well as nature experts from the 18th and 19th century have shown that this landscape contained an amazingly high degree of biodiversity. Especially plants, insects and lichens had an access to a multitude of biotopes for their survival. The biotopes in the agricultural land had probably existed and evolved during a very long time, at least 1000 years (Urban Emanuelsson, pers. comm.).

3 Sustainability of private forest land

3.1 Before 1930

The land use remained unchanged in the above described way for many hundreds of years. Does this implicate that forestry and land use were sustainable?

During this period, forestry was probably regarded as sustainable from the private forest owners point of view. The traditional methods of forestry were

accepted by the local society and gave economic support to cover everyday needs. Biodiversity was not consciously maintained, but over the centuries species adapted to the land use were able to colonise all suitable biotopes. Although practically all dead trees were used for firewood, large hollow trees provided good biotopes for insects (especially beetles) and fungi living on dead wood.

If a forest owner during this period would have been asked to define sustainable forestry, he probably would have included to it the following:

- Grazing land and winter supply for the livestock.
- Timber for building material, fencing, fuel and tools.
- Berries, fish, smaller mammals and birds for food.
- "This has been our lifestyle since generations, so I hope that the next generation will have the possibility to continue."

A lifestyle like this would not be considered sustainable today, mainly because today's forest owners would not be willing to live in such modest economic conditions.

3.2 Between 1930 - 1990

During the 20th century, big changes have taken place in land use in Linderödsåsen. The grazing land has to a very large extent been reforested with trees, especially spruce, or it has been overgrown with mixed decidous forest. According to the first National Forest Inventory (Riksskogstaxeringen) carried out in the county of Skåne in 1928, the average growing stock was about 63 m^3/ha. Today, the average growing stock has increased to 180 m^3/ha.

In the middle of the 20th century the perception of the concept of sustainable forestry mainly comprised:

- Timber for building material, fencing and fuel.
- Valuable timber and pulpwood to provide financial means for the farm and the household.
- "Regeneration should provide better forests for the generations to come. Better in the meaning of more wood, higher timber quality, faster growing trees, more spruce and less decidous forest, and no dead trees in the forest."

Today this kind of forestry approach is not considered to be sustainable because of its impact on biological diversity. Another factor of importance for the forest ecosystems is that the fast growing spruce on the best sites use more mineral nutrients from the ground than weathering can supply.

3.3 After 1990

The interested and caring forest owner of today has adopted forestry practices that balance commercial production targets and environmental considerations in a sustainable way, but...?

Let us study a typical forest owner of today. About 40 % of all owners of forest farms (non-agricultural) are women, and the share of women is still increasing (Skogsstyrelsen 1996).

A typical forest owner at Linderödsåsen might be a woman who has inherited the farm from her parents. She and her family are living and working in one of the towns on the west coast of the county of Skåne. The farm is situated so far away, that the family only goes there for holidays and weekends. The main purpose of the forest management of this family is to get income from timber production to keep the buildings in good shape and to save enough valuable stands to make it possible for the next generation to take over. Another aim is to create an aesthetically pleasant environment for recreational purposes. Dead trees, old decidous trees and all trees with holes made by woodpeckers are left in the forest to improve biological diversity. Some of the spruce stands will be replaced by a mixture of birch, wild cherry and oak.

Sustainable forestry for the interested and caring forest owner of today often means:

- Forests with preserved or even improved biodiversity.
- Timber and pulpwood to provide income for the maintenance of the farm.
- Creating and preserving aesthetic environment for recreational purposes.
- Providing enough valuable forest stands for the next generation.

Is this really sustainable forestry? At least it is a good attempt, but I would say no. For the first time in the development of Swedish forest policy, biological diversity is considered as important as production, and the forest legislation

strives to maintain both sustainable production of timber as well as biological diversity. But the criteria for economic and social sustainability are not fulfilled.

The direct taxes concerning a private forest enterprise can be as high as 70 % of the net income. Investments to forestry and agriculture are practically free from taxes, but this is not enough to help the landowners to take care of their everyday needs. A forest owner in southern Sweden would need at least 450 ha of productive forest land to be able to make a living. The average farm in Skåne has only 25 ha of forest, so the fully occupied farmer living on a combined forestry and agriculture enterprise may be seen as an "endangered species", not only in the county of Skåne but in Sweden as a whole.

4 Future sustainability

Maintaining social sustainability in the countryside requires a population density which is large enough to maintain a functional infrastructure. It is possible to maintain public transportation, schools, shops, restaurants etc. only when there are enough people to pay the costs (directly or as taxes). In Sweden, taxes are always paid in the municipality where you live. So, even though our typical forest owner would run a very active forestry enterprise, she will be paying her taxes in another municipality, not in the rural district at Linderödsåsen. It is easy to understand why people are abandoning remote provinces, especially in the northern parts of Sweden with great unemployment problems.

In this context, there is a huge contrast between Sweden and Norway. Norway has a system of subsidies for agriculture and forestry for farmers living permanently on their farms. If you travel through the northwestern parts of Sweden you will be likely to see depopulated land and deserted farms. When you cross the border to Norway you will see newly renovated houses, sheep and cows grazing on meadows, and flourishing small villages. In my opinion, Norway is a great step closer to the goal of social sustainability in forestry and agriculture compared to Sweden, although Swedish forestry since the last few years has been internationally highly regarded concerning ecological sustainability. On the other hand, can forestry depending on subsidies really be regarded as sustainable?

Sustainability also seems to be a matter of *time*. The interested and caring forest owner who wants the next generation to maintain good forestry traditions, tends her/his forests in a long-term and sustainable manner. But values and preferenc-

es of the modern society set limits to the possibility to accomplish sustainability in forestry. If we - in spite of these limitations - still would be able to maintain and develop sustainability in today's forestry, the essential question remains: How - and to which direction - will the interpretation of the concept of *sustainable forestry* change in the next 50 or 100 years?

ACKNOWLEDGEMENTS

I wish to thank Ms Marie Appelstrand, University of Lund, for her valuable comments on the manuscript.

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The Finnish Forest Research Institute, Research Papers 704: 197-217.

The advocacy coalition framework: its applicability to a Swedish land-use conflict

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Abstract

The purpose of the article is to introduce an actor-based conceptual framework to explain changes in public policy. The framework - the Advocacy Coalition Framework (ACF) - has not been utilised very often in the Nordic context, which makes it even more interesting to apply. Following a theoretical description, the framework is applied to a single case where nature conservation and road-building interests in an area close to a Swedish urban centre are fighting each other in order to realise different plans for the particular area's future function. The aim with the empirical part is to reveal what explanations the framework offers for the observed public policy's development.

Keywords: urban forestry, nature conservation, road building, local decision making, Sweden.

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1 Introduction

It would probably not surprise anyone if someone asserts that public policy changes. Politics is a continuously changing process, and its output reflects this dynamic character. What is, however, much more contested is the driving forces behind changes in public policy. Different models stress different factors as the most important explanatory variables.

It is sufficient just to focus on the group 'actor-based network models or conceptual frameworks'[1] in order to get an idea about the variety of the different approaches. Many of these models are gathered under the generic headline of 'policy networks' (Schubert and Jordan 1992) and are in this capacity, part of a variegated family that includes such different constructions as Haas' concept of 'epistemic communities' (Haas 1992) and Heclo's 'issue networks' (Heclo 1978). Some scholars perceive different policy networks as distributed on a continuum where loose ad hoc types such as 'issue networks' are at one extreme and strong, more stable types such as 'epistemic communities' and 'policy communities' (Heclo and Wildavsky 1974) are at the other extreme (Rhodes and Marsh 1992). One common weakness among many of these models is, however, their shortage of explanatory power. They are therefore basically heuristic devices.

The purpose of this paper is to introduce an actor-based conceptual framework that gives itself out to have explanatory power when it comes to changes in public policy. The framework has furthermore not been utilised very often in the Nordic context which makes it even more interesting to apply. Since my empirical research focus is on local land use, I will present a single case study where nature conservation and road-building interests in an area close to a Swedish urban centre are fighting each other in order to realise different plans for the particular area's future function. The aim with the empirical part is to reveal what explanations the framework offers for the observed public policy's development.

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[1] *Frames of references* or *conceptual frameworks* are, according to Judge, Stoker and Wolman (1995: 3) more relaxed interpretations of the concept *empirical theory*. They constitute together with *models* and *perspectives* ways of looking at or conceiving an object of study. They provide a language and references that lead theorists to ask questions that might not otherwise occur. Utilising a conceptual framework does not result in rejected hypotheses and weakened theories, but a new fresh insight that other frameworks might not have yielded.

2 The Advocacy Coalition Framework

The Advocacy Coalition Framework (ACF) was first presented by Sabatier in 1988 (Sabatier 1988). It emphasises coalition building across boundaries but avoids dealing overtly with questions of power. The ACF has its origin in a criticism of the traditional image of the policy process as a process divided into more or less distinctly identifiable stages. Sabatier considered this traditional 'text-book model' as a useful heuristic device but with only minor value as a model that could *explain* changes in public policy (Sabatier 1993, Jenkins-Smith and Sabatier 1994).

According to the ACF, policy change is the result of at least three different processes (Jenkins-Smith and Sabatier 1993). First, we have to account for the interaction which takes place between *advocacy coalitions*. These entities are networks of individual actors from private companies, official authorities as well as actors which are not directly connected to any formal organisation. The common denominator which ties these actors together is a mutual value base in a particular question. From this common understanding, goals and coordinated action are derived in order to reach a result which satisfies the basic values which form the material in the links which tie the actors together in an advocacy coalition.

The second process includes events external to the policy subsystem under focus (ibid.). These *external events* can be changes in socio-economic conditions, the construction of overarching coalitions and/or the fact that decisions made and implemented in other policy subsystems affect action within the policy subsystem under focus. External events can also be a question of changes in the parliamentary situation at the national level. Finally, Jenkins-Smith and Sabatier talk about the effects that changes in *stabile system parameters* can have on policy change (ibid.). These structural factors are similar to the previous group, but have a more permanent character. Among these factors we find the particular policy area's basic features, the basic distribution of natural resources, fundamental socio-cultural value systems and structures, the basic constitutional structure and the overarching norm systems that guide human activity.

Before we take a closer look at the ACF, we must mention four premises which are essential to the model (Sabatier 1993). The first premise states that to be able to understand the processes which might result in public policy change, it

is necessary with a time perspective of at least one decade. This underlines the importance of not forgetting the historical content of all policy making. The development of new policies is often the result of protracted processes where the triggering events can have happened long before the formal policy change and/or necessary changes in more permanent value systems take place. A too narrow time perspective increases the risk of overemphasising the importance of events and action in the temporal vicinity of a formal policy decision and to underestimate structural factors with a historical origin.

The second premise states that an official policy can be conceptualised in the same way as *belief systems*. This means that they encompass a set of value priorities and causal assumptions about how these values shall be realised. The public policy can be seen as a reflection of the values, priorities, opinions and important casual relationships that different policy actors represent. One basic argument in the ACF is that policies as well as belief systems are based on a core of stable values surrounded by a layer of less stable outer core values. These two parts are further surrounded by secondary more transient aspects of the belief system/policy. The inner core consists of fundamental normative and ontological axiom which taken together reflects a single individuals personal philosophy. The outer core values include basic strategies and political standpoints which are supposed to secure the core values. They also include a number of instrumental decisions and ways of getting information which are considered as necessary if one wants to be able to use the strategies which can lead to a fulfilment of goals derived from the core values. A belief system as well as a policy is characterised by a hierarchic construction where the inner parts are persistently protected by actors covered by the particular core values. The less well anchored the surrounding parts are in the core, the easier they are to influence by people both within the particular belief system or actors outside it. One basic assumption in ACF is that events external to the belief system are necessary if a particular belief system's core values will change.

The third premise states that the most fruitful way to study policy change is to focus on *policy subsystems*, which means that the searchlight is concentrated on the interaction between actors from different institutions which act in order to influence policy making within a particular policy area. This coincide with the above mentioned connection to ideas about policy networks. In ACF, single individuals are not the main focus. Instead actors with a common set of basic values are considered as members of a policy network - *an advocacy coalition* - established within the particular policy subsystem. If we concen-

trate on the question about conservation or exploitation of land, the involved coalitions are built on common views about the future function of a particular area. It is possible to roughly classify the coalitions as either based on core values which leads to action with the aim of conserving the area's character or coalitions where the core values form the base for more development-oriented activities. Each coalition mobilises actors from organisations and institutions as well as from authorities and other interest groups. There is of course no complete consensus within each coalition about the values that constitute their belief systems. The core value about the particular area's future function, expressed in terms of conservation or exploitation is, however, a common base for each coalition. Secondary and more variable values which surround the core are more contested and therefore objects for more or less serious conflicts within each coalition.

The final premise stress the necessity of *considering different levels of governance* when trying to explain public policy change. By not looking at different levels of government there is a risk that important policy initiatives taken at the regional and/or local level are ignored and that these level's crucial role in the implementation stage is ignored. One reasonable extension of this premise is to include not only different levels of government but also to look at actors without a formal base in the involved authorities, i.e. members of environmental NGOs or organisations formed around other common interests. When we talk about land-use issues, it is also necessary to observe actors at the local level who are acting as single individuals, for example private land owners. The conclusion is that we apply a broad perspective both vertically and horizontally on the actors that constitute the advocacy coalitions in the particular policy process.

A brief summary of the ACF could be captured in the following words: different advocacy coalitions based on common core values hierarchically arranged in a belief system choose various strategies in order to influence authorities. The driving force behind the choice of strategies is the wish to influence the authorities to make decisions which correspond with the fundamental values of the particular coalition. This is, however, not enough if the model is supposed to have explanatory power. There are still some factors remaining before the model is complete. If we stick to the policy subsystem, the coalitions' *resources* are not to be forgotten (Sabatier 1993). These resources have an important role when it comes to possibilities for the coalitions to influence the official decision making. The resources and different forms of restrictions have their origin in the coalitions' internal structures and/or the single individuals

which constitute the coalition as well as in changes in the relatively stable parameters and external events.

With this, we have described the main parts of the ACF. To be able to understand how the external influences and the internal dynamics of the policy subsystems work together in a way that results in public policy change we need, however, further refinement of the model. The factor we must add was originally developed by Heclo (1974) and is called *policy oriented learning*. Policy-oriented learning allude to the relatively stable alterations of opinions and intentions that are the result of experiences and are related to the efforts to reach or revise different policy goals (Jenkins-Smith and Sabatier 1993). Policy-oriented learning includes the creation of knowledge from previous action within the particular policy subsystem as well as changed opinions and/or knowledge about different external factors. Sabatier states that the policy-oriented learning in ACF is instrumental, which means that members of each coalition interpret experiences and knowledge to facilitate their own basic values and the policy goals derived from these values.

3 The two frameworks applied to a local land-use conflict

Theoretical frameworks are of no use if they are unable to contribute to the understanding of empirical events or to insight that other frameworks would have overlooked. Therefore, it is necessary to relate the above described model to an empirical case. Because my research focus is on local policy making connected to land use in general and on questions where disparate land-use interests are in opposition in particular, I have chosen to take a closer look at one of the more infected and protracted land-use conflicts in the Swedish urban context, the struggle about the future function of the Valla forest in the municipality of Linköping.[2]

3.1 The Valla forest struggle - a brief outline

The Valla forest is situated in the middle of the Swedish city of Linköping and covers an area of about 80 hectares. Its main function has since the beginning of the century been to provide some green space to the people living in the city

[2] The empirical part is based on personal interviews, official documents and newspaper articles.

centre. With the increasing traffic, a congestion and air pollution problem emerged in the city in the middle of the 60s. The problems were especially pronounced in the city centre with heavy passage traffic. The solution to problems of this character was in many cities to build a traffic system which channelled passage traffic around the city centres. This was also the strategy adopted in Linköping. However, one complication was that one of the important links in this traffic system - the Valla link - was planned to pass straight through the Valla forest. The outcome today is, however, something completely different. In 1994, the northern parts of the Valla forest was designated as a nature reserve and the idea about building a road through the forest must be considered as dead. The question is how this change in public policy came about. What insight can the ACF contribute with? I will try to answer these questions by describing some central events during the particular process and by making subsequent references to the theoretical framework in focus.

3.2 The late 60s and early 70s - no need for coalition building

The Valla struggle has a long pre-history which is impossible to cover in this paper. As an introduction to the case we can mention that the municipality's General Planning Committee in April 1965 decided to adopt a proposal which classified the Valla forest as a recreational area. Two months later the same committee decided to adopt a plan for the solution of the traffic situation which included a belt way system and where a link through the Valla forest was an important building block. Hence these two, more or less incompatible goals, were built into the planning process which was supposed to result in a general plan for the physical development of the city. The somewhat peculiar output was that the Valla forest in the general plan from 1968 was classified as a green recreational area, however, with a big road passing straight through it.

It is difficult to give a clear picture of the coalitions which stood behind the general plan. The general conclusion is probably that there was no urgent need for coalition building at this stage. The political situation was less complex than today and the ruling political elite was very much free to make the decisions they considered as appropriate, without a pressing need to ally themselves to strong interests outside the formal political arena. The driving forces for coalition building were simply not present. It is also important to remember that the municipalities at this time were subject to a much stronger command and control relation vis-à-vis the central authorities. Their discretion, both expressed in formal authority and financial resources, was much lesser than to-

day and the ability to govern more dependent on the benevolence of the state than on locally organised interests. A more general environmental consciousness among Swedish voters was yet to come as well as the rise of a vigorous Swedish environmental movement (cf. Lundqvist 1996). Therefore, progressive action in the environmental policy area by the municipalities could not be legitimised by reference to explicit demands from an enlightened public opinion or as an efficient strategy to gain more votes.

The governing coalition in Linköping was therefore in essence formed within the municipal council and its ability to rule was very much dependent on state grants. This fact is still valid when it comes to major infrastructure investments such as a belt way system, but was even more pronounced in the beginning of the 70s. Consequently, it was no surprise that the first coalition partner, the governing political coalition[3] tried to convince about the merits of a belt way system, was the National Road Administration (NRA). This authority was, and is, responsible for the distribution of state grants to major road construction projects. Or in other words, the NRA was a coalition partner that, with its financial power, was necessary to convince about the importance of the belt way project. It was, however, necessary that the two authorities could agree on a common goal based on the core values in their belief systems, i.e. a basic belief in continued economical growth, including necessary investments in infrastructure. The NRAs opinion was, however, clear from the beginning. The state agency, with its command and control relation vis-à-vis the municipality could formulate conditions for how the common goal was to be interpreted. One important condition was that the NRA could only guarantee state grant to the belt way *system*, i.e. if one of the links in the system - for example the Valla link - was not realised, the municipality could not count on any state grants. The state was, to put it simply, not interested in financing an incomplete traffic system.

3.3 The emergence of radical movements

It was, however, not only the pressure from an important state agency that contributed to the growing complexity of the policy process. The result of the student revolts and revival of the left that soaked the western world during the

[3] I will use the term political coalition when I refer to majority in the municipal council.

end of the 60s and the beginning of the 70s also brought new perspectives on the environment. Mother earth was by some actors seen as the innocent object that together with the oppressed classes had to bear the detestable symbols of capitalism. Among these symbols, we find larger infrastructure investments as for example major road projects. The growing environmental awareness combined with left-oriented ideas resulted in the beginning of the 70s in the first more radical forms of environmental groups (Ceccarelli 1982, Elander et al. 1995, Bennulf 1995). These trends can be considered as *changes in the stable system parameters*, which according to the ACF, is one of the three processes that might lead to public policy change.

In Linköping, an action group created by some of the new more radical movements was formed in 1972. This was the first embryo to a coalition which was united around a common idea that the Valla forest should be protected from all encroachments like the Valla link. Around this common core, the near core values carried by the members of the coalition about *why* the forest was supposed to be protected was not always compatible. Many of the more radical members of the anti Valla link coalition (AVLC) refused to support any solutions whatsoever that made it easier for traffic. They saw the Valla link issue as an important symbolic struggle against the growing private motorism that threatened to choke not only Linköping but was, from their perspective, also considered as a serious global environmental threat. More moderate fractions of the coalition more or less solely focused the conservation of the Valla forest for its function as an important habitat of the local flora and fauna, its function as an arena for recreational activities, moral reasons etc. In short, the members of the AVLC had different perspectives on the forest and its function but were united by the will to fight the Valla link.

The first initiative of the new action group was to formulate a petition against the proposed Valla link. Approximately 10 000 persons signed the petition and the AVLC had started to "create" its own source of power, i.e. a mobilised public opinion. Except this resource, the AVLC could not base its activities on many other resources. Some of the members in the coalition had extensive knowledge in 'green' issues, but there was a lack of financial resources or special rights laid down in the law which could have worked as a source of power.

3.4 The Valla link temporarily stopped by public protests

Following a debate and voting in the municipal board (MB) in September 1974, the MB decided to recommend the municipality council to approve the suggestions from the Technical Office about a plan which included the Valla link. When it was time to handle the question in the municipal council, approximately 3 000 Linköping inhabitants were gathered outside the town hall. They presented a petition against the Valla link signed by almost 17 000 individuals. The pressure from the growing opinion and the eroding lack of consensus about the traffic plan among the political parties, forced the politicians to recommit the proposal to the Technical Office. The analysis of this action must be that the manifestation outside the town hall worked as an elucidation of the power resource on which the AVLC based its activities, i.e. a public opinion against the road. The decision made by the municipal council can also be seen as a result of *cross coalitional learning*. Another interpretation, not covered explicitly by the ACF, is that the decision to recommit the proposal was a strategy for gaining time and to cool down the public opinion. The main idea among the governing coalition could still have been to build the road but that the occasion to make this decision was not very appropriate with almost 3 000 inhabitants waiting outside the town hall.

The politicians' difficulties to reach a decision became even more pronounced, when it was time for the MB to decide about a new traffic plan. The biggest party - the Social Democrats - wanted to recommit the proposal to the planning committee, but with seven votes against six, the MB decided to consider it and to forward its opinions to the municipal council. The result from the considerations was that the MB recommended the municipal council to decide "that the coming traffic planning was not to be based on the idea about a road through the Valla forest". The governing politicians were squeezed between a strong coalition proposing the Valla link and a growing opinion fighting for the conservation of the Valla forest. The divider between the two coalitions seems to have passed right through the municipal council and also split some of the political parties. What was the decision by the municipal council to be?

3.5 The revival of the Valla link

When the question was raised again in the MB in September 1978, the Center party and the Conservatives proposed a version of the plan that did not include the Valla link. The Social Democrats and the Liberal party supported a propos-

al that included the Valla link. With seven votes against six, the Valla link proposal won and consequently, the MB recommended the municipal council to adopt the new version of the traffic plan where the establishment of the Valla link was one important building block.

When it was time for the municipal council to decide in the particular question, the action group was again gathered outside the town hall. This time, they delivered a petition against the Valla link signed by 13 000 persons. The result of this manifestation was, however, not as successful as the previous occasion. The output from the session was that 44 members of the municipal council voted for the proposal formulated by the Office for Road Issues while 35 voted for the proposal where the Valla link was excluded from the plan. So the conclusion must be that the municipal council was seriously split in the question about the Valla link. Just about half of the council considered the link as necessary for the development of a functional traffic system in Linköping. Many important officers with a technical background and the NRA could also be seen as influential actors in this coalition. On the opposing side, we find the minority in the municipality council, the action group against the Valla link and something that could be interpreted as a growing public opinion against the link. The following years were filled with discussions about how to construct the road through the forest. Different ideas about open shafts and tunnels under one third of the forest were ventilated. The majority for the planned road in the municipal council was even greater than before when it in December 1980 decided to adopt an operative plan for the Valla link.

3.6 Implementation starts... and ends

The first steps towards realisation of the Valla link plan were taken in February 1984. Thinning of the forest was made in order to "prepare the landscape for the coming changes connected to the construction of the Valla link". However this measure also worked as a trigger for an intensification of the activity by the AVLC. By convincing the responsible officer, AVLC succeeded in postponing the thinning activities until May when the work was resumed. This time, a camp was established in the forest. The presence of the activists in the area made all further forestry activities impossible. The discrete start of the preparation for the Valla link turned out to be something completely different. The more 'radical' activities by the AVLC also attracted the media. The local newspapers did not take a clear position in the question and can not be considered as parts of any of the coalitions. Their interest in the Valla issues seems, however,

to have increased when the establishment of the link took a more concrete form and the anti Valla link movement started to use more radical strategies. The ambitions of the AVLC to widen their power base by alerting the inhabitants which not yet had formulated a clear opinion on the Valla issue, seem to have been served by the intensified media coverage. Environmental grassroot idealism seems to be better 'rewarded' by the media than growth-oriented political decisions about physical development.

In the beginning of 1985, the Left party tried to raise the idea about a referendum on the Valla link issue. Their argument was that new facts about future traffic quantities and the connections between the dying forests in central Europe and air pollution motivated a referendum. These external events did not, however, change the position of the other parties in the matter. One reason might have been that changes in stable system parameters as a growing environmental awareness among the public, was counterbalanced by another change in the dominating value systems, i.e. a more pronounced belief in economic growth related to the trade and business boom that was starting to emerge at this time.

The AVLC also tried to use scientific resources in order to make the politicians reconsider their decision. They referred to new knowledge about traffic induced air pollution and uphold the opinion that rational decision making should make use of new knowledge and put the Valla link plans on the shelves. Some representatives from the AVLC also stated that they were prepared to chain themselves to the trees and by doing this stop all clearcutting necessary for the road construction. This threat of using physical force could not only stop the construction activities but also attract media and put a spotlight on the process, which probably would alert more people than the local opinion. The pro Valla link politicians were very much aware of the penetration these actions could have and feared the national media coverage which had been an essential part of the well known Swedish "Elm fight" in Stockholm.[4]

In 1986, not very much happened in the Valla link process. The municipality awaited decisions from the NRA about when they could start the work with the planned belt way system. In the middle of 1987, the NRA presented a prelim-

[4] This was a clash between the police and environmental activists in a Stockholm park in 1971. The felling of some elm trees in order to prepare for a new underground station created a storm of protests which eventually resulted in physical confrontations. The trees were finally saved and the "elm fight" can be seen as the first success for the more radical Swedish environmental movement.

inary "distribution plan" which gave priority to the construction of the southern and western parts of the traffic system (including the Valla link) to the period 1989-90. A broad majority in the municipal council approved this proposal. The Left party wanted to postpone the initiating of the building until 1993-94 and the Green party, which was, for the first time ever, elected into the municipal council in 1985, wanted the council to abandon all ideas about a road through the Valla forest.

At this point of time, the PVLC seemed to be very strong. An overwhelming majority in the municipal council was backed up by influential civil servants at the technical offices, by the military authorities and, not least, the NRA which now had given a concrete form to its financial support. The coalitional power of the pro Valla link actors was growing. The AVLC was on the other hand shrinking, both in the number of important members and, consequently, its coalitional power. The Center party was now formally supporting the construction of the link. The Left party wanted to postpone the start of the construction but did not take a completely negative position against the link. It was only the small Green party, the anti Valla link movement and a somewhat diffuse public opinion which still could be seen as complete opponents. To an objective observer, the case appeared to be closed. Nothing else but a realisation of the Valla link (and the rest of the planned belt way system) seemed to be a probable outcome of the protracted Valla link policy process.

In the end of 1987, the biggest newspaper in the Linköping area arranged a local public opinion survey about the Valla link issue. In the survey, 49 % said that they were against the Valla link, 25 % said yes to the link and 26 % could not give a clear opinion. This result gave some hard facts to back up the AVLC's assertion that a majority, however not absolute, of the Linköping citizens was against the project. In the end of 1987 and the beginning of 1988, it also became obvious that environmental issues would play an important role in the 1988 election campaign. External events as the Chernobyl catastrophe, dying seals at the Swedish west coast and other environmental calamities contributed to a growing environmental awareness and put environmental issues higher and higher on the political agenda both nationally and locally (Vedung 1989). Even if a broad majority in the municipal council had voted for the Valla link, the new wind of environmental awareness that swept the nation, made this standpoint more troublesome. What we experienced was an alteration of the value system that determined people's standpoints on environmental issues. Or in ACF terminology, a change in one of the *stable system parameters*. There-

fore, it was, to put it simply, politically unwise to support a major interference in a green area like the Valla forest when the public opinion both nationally and locally was demanding more considerations for the environment.

3.7 Doubts among the Social Democrats

It was, however, the Social Democrats that in the beginning of 1988 took the first step towards an alternative solution to the Valla link project. By reviving the tunnel alternative under the most sensitive parts of the forest - once introduced by the Conservative party - the Social Democrats thought they could kill two birds with one stone.[5] This compromise solution could mobilise a strong political majority in the council *and* satisfy the growing environmental awareness in the local public opinion. It could also "cool down" the question and put it a little further down the local political agenda. The Social Democrats did not want to have the Valla link as the main political issue during the 1988 election campaign, basically because the party was seriously split internally in the particular question. By introducing this compromise alternative the level of conflict in the Valla link issue could decrease. This could facilitate *cross coalitional learning* and subsequently lead the way to a consensus based decision about the Valla link. A decision where the two opposing coalitions altered some of their *outer core values* and settled for a compromise solution.

The AVLC had, however, other plans for the election campaign. They understood that if they succeeded in turning the issue into a top political question in a campaign that seemed to be dominated by environmental issues, it would surely benefit their interests. These interests did, however, not encompass the tunnel compromise forwarded by the Social Democrats. The AVLC believed that major parts of the forest would be destroyed anyway.

The anti Valla link movement intensified its activities during spring 1988. It initiated, among other things, a "Tree adoption campaign" in the Valla forest. They also invited "Tree huggers" which had taken part in the "Ödsmål struggle"[6] in order to get moral support and advice about civil disobedience and

[5] The Social Democratic tunnel alternative differed from the Conservative tunnel alternative as it was based on a tunnel made of concrete and not a tunnel through the bedrock under the forest. It was more of a covered shaft than an ordinary tunnel and its construction demanded that the forest was cut where the shaft was planned to be located. Thereafter, the forest could be reconstructed on the "tunnel roof". None of the two tunnel alternatives were, however, supposed to "save" the whole forest. Two thirds of the Valla link was still planned to be an ordinary road through the Valla forest.

about how to act in confrontations with the police. This preparation was covered by the local press and contributed probably to a growing awareness among the local politicians about the increasing risk for the situation to come to blows. Another public opinion survey about the Valla link issue was published in spring 1988. This survey showed that the public opinion opposing the road was growing. This time, 60 % of the respondents were against the Valla link while 25 % said yes to the project. The share of respondents that were unsure about their opinion had decreased from 26 % to 15 %.

3.8 The decision is transferred to the people

The growing public opinion against the Valla link and a growing cleavage in the Social Democratic party, forced the party to admit that they were reconsidering their standpoint on the issue. When the working committee of the municipal board had its first meeting after the summer 1988, there were four main proposals on the table - the Conservatives' tunnel alternative, the Social Democrats' tunnel made of concrete, the Left party's proposal about a referendum and the Green party's proposal that the Valla link decision from 1978 should be abandoned. The decision making was, however, postponed until a clear standpoint from the Social Democrats was formulated. In the middle of August, the internal coordination within the Social Democratic party was completed. The decision was to support the proposal from the Left party about a referendum. The local Social Democratic leader motivated this decision by referring to the lack of consensus among the majority in the matter.

By choosing this strategy the Social Democrats abandoned the pro Valla link majority and transferred the decision making to the inhabitants of Linköping. This also made it possible to lift the Valla link issue from the local political agenda and made sure that the final weeks of the election campaign could be focused on other issues where the Social Democrats had a more solid front. Another interpretation is that this strategy gave the Social Democrats some credit as a party that listened to the public opinion and trusted its ability to make a wise decision. A positive gesture vis-à-vis the voters that might result

[6] The "Tree hugger movement" was established at the "Ödsmål struggle" in 1987. Environmentalists tried to stop the establishment of a new motorway at the Swedish west coast by 'hugging' the trees that were planned to be cut. It was an effective way to get attention and pictures of "Tree huggers" were frequently seen on TV and in the newspapers (Bennulf and Johnsson, 1993).

in a better outcome in the election. Even the other pro Valla link parties (the Conservative party and the Liberal party) seem to have understood that if they stubbornly stuck to their opinions, it might harm their result in the local election. Hence, the formal decision about the referendum was made unanimously in the municipal council in the end of August 1988.

If we consider the pending election as an external event, it is clear that it had some effect on the standpoint of PVLC in the question. Even if they had not substantially changed their opinions about the link, the referendum was a procedural change that probably, from their perspective, would have a negative output, at least if one looks at the public opinion survey that was presented in spring 1988. It has not been possible to reconstruct a clear picture of how the pro Valla link actors estimated their chances to win the referendum at this time. If they strongly believed that they could turn the opinion before the referendum, this alternative was of course the most attractive way to legitimate the Valla link. However, if they considered their chances as only limited, the unanimous decision about the referendum must be seen as a result from internal pressure within the Social Democratic party and party tactics related to the pending 'environmentally coloured' election from both the Social Democrats and the other pro Valla link parties. Or expressed differently, the politicians in the PVLC sacrificed, for different reasons, its power as democratically elected representatives to the people.

In the referendum campaign that followed during spring 1989, information about the referendum and the two alternatives was spread in various ways. It seems, however, as if the "no-constellation" was more capable of transforming its different resources into action that resulted in media coverage and engagement by the people. The "yes-side" had probably more resources expressed in financial terms but lacked a group of devoted people that could turn these resources into something that attracted the electorate. Or in other words; the "no-constellation" had always been forced to use strategies which aimed at mobilising the public opinion. They had almost fifteen years experience from earlier activities of this character while the "yes-constellation" had created its position as a part of the local democratically elected representative political majority in the Town hall without bothering very much about the public opinion.

3.9 "A roaring NO to the Valla link"

On April 24, the day after the referendum, the placard of the local newspaper *Östgötacorrespondenten* said: "A roaring NO to the Valla link"; 73.5 % of the voters said 'no' to the link while 26.5 % said 'yes'. The "yes-constellation" was, not surprisingly, disappointed. Their opinion was that the referendum focused too much on the Valla forest and its future function and not the overarching traffic problem. The power of a clear result in a referendum made the AVLC's position very strong vis-à-vis the PVLC. It is, however, difficult to interpret the result from the referendum in terms of the ACF. It does not fall within any of the three processes that might lead to public policy change. The result can not easily be seen as interaction between the two coalitions, an external event or changes in the stable system parameters. The most reasonable interpretation must be that it is a question about cross-coalitional learning in one of the disputed areas of the particular issue. Or in other words, the referendum gave some 'hard facts' about the standpoint of the public opinion on the Valla link question. In November 1990, the municipal council made a decision in principle to create a nature reserve (NR) in the Valla forest. The reserve was planned to be designated at latest in spring 1991.

3.10 The Valla forest becomes a nature reserve

Two years after the referendum and almost 1,5 years after the decision in the municipal council, no further formal measures in order to protect the forest had been taken. It was at this moment also obvious that there would be no state grants for the establishment of the southern part of the belt way system. For the first time in many years, the local election which took place in September 1991 was not dominated by the Valla link issue. Even if the Conservative party tried to create a new interest in the question by introducing a revised version of their tunnel alternative, the Valla issue only played a minor role in the election campaign. The Conservatives' idea was to build a tunnel under the whole forest, not only under one third of the area as in their original proposal. In order not to upset the public opinion they also underlined that this was a new proposal which had not been considered in the referendum and that if the project proved to be practically and economically reasonable, it should be the object for a new referendum before anything was decided. This move by the conservatives at the eleventh hour was, however, not met by any particular enthusiasm. Even if Sweden experienced a serious recession in the beginning of the 90s, these changes in some of the more stable system parameters could not facilitate a revitali-

sation of the Valla link debate. It seems as if many of the actors were tired of the Valla issue and that the level of conflict had decreased dramatically since no one really had the strength to bother anymore.

3.11 The last fight?

The long-lived story about the Valla link was at this moment inevitably coming close to an end. In November 1991, the Valla link was finally excluded from the municipal plans. The process was, however, not very rapid. In December 1992 - three years after the decision in principle about the NR - one representative from the Left party raised a formal question in the municipality council about why the NR was not yet formally designated. According to the City Gardener, the reason for the delay was that the formulation of the mandatory management plan for the NR had taken more time than expected. Actually, the management plan was not presented until summer 1993 and met by criticism from different actors. Nature conservationists were disappointed that a part of the forest was not included in the reserve, and actors more interested in cultural history stated that biological values were given too much consideration in the management plan.

In January 1994, the criticism from the actors interested in cultural values reached a climax when some key persons opposed the whole NR idea and suggested another solution where the area was protected by a special plan. By this suggestion these actors thought it would be possible to avoid the strong emphasis on nature conservation values inherent in a NR management plan. The actors interested in cultural values had some ideas about using old forestry methods in the Valla forest which might not be possible with the suggested management plan. It is interesting to note that when the forest was saved for the future or in other words, the main goal derived from the core of the AVLC's belief system was reached, discussions about outer core values was initiated within the coalition. These discussions might have facilitated internally induced policy-oriented learning. In this particular case, the internal conflict was, however, based on some misunderstandings about the restrictions for 'cultural' activities in the NR. When this was sorted out and it became clear to the 'cultural actors' within the coalition that their ideas would not meet any formal hindrance, they accepted the proposed management plan. This can be characterised as some kind of internally induced policy-oriented learning. In March 1994 - for the first time ever - there was a political consensus about the Valla NR. Even if there will be further discussions about the future function of the

Valla forest, the formal decision to establish a NR in the northern parts of the forest makes the Valla link idea impossible to be realised in the foreseeable future. At least if we allow us to exclude more or less utopian tunnel alternatives.

4 Concluding remarks

The purpose of this paper was to introduce an actor-based perspective on policy change that gives itself out to have explanatory power when it comes to changes in public policy. The paper also contains a single case study where conserving and developing interests in an area close to a Swedish urban centre are fighting each other in order to realise different plans about the future function of the particular area. The aim with the empirical part was to reveal what explanations the ACF offers for the observed public policy's development. In this final section, some conclusions from the single case study are made.

One reason for the development of the ACF was that traditional rational models were unable to explain how governing decisions were made in very complex settings, for example in an American metropolis. Complexity is, however, not one of the central themes in the ACF, but it is implicitly acknowledged by the fact that the model does not settle with focusing rational decision making by formal organisations. In the Valla case, the main problem is, however, not the complexity of the particular issue or when, how and by whom the decisions shall be made. The problem is in many aspects crystal clear, and much of the inability to reach a final outcome is in fact connected to this fact. The two solutions - a road through the forest or not - were incompatible and the possibilities for decision makers to save the situation by a compromise alternative or by "hiding" the issues from the opinion by rhetorical skill was more or less non-existent. The complexity in the Valla case was not related to the fact that the issue was substantially complicated or that many different interests had to be considered. It was in fact the two incompatible main decision alternatives combined with a split public opinion and ditto political parties that made it so hard for the decision makers to reach a final decision. A situation which probably is not unusual when it comes to major land-use decisions.

Finally, it is important to note that the emphasis of the ACF put on the role of private business did not correspond very well with the Valla situation. The actor that could influence the decision from a position as an essential financier of the Valla link project was the National Road Agency and not an influential

private construction company. It has not been possible to reveal how intensively private enterprises tried to influence the decision makers to realise the Valla link idea by lobbying. Even though the ability of private business interests to influence Swedish land-use decisions has been acknowledged during the last decade, their capacity to dictate the process in cases where a strong public opinion is opposing a particular project must be considered as limited. Where public opinion is weak, the discretion of private enterprises to influence the process increases. This might be the case in the American context, where the local political level can be considered as weaker in questions of land use than in Sweden and where public participation in local political issues in general is less developed. In other words, when one applies a framework worked out in a different context, it is important to be aware of its limitations due to national myopia. Or as Harding (1995) describes the British perspective on American urban theory: "US approaches are generally dismissed as ethnocentric and insensitive to fundamental differences between the two countries".

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Local participation in sustainable forest management based on landscape analysis

Bo Mårsäter

Abstract

The article describes a Swedish-Finnish cooperation project on public participation in forest management. The objective of the joint project is to find out ways to reconcile economic, ecological and social claims in forest management plans. This can be reached through committed public participation in the planning at the local level. The main interest groups at the moment are forest owners, forest industry companies, forest and forest industry workers, people as recreationists and customers, tourism entrepreneurs and environmental activists. The project is implemented by the regional forestry organisations in Sweden and Finland and includes five field demonstration areas. The project was started in December 1996 and will last until March 2000.

Keywords: forestry, landscape analysis, public participation, sustainable development, EU/LIFE project, Sweden, Finland.

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1 Introduction

The title of the article is the name of a joint Swedish-Finnish project which will be presented here. To start with, it might be worthwhile, however, to think about the significance of the topical keywords or concepts which make up the title and also the objectives of the project: landscape analysis, participation, management, sustainability.

These words truly belong to and reflect our present-day society, and supersede others which the older of us once used: planning, exploitation, renewable natural resource. Further back in time, exploitation would have been the sole keyword, meaning to make use of what the forests offer, which is what we have been doing ever since our ancestors once entered the forests in search for food and shelter. Industrialisation brought raw materials and jobs into focus.

If we want to make use of our forest resources without exhausting them, we have to plan and strictly implement management methods which create the necessary conditions for a continuous exploitation. That insight arrived to the Nordic countries, if not earlier so at least towards the end of the last century, when the depletion of the available timber resources put the profitable saw-milling industry at risk. A new type of legislation was then created in order to provide for a sustainable supply of industrial wood through obligatory reforestation of harvested areas.

The same logic applies on other types of economic exploitation of the forests, for example hunting and fishing. Such activities, as well as the collection of berries and mushrooms, not only still contribute to family budgets like in past times, but also form part of an increasingly important tourism and leisure industry. With this, new parties claim a stake in the resource management and compete with the old but clear wood production interests.

2 Interest groups and sustainability

The preceding paragraphs have more or less directly referred to several groups who would have at least one interest in common, namely sustainability in the exploitation of forest resources (Figure 1). Such interest groups may be composed of

- forest owners, who wholly or partially subsist on incomes from industrial wood sales, and add up with hunting and fishing,
- processing industries and their owners, who require raw materials,
- entrepreneurs and workers in forestry and forest industries, who depend on the jobs offered,
- people in general, who buy forest industries' products and use forests for berry-picking, hunting, fishing and other outdoor recreation, and
- tourism operators, who need access to forested landscapes.

However, sustainability is today sooner associated with protection and conservation than with exploitation. This is due to a new awareness of the importance of ecosystem management, focusing on the conservation of biological diversity, soil and water, and the protective functions of forests. Knowledge about these matters is widely spread in all the mentioned interest groups, but is in particular represented by

- environment organisations, which attach higher significance to conservation issues than to any of the above exemplified economic activities.

Over the last milleniums, those exploiting forest resources have had to respect the superimposed interests of kings and states, maintained first with the sword and then with the help of paragraphs of increasingly detailed laws and regulations. Even if the paragraph method today is meant to represent the interests of all citizens, there is rarely a total acceptance and the executing government agencies often meet opposition from various corners. However, the main conflicts stem from differences in group interests, most often between forest owners or forest industries and environmental organisations.

3 Joint effort to promote public participation

The main question which stands out from the above broadly painted picture is whether it is feasible to reconcile economic, ecological and social claims in one single management plan. This is what the joint Swedish-Finnish project is about, and the title hints at a possible solution: committed participation in management planning at the local level.

The project is supported by the European Commission through its environment fund, LIFE, and is implemented in five field demonstration or test areas, with technical inputs from two national units specialised in geographical information

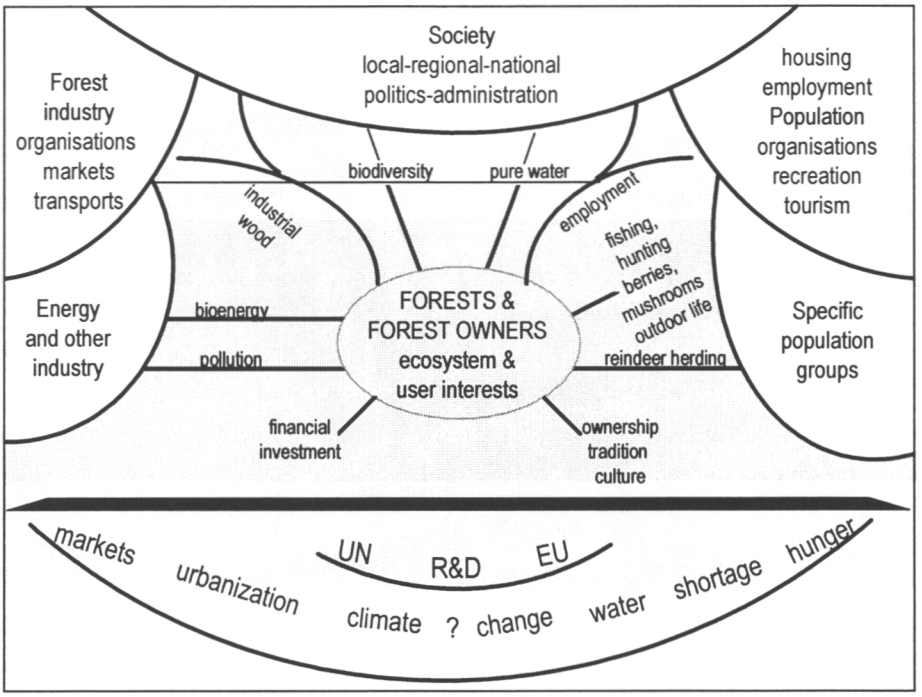


Figure 1. Factors affecting forestry in Sweden and Finland.

systems. The project was launched in late December 1996 and will be finished in March 2000.

The project partners in Sweden consist of three Regional Boards of Forestry Västerbotten, Mälardalen and South Götaland, and the National Board of Forestry. The Finnish partners are the Coastal Forestry Centre and the Forestry Development Centre Tapio.

The demonstration areas present a wide range of qualities and issues and include in Sweden Vindeln with 265 000 ha land area, Kolmården with 86 000 ha and Linderödsåsen with 20 000 ha. The Finnish sites are found at Vanda (5 000 ha) and in South Österbotten (166 000 ha).

The *raison d'être* of the project has to some extent been described above. To this can be added that the forestry sector is of major importance in the economies of the two countries, and that the project is dedicated to the new concepts manifested in

- the EC Fifth Environment Programme Towards Sustainability,
- the UNCED Agenda 21 and the Forest Principles statement,
- the Helsinki Process and other post-UNCED initiatives, and
- forestry and environmental policies and legislation of the two countries.

The project activities focus on methods and techniques of landscape analysis and planning for sustainable production and biodiversity, and on models to accommodate the interests and opinions of other parties than the forest owners in forest management decisions. The project findings are expected to be applicable also outside the two project countries. Starting from 1999, a series of reports will be published in Swedish, Finnish and English. In mid-1998, the project will also open a homepage in the Internet.

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Employment as an indicator of social sustainability of forestry in Finland

Pertti Elovirta

Abstract

The aim of this article is to discuss how employment can be measured and in which way it should be considered in order to achieve a functioning indicator of social sustainability in the forestry sector. If the frame of the sustainable utilisation of the renewable natural resource is to be included in the employment indicator, then the employment achieved must be compared to the quantity of roundwood used. The Labour Input Intensity Coefficient (LIIC) is used as an indicator of the social sustainability of the forestry sector's employment. The coefficient is derived by dividing the labour input with the quantity of roundwood used by the sector. LIIC = labour input in man years/quantity of roundwood in 1 000 cubic metres.

Keywords: forestry sector, employment, Labour Input Intensity Coefficient, social sustainability, regional employment, Finland.

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1 Introduction

Wood resources are considered to be the most important of the economic resources supplied by the forest, and roundwood is considered to be the main product of the forestry. Especially in Finland, wood is the only domestic and renewable natural resource which can be sustainably utilised. The exploitation of wood resources also creates the main source of forest-based employment. Consequently, the employment effect of the wood consumption is specifically emphasised in the discussion concerning the socio-economic effects of forest protection. The employment level achieved by utilising wood recources is one of the criteria of the social sustainability framework of the forestry sector. The aim of this paper is to discuss how employment can be measured and in which way it should be considered in order to achieve a functioning indicator of social sustainability in the forestry sector.

When using absolute values of the employment, persons or man-years, it is not possible to compare areas or countries of different sizes. If forestry employment is compared to the total employment, the relative significance of the forestry sector as employer is achieved. The social sustainability embodied in this figure is not necessarily indicated, because the employment shares achieved do not contain the information as to how the renewable natural resource is utilised. If the frame of the sustainable utilisation of the renewable natural resource is to be included in the employment indicator, then the employment achieved must be compared to the quantity of roundwood used. This is the case, for example, in the study of the long-run development of the Finnish forestry sector employment (Elovirta et al. 1997) and in the comparative study of the forestry sectors in Finland, Austria and Great Britain (Petäjistö et al. 1997).

The studies mentioned above use the Labour Input Intensity Coefficient (LIIC) as an indicator of the social sustainability of the forestry sector in question. The coefficient is derived by dividing the labour input (including the employment involved in wood production) with the quantity of roundwood used by the sector in question:

LIIC = labour input in man years/quantity of roundwood in 1 000 m^3

The comparative study of Finland, Austria and Great Britain demonstrated that in Finland the consumption of roundwood is over two and half times greater than in Austria and Great Britain. The employment of the Austrian forestry

sector is however a little higher than that of Finland, and the employment of the forestry sector in Great Britain is five times greater than that of Finland. The LIICs for the forestry sectors in these countries were in year 1994:

Finland	2.12
Austria	5.66
Great-Britain	27.39

The values of the coefficients indicate that 1 000 m^3 roundwood provides jobs for 2 persons in Finland, to nearly 6 persons in Austria and to 27 persons in Great Britain. The differences in the employment effect can be explained by the differences in the industrial structures and by the degree of value added in the forestry sector in each country.

2 Labour Input Intensity Coefficients of the forestry sector in Finland by region

The LIICs in Finland by region are initially derived by the same method as earlier in the analysis covering the whole country (Elovirta et al. 1997). The regions used in this study are the provinces and the starting point of the analysis is the quantity of roundwood produced by these provinces. This starting point is in accord with the public discussion concerning employment and related forest protection problems. In this discussion, the quantity of renewable natural resources utilised in each region is considered to be the basis of employment in each region. The dynamics of the problem is analysed by determining the LIICs in years 1985 and 1996.

The LIIC of forestry sector in Finland decreased by 40 % from year 1985 to year 1996. However, no significant changes between regional levels occurred. For both years, the country was divided in three different regions from the standpoint of the labour input intensity of the forestry sector. By far the best labour input intensity was achieved in the southernmost province Uusimaa: over three times that of the mean for the country as a whole. The second region is the rest of the southern Finland (the provinces of Turku and Pori, Häme and Kymi), where the labour input intensity is above the national average. The third region is the rest of the country, where the labour input intensity is less than the national average.

Table 1. LIICs of the forestry sector in Finland by region in years 1985 and 1996 - roundwood production indicator.

Region	1985	1996
Finland, average	4.80	3.00
Uusimaa	16.90	10.60
Turku & Pori	6.30	4.30
Häme	7.70	4.30
Kymi	8.70	6.10
Mikkeli	2.30	1.50
North-Karelia	2.50	1.20
Kuopio	3.30	1.60
Center Finland	3.30	2.60
Vaasa	4.30	3.00
Oulu	2.80	2.10
Lapland	3.10	1.80

The result is surprising, given the regional significance of the forestry sector. The forestry sector has always been regarded to be particularly significant in Eastern and Northern Finland, and less so in Southern Finland. The labour input intensity of forestry sector is however higher in southern Finland and especially in the province of Uusimaa, which has the largest urban concentrations. The lowest LIIC in 1996 was in the province of North-Karelia in Eastern Finland. The explanation for this exceptional result is being analysed in an ongoing investigation and will be reported later. The regional structures of forestry sector employment will be analysed both by industrial and firm size structure.

One affecting factor is the flow of roundwood from one region to the other and the differences in the quantities of roundwood produced and used in any single region. To analyse the significance of the flows of the roundwood, it was decided to calculate the LIICs by using regional roundwood consumption quantities instead of roundwood production, even though this procedure separates the results from the reference frame of the utilisation of the regional natural resources.

By calculating the labour input intensity coefficients with roundwood consumption quantities, the superiority of the province of Uusimaa is further enhanced. The coefficient achieved in this way was seven times higher than the average for the country as a whole. The relative situation between regions also changed. The lowest labour input intensity of the forestry sector was found in the prov-

Table 2. Labour input intensity coefficients of the forestry sector in Finland by region in years 1985 and 1996 - roundwood consumption indicator.

Region	1985	1996
Finland, average	4.46	2.57
Uusimaa	30.27	20.00
Turku & Pori	5.37	3.48
Häme	6.88	4.68
Kymi	1.89	1.34
Mikkeli	6.11	3.20
North-Karelia	4.56	1.15
Kuopio	4.03	2.18
Center Finland	4.19	2.41
Vaasa	3.84	2.22
Oulu	3.93	2.43
Lapland	2.64	1.19

inces of Kymi, North-Karelia and Lapland. The rest of Finland was near the national average.

Now we have two different answers to the same question. Which one is correct? The solution to this problem was a mixed indicator. In the calculation of the LIICs by region, the quantity of roundwood production must be used when it exceeds the quantity of roundwood consumption in the region, and the quantity of roundwood consumption must be used when it exceeds the quantity of roundwood production in the region. By this way the domestic roundwood flows and imported roundwood are in the same time included in the calculations.

3 The mixed employment indicator of the social sustainability of the forestry sector

In Finland, the labour input intensity of the forestry sector, measured by the mixed indicator, decreased 42 % between the years 1985 and 1996. The decrease was fastest, over 50 % in the provinces of North-Karelia, Kuopio and Lapland. A remarkable change in the regional structure has also occurred during this period. Measured by the mixed indicator, the region with the highest labour input intensity is the province of Uusimaa alone, with coefficient four times higher than the country average. The second region with coefficients above the country average in both years analysed consisted of the provinces of Turku,

Table 3. Labour input intensity coefficients of the forestry sector in Finland by province in years 1985 and 1996 - mixed indicator.

Region	1985	1996
Finland, average	4.46	2.57
Uusimaa	16.90	10.60
Turku & Pori	5.37	4.31
Häme	6.88	4.30
Kymi	1.89	1.34
Mikkeli	2.30	1.50
North-Karelia	2.50	1.15
Kuopio	3.30	1.60
Center Finland	3.30	2.41
Vaasa	3.84	2.22
Oulu	2.80	2.10
Lapland	2.64	1.19

Pori and Häme. This region is called South-Western Finland throughout the rest of this paper.

In 1985, the third region consisted of the rest of the country excluding the province of Kymi. Kymi alone formed a fourth region with a considerably lower coefficient than in any other region. In all other regions, the LIIC of the forestry sector was higher than half of the country average. In the province Kymi in 1985, the figure was less than half of the average for the country as a whole. The provinces of Uusimaa and Kymi therefore formed the two extremes with respect to employment in the forest sector.

By 1996, the regional structure of employment in the forest sector had changed considerably. In 1996, the region with labour input intensity slightly lower than the national average consisted only of provinces of Keski-Suomi, Vaasa and Oulu. This region is henceforth called Western Finland. The provinces of Mikkeli, Kuopio, North-Karelia and Lapland which had belonged to this region in 1985, had had their forest sector labour input intensity reduced by over 50 % by 1996. These provinces now belong to the same category or region as Kymi, which had earlier been the only province with a very low LIIC.

Dividing Finland into four regions on the basis of the 1996 figures, measured by the mixed indicator of employment in the forestry sector, we have:

1. Uusimaa, very high LIIC

2. South Western Finland (Turku and Pori and Häme), high LIIC

3. Western Finland (Keski-Suomi, Vaasa and Oulu), low LIIC

4. Eastern and Northern Finland (Kymi, Mikkeli, Kuopio, North-Karelia and Lapland), very low LIIC.

4 Discussion

The regional variation in the labour input intensity of wood consumption as calculated in this paper seriously challenges the accepted belief that the forest sector is of considerable significance for the socio-economic development of the regions. As mentioned earlier, the employment in the forestry sector will be analysed by the industrial and firm size structures in the provinces, as so further light will be shed on the problems revealed here. However, on the basis of the comparative analysis concerning the forestry sectors in Finland, Austria and Great Britain (Petäjistö et al. 1997), it is possible to speculate upon the reasons.

The relatively low labour input intensity in the Finnish forest sector can be explained by the dominant position of the pulp and paper industry, which is characterised by big firms and automated process manufacturing and which is oriented to the export of semi-finished goods. The reason for the higher labour input intensity in the Austrian forest sector is an increased emphasis on mechanical wood processing and especially high value added secondary manufacturing in the small-scale carpentry industry. Wood consumption per head is higher in Austria than in Finland and the Austrian export products of forest sector goods have a higher value added compared to Finland. The reason for the very high labour input intensity in the British forest sector is the emphasis on the import of semi-finished goods and the manufacturing of higher value added products for a large home market. The forest sectors of Finland and Great Britain therefore form the two ends of a production-structure continuum; the British forestry sector starts where the Finnish forestry sector ends.

The regional labour input intensity relationships in the Finnish forest sector would appear to reflect a similar production-structure continuum by which the province Uusimaa can be compared to Great Britain. From the standpoint of the national division of production, the structure of the forestry sector in South

Western and Western Finland is probably developed towards higher value added production, whereas Eastern and Northern Finland have acquired the role of producing raw materials and semi-finished goods. For example, the provinces of Kymi and Mikkeli demonstrate a smilar level of the forest sector's employment structure (as measure by the LIIC), despite the fact that Kymi's industrial structure is characterised by manufacturing and Mikkeli's by primary production (agriculture and forestry). The flows of roundwood from many other eastern provinces are directed to production plants in Kymi, where capital-intensive processes produce semi-finished goods for export. The labour input intensity is very low in this part of the production chain. Higher LIICs are found in further (secondary) manufacturing sectors which produce high valued added goods for consumer markets.

Future research includes a deeper analysis of the structure of regional employment structures in the Finnish forestry sector and an enlarged international comparative analysis, which will include Denmark, Germany, Italy and others. The analysis will concentrate on small and medium-size enterprises in the forestry sector and the conditions which affect their significance as a source of socially sustainable employment.

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Participatory forestry planning in Kainuu, Finland

Sakari Virtanen

Abstract

The article discusses public participation and grassroots democracy as complementaries to representative democracy in the context of forest management. The approach is based on both the history of and actual examples from the province of Kainuu in northeastern Finland. The paper starts with a historical introduction, which serves as a background to the present attitudes towards both forest and management of forests in Finland. Two examples of cases in which citizens have been offered an opportunity to participate in regional forest management and forest policy are briefly presented. The first case is the recent (1995-1996) working out of the ten year natural resources management plan for the state-owned forests in the Kainuu region. The second case is the ongoing EU-project, the Regional Forest Communication Programme of Kainuu. Both cases include surveys on laymen's opinions about forests and forestry. The concluding chapter contains an assessment of the perspectives of the grassroots' role within Finnish forest management.

Keywords: forestry, history, planning, public participation, ethics, Finland.

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1 The province of Kainuu

Kainuu is an east-Finnish province ("region" according to EU terminology) of about 95 000 inhabitants and 24 000 square kilometres (4 persons/km^2). The population is slowly decreasing. The capital, Kajaani, is a traditional forestry and industrial town with a population of 36 000 inhabitants. It is also a centre of schooling of regional importance. Kainuu belongs to the County of Oulu. Forest accounts for more than 95 % of the land area and forestry and forest-based industries form the foundation of the province's economy. The Gross National Product in Kainuu is three quarters of the national average, and two thirds of the European Union average. The average rate of unemployment was in 1998 about 20 %, in some of the 10 municipalities even over 25 %.

Kainuu has, in addition to the two examples of the citizen's role in forest management, a speciality to offer. A considerable amount of western Europe's last boreal coniferous old-growth forests are situated in Kainuu and its closest neighbouring province towards north, in Koillismaa. A great deal of the recent regional forest disputes have been going on around protection of the old growths. In June 1996, the Finnish Government made a decision to protect more than 60 000 hectares of the old-growth forests. In this paper, the case of the old growths will be focused as a central element of social and environmental sustainability of forestry.

2 Historical survey: the Finns and the forest

Material value

Counting in terms of human lifetimes, the period of permanent settlement of Kainuu amounts to some 10 generations. In terms of modern forestry, the same period comprises 3 or 4 tree generations because from the commercial point of view the life cycle of coniferous species at the Kainuu latitude is about 110 years. From nature's point of view the life cycle of a single tree may be manifold; the oldest living trees located in Kainuu's old-growth reserves were seeded in the 14th century.

The attitudes toward the forest have been influenced by several factors. I start with the radical changes in forest exploiting which have taken place during the course of four centuries. To begin with, the main source of livelihood was hunting but by the 16th century swidden cultivation assumed a dominant role.

Tar distillation by burning pine in piles covered with earth started in the mid-18th century and soon became the next most important source of livelihood. By the late 19th century, Kainuu together with Russian Archangel was the leading European producer of tar until mineral tar conquered the market just before the First World War and the pine tar industry fell down.

As the population grew, the greatest share of timber was consumed for non-industrial purposes, i.e. fire wood, log houses, fences, etc. Starting from the 1860s, the forest industry began to gain importance and since the 1920s the saw-milling industry and paper industry have been the main users of timber grown in Kainuu. Most of the timber is transported to the mills in Kajaani and Oulu (Virtanen 1982, 1985).

Finland's progress from being a 19th century backward Russian Grand Duchy located on the periphery of Europe to an independent welfare state of the late 20th century can, from the economic point of view, be seen as a success story which can be entitled "Through timber into better days". During the 1920s and 1930s, the forest industry made up over 80 % of the total export. Today the share is about 40 %.

"Finland has wooden legs" is as true today as it has always been. Thanks to forest management there is more wood today in the Finnish forests than there was a century ago in spite of the fact that the forest industry has increased its annual consumption of timber from less than 10 million cubic metres in 1900 to the level of 50 million cubic metres nine decades later.

Especially during the post-war period the forest served as the "farmer's bank". Timber delivery made up primary capital for investments by farmers' households as all the farmers in Kainuu are also forest owners. Today, the connection between agriculture and forestry is no longer so close since a great number of forest owners have given up agriculture and taken up urban professions. Meanwhile, the farmers have turned to other sources of financing.

Forestry used to be an important source of jobs up until the 1950s. Since then mechanisation has dramatically reduced the demand for labour. In 1960, the total number employed in forestry in Kainuu was (in full hundreds) 7 100, by 1970 it had fallen to 4 900, by 1980 to 3 100, and by 1994 stood at 1 000. After the old growths' conservation, the number of employed dropped to about 800 in 1997.

Non-material value

The idea of the beauty of nature is comparatively new. In Finland painters, poets and composers became conscious of it in the 19th century, not so much later than their colleagues elsewhere in Europe. The national romantic movement around the turn of the century equated the nature of Finland with the best features of the national character. Those were the heavy years of the oppression under the Russian regime. National romantic works using metaphors from nature were to strengthen the strivings for independence (Reitala 1987).

The impact of the Romantic Movement was soon seen, for instance, in the views over the villages where trees and ornamental shrubs became accepted into the traditionally treeless yards and squares. Aesthetics is one of the non-material aspects affecting attitudes. The forest has also many other profound metaphysical meanings in the mind of present-day Finns.

The forest is a place for recreation. The right of common access applies to practically all of Finland's forests, enabling citizens to wander, to pick berries or to encamp. It is also said that Finns, like their Nordic neighbours, go home into a forest whereas Central Europeans leave their home in order to go to the forest. The forest is thus, among other things, a place of relaxation, even more, a place of meditation and concentration for Finns.

Centuries of living in a sparsely populated province in the lap of nature has made a deep impression on the culture of Kainuu. Evidence for this can be found in people's everyday linguistic talent for expression as well as in the production of poets and novelists of national significance. The national epic of Finland, the Kalevala, was written in Kainuu. The Finnish champion of political demagoguery, late president of the Republic, Urho Kekkonen credited his skills to the men he worked with in his youth floating logs along the brooks and rivers of Kainuu.

Democracy comprises another aspect of the theme "man and forest". Because of the right of common access everybody can wander in any forest irrespective of who the owner may be. Moreover, people feel themselves to be equal with one another. In forests, berry pickers, hunters, skiers, and wanderers are not classified according to indicators connected with their everyday standard of living.

Since reading Ramachandra Guha's "The Unquiet Woods, Ecological Change and Peasant Resistance in the Himalaya", I have been looking for a Finnish tradition of what one might call "ecological sanctification". I have found nothing comparable to the Himalayan holy woods. The reason is quite obvious as Finns always were so few in number they were never able to threaten the existence of the forest however exploitative their usage might have been. Erosion or other factors could not in our boreal climate cause any permanent damage before natural reafforestation took place over the course of decades. Indeed, there have been holy trees or stands but not sanctified on any ecological basis, as far as my interpretation is correct, unless the traditional choice for sites of graveyards belonging to the Orthodox Church has a double meaning, an aspect presented by some members of the Orthodox Church themselves.

The forest in itself

In the old times people had no reason to think about the value of forest. There was always as much wood as they needed for fuel, construction, or tar distillation. Timber had no price. In the late 19th century timber became in demand and acquired a monetary value. Thereafter, in the faithful modernist manner, attitudes towards the forest have become more and more positive - testifying to the ideology of modernism or liberalism.

As with most features of modernity, commercial or "scientific" forestry has brought about many positive changes within the Finnish forests and, furthermore, within Finnish society. Nevertheless, scientific forestry started in Finland only a century ago and has not yet been able to solve all the problems involved in its attempts to manage nature. The main reason for this is the considerable period of time, 110 years in Kainuu, required for commercial rotation of the coniferous forests. The problem was highlighted, for instance, in the cases of the huge clearcut areas of the 1950s and 1960s.

The extremely promising results of large-scale experiments on silvicultural methods carried out in the 1930s, climate-wise the most favourable decade of the 20th century, encouraged the cutting of vast areas of spruce dominated forests with the intention of subsequently planting with pine. In practice, the plan did not prove as effective as it had been supposed because, among other things, the climate in the1950s and 1960s was most unfavourable. The change of climate has not been the only unpredictable act of nature to cause problems for the

foresters; for example, nature's own choice of species should also have been taken into account.

In the last few decades, the forest has become one of the main subjects of environmental disputes in Finland. Commercial forestry has proved efficient in increasing the volume of timber production. However, large areas no longer looked like original forests. The open cuttings were not pleasant to behold. The monoculture pine woods lacked other species. Was it sure that scientific methods would be the best in the long run? Concern arose for the health of the forest and for the genetic heritage on which the forest has survived so long in our harsh climate.

During the course of the 1960s and 1970s, a loud criticism arose against the clearcuts and soon also against other methods involved in commercial forestry. The criticism was the first wave of environmentalism in Finland. Partly as a result of the conflicts and partly because of the development of science and practices of forestry, the methods of silviculture today are more ecological than a few decades ago.The most recent hot issues have been biodiversity and nature protection. Forest owners are supposed to take care of valuable biotopes, even small ones, in their forests.

As mentioned above, the Government decided to protect more than 60 000 hectares of the state-owned old-growth forests in Kainuu. Certain details are still open and subject to continuous dispute, i.e. the actual borders, compensation for lost jobs, etc. Even the dispute about the acceptable amount of hectares is every now and again reraised by certain interest groups. Another protection issue is the Green Belt along the length of the Russian border. According to the Ministry of the Environment, the Green Belt will be made up of already protected areas and no new areas will be needed but at the same time environmental movements have, nevertheless, been giving different signals. In Kainuu, unlike other parts of Finland, the European Natura 2000-programme has not arisen strong feelings.

3 Historical survey: decision levels

Private

The first restrictive forest regulations by the Government were those made in Sweden-Finland during the 16th century. These favoured the mining industry at

the expense of the saw-mill industry and swidden cultivation. In the remote parts of the Kingdom, such as Kainuu, these restrictions were of zero impact. Forests were burnt for swidden cultivation as far as 80 kilometres away from the homesteads. It is estimated that all the land in Kainuu suitable for swidden cultivation was burnt at least once a century in the period from the 16th to the late 19th century. All this work was done in remote wilderness areas outside the authorities' control by families or in cooperation with neighbours as was the custom.

Swidden culture temporarily changed the selection of species. Suitable land was identified simply by rich spruce (or broad-leaved) habitat. After one to three crops the area was left alone and natural afforestation began. The first tree species to enter were broad-leaved trees and then pine that liked the ashy soil. During the course of a few tree generations, spruce being the most vigorous species was able to regain its dominant status - if there was no interference by man.

The tar distillation era made its own impact on the appearance of the forest. Pines were used and spruces left which gave spruce room for invading even those soils naturally more suited to pine. The result of this process in Kainuu was the domination of vast areas of forest by spruce. The original balance was forced back by modern 20th century forestry and favouring pine started because it seemed, from the commercial point of view, more profitable than spruce. The broad-leaved trees no longer had any place in the modern forests. As forest science has developed, it has changed the assortment of species back nearer to their natural balance; even the broad-leaved trees have today their duties in the Finnish forests.

Forests were common property until the general parcelling up of land began in the western provinces of Finland during the mid-18th century. The process reached Kainuu by the 19th century and was finished by the 1870s. The assessment units of land (mostly forest) given to the yeomen were large but so too were the forests retained by the Crown. When the forests were common there were no problems with swidden cultivation or tar distillation. Once the general parcelling up of land finished, it was still common, but illegal, to use private or state-owned forests for these purposes. Decisions were made by local people according to their knowledge of traditions.

Authorities

An epoch-making change took place during the last decades of the 19th century. At first, in the 1850s, the Government (Senate of Finland) began to see the forest's value from a broader perspective than earlier, i.e. no longer just as fuel and construction material for the mining industry. Industrial policy was liberated and the first steam-driven saw mills were given operating permissions. This resulted in a huge increase of logging of timber and, furthermore, in a negative attitude towards traditional forest practices. One of the results was the intensified management of the state-owned forests.

A German-style authority, the National Board of Forestry was established in the late 1850s for the management of the Crown's forests. Free distillation of tar or swidden cultivation by the peasants were no more allowed in these forests. The training of professional foresters started in the 1860s and academic education in the early 20th century. The layman's ability to take care of his own forest was not respected and in 1928 the Private Forest Act was prepared obliging forest owners to manage their forests as the authorities saw fit. A network of regional boards, today known as Regional Forestry Centres, was set up in order to both control and guide private forest owners.

The first national forest inventory of 1923 concluded that the private forests were in a worse condition than state and company-owned forests. The reason for this was simple: people, who in the ancient rural economy had always given nature enough time to patch the holes which man had made in the forest, did not have any traditional knowledge about how to behave. People had never learned to work for the forest because, on the one hand, there always were new stands for swidden cultivation and, on the other hand, recently burnt areas were naturally reforested, because burning was the best way to prepare the substrate, to uncover the mineral soil covered by the thick forest turf. Nothing was needed to help nature.

The 1928 Private Forest Act persisted for decades. Right up till the late 1980s, cases at Court were raised against private forest owners who had not been handling their forests according to the "official" orders given in the spirit of scientific forestry. On the other hand the role of the forest owners' local organisations, the Forestry Associations, grew in importance during the postwar period. The Forestry Associations are intermediaries between the authorities and

the Regional Forestry Centres on the one hand and the forest owners on the other.

Forest owners made to decide

The brand new Private Forest Act (put into effect 1997) imposes, among other things, a strict duty to take care of ecological diversity. At the same time the Government has reduced its financial support to the Regional Forestry Centres which control and guide the forest owners' activities. This leaves the forest owner with a heavier responsibility.

As the Regional Forestry Centres' and other authorities' means seem to be diminishing the situation is bound to turn to the citizen's advantage. It depends on the forest owners: is they are willing to realise this new opportunity? Sooner or later new grassroots solutions for the "sound forestry" will be discovered, adapted and, inevitably, accepted.

4 At present: new phenomena

Citizens heard

An example of a kind of new democracy dealing with the new morale is the quite recent (1995-1996) case of working out a decennial management plan for the state-owned forests of Kainuu Region. Plans had since the turn of the century been made by forest professionals. It used to be out of question for somebody outside the small team to have a word. The current plan is called the Regional Natural Resources Plan. An elementary part of the planning process was public participation. Even if public participation has taken place in many countries (Kangas et al. 1996) and in the forest issues, too, it signifies a revolutionary turn in the Finnish tradition of forest management. The public, not only their hierarchical representatives and organised interest groups but also laymen, were asked - beforehand - how they thought the use of the state-owned forests should be planned. In addition, ideas, principles and local knowledge about the forests were also sought.

People's first reactions were rather suspicious in respect of how their comments might affect the plan. But, as the planning proceeded, attitudes became more positive and participation became more active. The first round left, without

doubt, a lot of questions unsolved, for example dealing with the reliability, validity, and coverage of the articulated layman's will.

A feedback survey (Loikkanen 1996) was done to find out the laymen's comments on: 1) how the planning process was perceived, 2) how the participation feedback on forest attitudes compares with the whole population's attitudes, and 3) how the opinions were actually taken into account. The purpose of the survey was to develop methods of public participation so as to fit better Finnish culture as well as to serve landscape-ecological planning.

The survey covered one thousand inhabitants of the planning region. The responce rate was 53 %. Only every seventh respondent knew how to participate and only two percent really participated. Two thirds of the respondents believe that the Forest and Park Service (FPS) manages the forests well. Furthermore, two thirds of those who participated believed that the FPS pays attention to their opinions.

The survey reveals, once again, that the Right of Common Access (RCA) is one of the most important of citizens' rights in Finland with the forest comprising a natural part of everyday life.[1] People unanimously value biodiversity as it exists in the forests of Kainuu, and maintaining traditional ways of forest utilisation, i.e. hunting, picking berries and mushrooms, recreation, etc. One such traditional form is utilisation of timber and employment is a central element of man's relationship to the forest in Kainuu. However, the issues involved are not as simple as many opponents of nature protection have been inclined to suggest. People also have difficulties in accepting modern mechanised forestry techniques, which have caused a great deal more unemployment than nature protection. On the one hand, total protection (of all the old growths) is seen as a threat, and on the other hand, the methods of the hard timber-production forestry were disliked, as well.

Ethics

A short discussion is, however, needed on moral and ethics in the context of the forest. In the recent dispute on the protection of the old growths there were two opposing points of view presented in Kainuu, each claiming moral and

[1] For more about the valuation of RCA, Erkki Mäntymaa 1997.

ethical aspects as their principles. One claims that it is immoral to protect forests because it results in unemployment and the other claims that it is immoral to destroy the old growths because they should be left to our children and grandchildren.

The old growths are located in the communities that suffer severe unemployment (30 %) and where every unemployed lumberman has a name. In Finland a man is valued according to his work. If one is told: "We don't need you any more" it is understood as "You are good for nothing". Even if we have created an adequate welfare system in respect of unemployment, meaning that people can live, i.e. eat and cloth themselves, without any major financial problems it is the experience of alienation and invalidity which makes unemployment the most severe of social problems. The rate of unemployment in Finland is among the highest in Western Europe, second after Spain.

Taken literally the argument for employment sounds fair. It is, however, put forward by the same people who have, in the name of efficiency, increased machinery in harvesting in order to diminish harvesting costs, i.e. human labour. As the jobs lost by protection are counted in hundreds (thousands at most) the jobs lost by mechanisation are counted in tens of thousands. On the other hand, the extremist protectors, again, totally deny the reasoning by unemployment.

Only a modicum of attention has been paid to a third way of thinking. The one that could be called the "Honey Bee"[2] effect, i.e. protection of the old growths may bring about a new appreciation and augmented value to the province of Kainuu and all its forests and forestry, and people living, one way or another, from the forests.

Dialogue as means

In 1996, in a strategic planning process carried out by the Regional Council of Kainuu, the question of promoting the Regional Image of Kainuu (RIK) was raised. Kainuu lives by the forest and the forest is a central factor of the RIK. The over-heated dispute on the protection of the old-growth forests was carried beyond reasonable limits by extreme representatives of the two opposing parties, loggers and protectors. The representatives of the key industries under-

[2] "Honey Bee" is a global grassroots innovators' network, the core being in India and its neighbouring countries. A central idea is to encourage man's relationship to nature in the same way as a honey bee does as it collects honey and, at the same time, pollinates. See http://csf.Colorado.EDU/sristi/

lined the importance of a positive and solid Forest Image of Kainuu (FIK) to support their marketing. On the other hand, people working in forestry and forest industry were convinced that a great deal of the polemics around the forests of Kainuu was based on insufficient knowledge of the real state of affairs.

In August 1996, the forest group of the regional planning process invited people interested in forest issues to a meeting to discuss the idea of a Forest Communication Programme of Kainuu (FCPK). The meeting appointed a team to prepare the FCPK project. The project plan successfully secured joint finance from the EU, the Regional Council of Kainuu and the participating member communities. The final report was completed by the end of 1997. (Kainuu... 1998).

The FCPK development process invited people from all sides of the forest dispute to come together to produce a programme to put forward a positive message about Kainuu as a forested province in order to support the activities of Kainuu´s firms, villages and municipalities. The work was based on understanding of both the history and the present-day situation concerning Kainuu´s forests. During the project a wide-ranging discussion on the value and use of the province's most important natural resource was initiated. Advanced mutual understanding forms a secure base for the FCPK which, together with the Regional Communication Programme, aims to serve all areas of interest within the region.

The aim of the project was

- to find for forest communication at regional, national and international level those central target groups which are: a) users of the products and services of Kainuu, b) makers of societal decisions about forests, and c) formulators and intermediaries of the RIK,

- to collect knowledge about the history and economic importance of Kainuu's forests, and to survey citizens' actual attitudes towards the forest,

- to promote, between the various parties and interest groups concerned a wide-ranging, open, and encouraging dialogue on all issues dealing with the province's forests and, through this, to lay a solid foundation built on respect for different values,

- to disseminate wide-ranging information about Kainuu's nature, forestry, the various ways of using the forest, and the forest industry in Kainuu,

- to build up a network of contacts and a communication guide for the use of firms, communities and interest groups.

As the purpose was to create a communication programme for all those interested, in one way or another, in the forests of Kainuu, representatives of several interest groups were invited to join the FCPK-team. Thus the members were from the Regional Forestry Centre, the Regional Council, the Association of Private Forest Owners, the paper industry, the mechanical wood-processing industry, the Nature Protection District, the Regional Environment Centre, and the Forest and Park Service.

Throughout the old-growth dispute there was a lot of talk in the name of "people of Kainuu". One of the central elements in constructing the FCPK was a survey on the citizens' attitudes towards the forest, realised in April - May, 1997. The survey sought the opinions of 815 inhabitants of Kainuu. The response rate was 59 %. It is possible to raise only a few aspects here.

People were asked about the size of protected forest areas. The most recent decision to protect the old-growth forests was made some nine months ago after a heated dispute. Polemics on the decision had continued for months and politicians in particular had kept arguing that the people of Kainuu do not accept such a large area of protection. Nevertheless, 54 % of the respondents said that the size of the protected area was appropriate, 14 % demanded an even larger area of protection, 3 % had no opinion, and 29 % said that the protected area should be smaller.

People were also asked what they see as the most reliable source of information concerning forestry. About 25 % of the respondents voted for the private forestry associations. The forest researchers' share was 16 %, and the Regional Forest Centre's and the private forest owners' organisation's shares were 14 % each. The environmental movements' share as a reliable source of forestry information was 4 % and that of politicians 1 %. Also concerning some other issues the Parliament and Government got low points.

People were asked about the relative importances of various aspects concerning the forest (scale 0-10). They gave 9.11 points to the vitality and health of the forest, 8.88 points to the beauty of the landscape, 8.57 to the variety (biodiversity) of the forest, 8.44 to employment, 8.03 to the production of timber, 7.55 to tourism, and 7.26 to the protection of nature. Neither pure economic utilisation nor protection are the most important aspects. People in Kainuu have a holistic view of the forest rather than any black and white one.

Regarding public participation, one interesting question concerned the respondents' experiences and willingness to participate. People were, for example, asked about participation in the planning process of the state-owned forests: 2.5 % had participated, 26.7 % had not participated but were willing to, and 70.8 % had not participated and were not even willing to.

5 Conclusions

Today in Finland there are vague signs of a tendency towards a new grassroots democracy. There are, nevertheless, current examples of authorities which do not give up their traditional upper hand in relation to the citizen. Even if a new democratic pattern has been formally accepted and all the necessary meetings arranged, the decisions will be, all the same, made as before. On the one hand, it is about the old modernist structure's resistance to a new world view and new democracy. On the other hand, it is about cultural polarisation between the elite and the grassroots people.

Even if modern forest science has produced fine achievements, it now and then has met its limits in the unpredictable reactions of nature. Many such reactions have been recorded earlier, but were not heeded because we believed that we had a new world to live in. I have also seen many detailed descriptions of the problems of forestry in the reports of the old professionals who made decennial regional plans for the state-owned forests at the beginning of our century. Their observations were simply forgotten because of the promising results of the 1930s mentioned above. As in medicine, grassroots traditions are worth retaining in forestry.

It seems, in the light of the above examples from Kainuu, that citizens are well aware of the importance of sustainability, not only ecological sustainability but also the social point of view. The citizen's world view is more holistic than the elite believes. In particular, the regional political elite has difficulties in trust-

ing citizens' ability to consider reasonably. What is striking is the citizens' unwillingness to participate. It might be a reflection of polarisation between the elite and the grassroots. It might, also, reflect a realistic view of the individual's inability to affect authorities' decisions. Whatever the reason, this result constitutes a great challenge in the development of grassroots democracy.

It may sound like a paradox, but while the welfare society has reached its limits, and has even begun to decline, the citizen's independence in relationship to the authorities has begun to increase. It will be up to the citizens how long it will take to learn to exercise the legitimated power one has and not to leave everything to some one else. Public participation and the Forest Communication Programme are, among other things, attempts to invite the people of Kainuu into the decision-making process.

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Recent forestry developments and social forestry research in Iceland

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Abstract

The article describes the history and present forestry situation in Iceland. Icelandic forestry is characterised by afforestation, use of exotic tree species and efforts to control soil erosion. Special attention is paid to presenting a Nordic research project "Public participation as a means to sustainable forest management" and a national research project "Forestry in Iceland: magnitude and relevance".

Keywords: forest management, social research, public participation, Iceland, Nordic countries.

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1 A Nordic project on sustainable forest management

Current Nordic forest policy demands multiple functions of public and private forests. Forest-derived values such as biodiversity, recreation and environmental protection have received increasing attention in addition to the economic objectives of forestry. Many of these values cannot be expressed in monetary terms. Current forest policy must make clear the values of forests for different groups in society and how to allocate resources among them. Public participation can contribute toward meeting this goal.

SNS (Nordic Forest Research Cooperation Committee) will finance 1997-2000 a project called "Public participation as a means to sustainable forest management". It encompasses representatives from each of the Nordic countries (Danmark, Finland, Iceland, Norway and Sweden). The core of the project is based on case studies of public participation in each country. This approach allows to compare results across nations and to make conclusions on the opportunities and limitations for public participation in forest management in the Nordic countries.

Nordic forest legislation has recently delegated more authority from politicians to the public forest administration by extended use of framework laws. This change creates the flexibility needed to manage the increasingly complex and ever-changing demands in forestry. Nevertheless, this change can also be seen as a democratic loss. Public participation or involving the various stakeholders more directly in decision making in public forest administration may be a solution to overcome the democratic loss.

The Nordic project aims at providing: a) empirical evidence of the link between the legal, organisational and cultural premises and the applicability of public participation, b) a focus on process-oriented public participation of all affected parties, and c) a comparative analysis of public participation in the Nordic countries. The following methods will be used: 1) analysis of laws and documents produced by the management bureaucracy, 2) newspapers, agendas, accounts, memos, letters etc., 3) interviews with managers and other key informants, 4) quantative surveys among the general public in the case study areas, and 5) observation of public meetings.

Public participation in forest management can be defined as the effort of forest management or the forest planning team 1) to actively and continually provide

the public with a wide range of opportunities to influence forest planning and management and 2) to systematically analyse, evaluate and subsequently incorporate - to the extent possible - the resulting public input in the forest plans.

Who are the public? In principle, the public must be selfdefined. It is anyone who might have an interest, a stake in the particular case. This could be forest owners, entrepreneurs, public authorities, nature conservation organisations, hunting associations, local inhabitants, broadly any unorganised or organised individual or group at the local, regional or national levels (based on the application sent to SNS 1997).

Why is it nessesary to put an effort in a project of this nature? The concept of sustainable forest management is of a general nature. How should this concept be defined? An answer to these questions is found in the overall goals presented by the SNS: "SNS is working to foster increased collaboration and to promote synergistic effects within Nordic forest research with the intention of contributing to sustainable, multifaceted management of the Nordic forests for the benefit and pleasure of our Nordic societies". SNS uses the following definition of the concept: "sustainable forest management should be understood as meaning a type of management and utilisation of forests which preserves their biodiversity, productivity, capacity for regeneration, vitality and their potential for fulfilling the relevant ecological, economic and social functions at the local, national and global levels, now and in the future, and without harming other ecosystems" (Overall goals, SNS Strategic Plan 1998-2000).

2 Forestry in Iceland - a different situation

Among the five Nordic countries Iceland has a special situation regarding forestry, i.e. the lack of forest and widespread occurrence of soil erosion. Iceland is an island with a land area of 103 000 km^2. Soil degradation and desertification has devastated large portion of the Icelandic ecosystems since the settlement of the island about 1 100 years ago. The evidence for this degradation includes historical records, Sagas, annals, old farm surveys, and soils buried under sand. Glaciers and water cover about 15 % of the country. Classified satellite images show that more than 37 000 km^2 of the country are barren deserts with additional 10-15 000 km^2 of eroded areas with limited plant production. Erosion is severe or extremely severe on 22 % of the country (exluding high mountains, lakes and glaciers), and combined areas with considerable, severe and extremely severe erosion comprise 52 % of Iceland (Arnalds 1997).

It is estimated that some 25-30 of the island was forested before it was settled. That is close to half of the estimated 60 % vegetation cover at the time. Today only 25 % of the country is covered with vegetation. Only about 1.33 % of the island is woodland (Snorrason 1995). Charcoal burning and heavy grazing played a major role in the rapid destruction of the woodlands. Large areas were burned to clear land for grazing and agriculture.

Because of this situation, protection of woodlands has been the major objective of forestry since the beginning of the century. Forestry and soil conservation laws were passed in 1907, creating the Iceland Forestry Service (IFS). The first emphasis was placed on enclosing birch woodlands to protect them from grazing. After 1950, greater emhasis was placed on planting exotic species, many of which grow much better than the native birch and regenerate naturally in Iceland. The current forestry law is from 1955. This law, now under revision, is very detailed in protecting forests and forest remnants.

3 A hopeless situation?

These facts are necessary to keep in mind when forestry matters in Iceland are debated. But the situation is far from being hopeless. Achievements of the Soil Conservation Service (SCS) and the IFS over the last 90 years are a proof of that. The traditional approach in soil conservation involved using governmental machinery and personnel to halt localised, catastrophic soil erotion. As a consequence, soil conservation was for a long time regarded as a governmental responsibility. Over the last decade new soil conservation strategies have been developing. This includes a move towards a comprehensive and holistic ecosystem management, guided by sustainable development principles. About 20 % of the livestock farmers are now working directly with the SCS in land improvement projects. They feel that they are becoming a part of a solution, and this partnership opens up positive channels for discussing and resolving other resource issues, such as overgrazing and the ultimate goal of sustainable land use. Most soil conservation projects are now carried out by local people, creating an ownership in both the resource problems and the results (Arnalds 1997).

Those who pioneered Icelandic forestry were intellectuals who had learned about forestry in other countries. At first they achieved little support because public knowledge and experience of forestry and afforestation techniques were lacking. From a very slow beginning and puny efforts, forestry has grown to become of great popular interest for its recreational value, for the production of

raw material, for the protection of soil and the environment, and not least because of its enormous symbolic value in improving the environment.

Based on climatic data, the Icelandic lowlands below 400 meters should be within the Circumpolar Boreal Coniferous Forest Zone even though conifers do not occur there naturally. Conifer seed is dispersed only short distances and is unable to reach Iceland from its glacial refugia on the European continent (Steindórsson 1964). One example to support the idea of production forests in Iceland is new data on the growth rate of Sitka spruce (*Picea sitchensis* (Bong.) Carr.) which is comparable to that achievable throughout much of the Nordic countries (Blöndal 1996). Icelandic forestry is predominantly based on introduced species of which the genus *Larix* is the most important. Planting of larch began on nationwide scale in 1951 and it is today the most commonly planted exotic tree species in Iceland (Blöndal and Snorrason 1995).

In Iceland from 1950 to 1988, between 500 000 and 1.5 million tree seedling were planted each year. In the year 1989, the rate of planting increased to 2 million and in 1990 it went up to 4 million. Since then planting has required 4 - 5 million seedlings annually (Snorrason 1997). This rise is due to new afforestation projects in cooperation with farmers and landowners, and to increased cooperation with municipalities and forestry associations around the country. Icelandic forestry is now on a firm base. Afforestation is gradually changing the countryside surrounding many urban centres, and similar changes are occurring in several of the rural districts (Blöndal 1993).

Icelandic agriculture has changed considerably since 1950. Increased cultivation has reduced winter grazing by sheep and recent quotas have reduced the number of sheep by 40 % from the maximum it reached in 1978. This has led to more land being available for forest planting and natural regeneration of birch in areas where grazing prevented it before. This change in agriculture has changed the social conditions in many rural areas. In Iceland, social sustainability of agriculture, and thus of rural development, are actual discussion topics at the moment. Afforestation could be a part of the solution for certain areas.

In the 1950's, the Forest Service put forward a plan for production forests but the idea received little support from authorities. They kept the idea going and in 1969 a pilot project started in east Iceland, in a district called *Fljotsdalur*. It was not big, but 11 years later the interest in afforestation increased because of fine results. In 1991, the *Heradsskogar* project[1] Act was passed to promote the

afforestation of 15 000 ha over a 40 years period in the same dictrict. The annual planting covers about 400 ha (Gunnarsson 1995). The area comprises 120 potential farmlands, of which 85 now participate in the operation. The size of potential forestry land within each farm varies from 10 to 800 hectares. In 1997, the Icelandic parliament passed a similar act called *Sudurlandsskogar*, where the annual planting programme covers approximately 600-700 ha in the southern part of Iceland.

For 30 years there has been organised research in forestry at the Iceland Forest Research Station. The main research topics are 1) species, provenance and clonal trials, 2) tree breeding and seed production, 3) ecology of birch woodland, 4) silvicultural research, research on pests and diseases of trees and treecrops, 5) tissue culture, and 6) research on site factors governing forestry (Bragason 1997). Reassessment of the forestry potential in Iceland is under way and social research in forestry began with the Nordic cooperation in the SNS project, "Public participation as a means to sustainable forest management".

This information and examples show that a lot of effort has been put in securing that forestry in Iceland can have a bright future. Icelanders can easily establish forest if they wish to (Bendz 1987). The experience, knowledge and technical means are available, the question is more politically oriented. The question now is how will the politicians react to these issues.

4 Social research

In addition to the Nordic project "Public participation as a means to sustainable forest management", the Iceland Forest Research Station is working on a project called "Forestry in Iceland: magnitude and relevance", which is supported by the National Science Council of Iceland. The project extends the ongoing work of a pilot project which started 1997. The aim of the project has been to quantify public involvement in forestry in Iceland.

At present, forestry is financed and practiced by the State, municipalities, forestry associations and private individuals, including landowners. Forestry labour comprises both paid workers as well as volunteers from non-governmental organisations. The factors investigated in the project are, for example, the amount of members in the forestry associations, and how many of them are active in forestry work, and the amount of people working full time or part time in jobs

[1] The Heradsskogar project will be used as the case study area in the SNS project.

related to forestry. Also the amount of planted seedlings and the factors increasing or decreasing their amount are monitored.

The results of this project will determine how to measure the actual and feasible level of public involvement in forestry. This work will include also an opinion poll on public perceptions, attitudes and knowlegde on forestry. For example, who exerts the greatest influence on public opinion on forestry? What individuals, institutions or organisations come to mind when you think about forestry? Are they among political leaders or parties, the State Forest Service, environmentalists? What do people think are the negative aspects of increased forestry? What are the effects of forestry on the scenic value of the rural landscape? What are the opinions concerning the use of exotic species? To what extent is the public interested in forestry based on the forest's perceived role in combatting the greenhouse effect by sequestering carbon?

The value of the project is high, because this information regarding forestry plays an important role in planning future activities. It is especially important because new afforestation plans and brainstorms on how to increase forestry are taking place in Iceland at the moment.

ACKNOWLEDGEMENT

I thank Dr. Aðalsteinn Sigurgeirsson and Sigurður Blöndal for their valuable comments on the manuscript.

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Attitudes and culture among environmental officials in Norway

Jørund Aasetre

Abstract

This article is based on the results of a survey carried out among environmental officials in Norway in the autumn of 1994. The survey covers officials at the national and regional level working with environmental issues in different administrative sectors. The survey focuses on culture and attitudes to environmental issues. In the study, we compared environmental, cultural heritage, agricultural and transportation sectors. We identified clear differences between these sectors, as well as differences due to such aspects as educational background, place of origin and gender. Even if this study does not specifically focus on forestry, I believe that the results still should be of interest to forestry and forest management, because forestry is often affected by environmental policies, and thus the attitudes of those officials actually implementing these policies should be of relevance.

Keywords: environmental policy, management culture, attitudes, public administration, Norway.

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1 Introduction

This article is based on the results of a survey carried out among environmental officials in Norway in autumn 1994. The survey was done by a group of researchers (including myself) led by Terje Kleven at the Norwegian Institute for Urban and Regional Research (NIBR) and Lars Emmelin at NORDPLAN. The questionnaire included a section of 24 attitudinal questions relating to environmental problems. A question from another section of the questionnaire is included in the analysis here. That question was about the perception of "technological fixes" as a strategy for solving environmental problems. In the following, I will present how the environmental officials reacted to these questions, and what differences I detected among different groups of officials.

This study does not focus directly on forest management, but the results should be of interest also for those interested in forestry and forest management, as officials engaged in forest management are part of one of the sectors studied here (agriculture). Moreover, environmental management can affect forestry, and there has actually been some conflicts in Norway between forestry interests and nature conservation. The background for this study is a perception of officials, not as tools that loyally carry out the official policy, but rather as agents whose attitudes and knowledge actually affect the way policies are implemented, also environmental policies that can affect forestry.

Before I go further on, I will briefly account for my use of some key concepts in this study. One of the most important concepts is **attitude**. Although there are different definitions and differences among scientists about how they understand attitude as a concept, Fishbein & Ajzen (1975) say that *"most investigators would agree that attitude can be described as a learned predisposition to respond in a consistent favorable or unfavorable manner with respect to a given object"*. Further on, Olson & Zanna (1993) claim that most attitudinal scientists will agree that

a) *evaluation constitutes a central, perhaps predominant, aspect of attitudes,*
b) *attitudes are represented in memory, and*
c) *affective, cognitive, and behavioral antecedents of attitudes can be distinguished, as can affective, cognitive, and behavioral consequences of attitudes.*

These elements also form the basis of my understanding of attitudes. Furthermore, a distinctive character of attitudes is that they are oriented towards specific objects or situations. We have attitudes to objects like cars or bears, or situations like shopping or driving. Rokeach (1973) describes this in referring to an attitude as *"an organization of several beliefs around a specific object or situation"*.

Finally, a characteristic of attitudes of empirical significance, is that they in many ways are a slippery phenomena. You can not see, feel or in any direct way measure them. Only indirectly through the behavior (verbal or other) of people can we get a glimpse of their attitudes. Empirically, when we ask questions we actually measure only the behavior of people. The measured behavior is how they make marks in a questionnaire. However, we assume that there is a connection between this behavior, and the attitudes of the people answering those questions.

Another concept of importance is **culture**, or in this study, organisational culture. As attitudes, culture is a concept with many definitions, and not all scientists understand the concept in the same way. I will not go into any long discussion about the concept, but will base my understanding on Eriksen's (1993) description of culture. He describes it *"as those skills, conceptions and patterns of behaviour that people have acquired as members of society"*[1]. Further on, Eriksen says that *"culture can also be defined as that shifting community of meaning that is continually being established and changed by human interaction"*[2]. Culture is shaped by societies or membership in groups defined by specific types of interactions. In this study all respondents were members of the environmental administration. The environmental administration can be considered as one or several organisations. Referring to culture, this makes the concept of organisational culture important. Christensen & Molin define organizational culture as:

> *The organization's particular, traditional pattern of myths, norms and routines which - handed over from "generation" to "generation" - make certain types of explanations and actions appear as obvious and natural.*

[1] My translation
[2] My translation

Socialisation will of course play a very important role in the shaping of both attitudes and culture, but from my point of view, it is important not to have a deterministic view of culture. As attitudes, organisational culture is a slippery phenomena. Given that organizations neither have a will of their own, nor an independent ability to think, culture can only be seen through the attitudes and behavior of the individual members of the organisation. But given the autonomy of an individual, it is not likely that individual attitudes and behavior completely will reflect the culture of an organisation. A lot of variance will exist.

Above I have used the term organisational culture. What then are the different organisations in the environmental administration? In this study, I have chosen to define different **sectors**. I regard sectors as *"vertical integrated multi-organisations working in specific areas of competence"*. This view is to some degree inspired by Scott & Meyer (1992) and Strand (1977). The description of the different sectors will be presented below.

2 Method

This paper is based on a survey of all officials at the national and regional level working with environmental issues in different administrative sectors. The survey had a response rate of 72 % and we received 1 193 answered questionnaires. The response rate was highest at the regional level, and officials at the regional level make up around 70 % of the respondents.

The questionnaire was designed to measure a wide range of environmental attitudes and knowledge. In the questionnaire we have chosen not to depend on established and earlier validated scales. Only three of the items were picked from earlier attitudinal research. These items where taken from a reviewed version of the New Environmental Paradigm Scale (NEP), but the total reviewed NEP scale has 15 items (Dunlap et al. 1992). Even if the topics of some of the other questions have been investigated earlier, the questions have not as such been used before. The lack of use of earlier validated scales can be seen as a methodological weakness. On the other hand, one weakness of attitudinal research is that it is often coupled to researchers' conceptually weak understanding of environmental issues. The research group that constructed the questionnaire included persons that as observers know the environmental bureaucracy well and/or have done conceptual analysis of the ideology in the environmental bureaucracy (Emmelin 1983 a & b, 1993). We felt that this choice is justified by this reasoning.

The analysis of the data was made with the SPSS-package, and both bivariate and multivariate analysis was carried out. In the multivariate analysis, multivariate regression, factor analysis, reliability analysis and cluster analysis were used. In combination with reliability analysis, the factor analysis played an important function in the construction of five attitudinal indexes or scales. As mentioned earlier, answers to questions serve indirectly as measurement of attitudes.

By confirmatory factor analysis using Lisrel (Jöreskog & Sörbom 1993), I tested four models which *"explained"* the measured answers as *"caused"* by different attitudinal factors. In the model with the best fit, 21 of the questions were seen as "caused" by five attitudinal factors. On the background of this analysis, I constructed five indexes as measurements of those five attitudes. The reliability of those indexes was tested with cronbach alpha, and varied between 0.71 and 0.51. One could have hoped for a somewhat higher reliability for some of the indexes, but only one of the indexes has an alpha value under 0.6. That index was composed of two items. The correlation between those two items was inside the range for making index construction as set by Hellevik (1977).

A conceptual analysis of the content in the five factors also gave the impression of relatively conceptually consistent factors (Aasetre 1997). On that background the five indexes can be said to have a good constructional validity. It was concluded that the indexes have an acceptable reliability and validity for a first explorational study like this. In later research it could be helpful to develop some of the scales more to get even better instruments for attitudinal research. The five attitudinal scales were named: *Importance of agriculture, Degree of market orientation, Attitude to economic growth, Perception of nature as fragile* and *Attitude to classic nature conservation.*

In the analysis, I grouped respondents in four sectors. The definition of sectors was mainly based on what kind of management problems they worked with. All sectors included officials at both the central and regional level. (Table 1)

3 Results and discussion

If one looks at the attitudes of all officials on the five scales, they were most positive to *classic nature conservation*, and most negative towards *economic growth.* Figure 1 shows that the mean was higher than neutral, or positive for all the scales with the exception of the attitude to economic growth. The *Percep-*

Table 1. Administrative sectors represented by the respondents.

The Environmental sector	The Cultural Heritage sector	The Agricultural sector	The Communicational sector
• Ministry of the Environment • Directorate for nature management, • Norwegian Pollution Control Authority (SFT) • Department of The Environment under the County Governors • Planning and Environmental management in the county municipalities	• The Directorate of Cultural Heritage • Culture and Cultural Heritage protection in the county municipalities	• Ministry of Agriculture • Department of Agriculture under the County Governors	• Ministry of Transport and Communications • Directorate of Public Roads • Norwegian Public Roads Administration in the counties

(The official names of departments and divisions will later in this paper be shortened if necessary.)

tion of nature as fragile had the second highest mean of the scales followed by the *Importance of agriculture* and the *Degree of market orientation*. The standard deviation also varied between the scales. This variation can have methodological causes, as the number of items in the scales affects the standard deviation.

These results are not surprising for me as an observer of the environmental debate and the environmental bureaucracy. Those remembering the debate on "limits to growth" in the 70s can see that the so-called new (but actually old) concept of sustainable growth does not seem to eliminate the wide-spread perception of a contradiction between economic growth and protection of nature (Emmelin & Kleven 1995).

Differences in attitudes between officials

I analysed what effects different background, and educational and occupational variables have on attitudes on each of the five scales. This was done by multivariate regression, and the results are presented in Table 2.

Table 2 shows that for the *Attitude to classic nature conservation* the only independent variables with a significant effect are the two dummy variables for

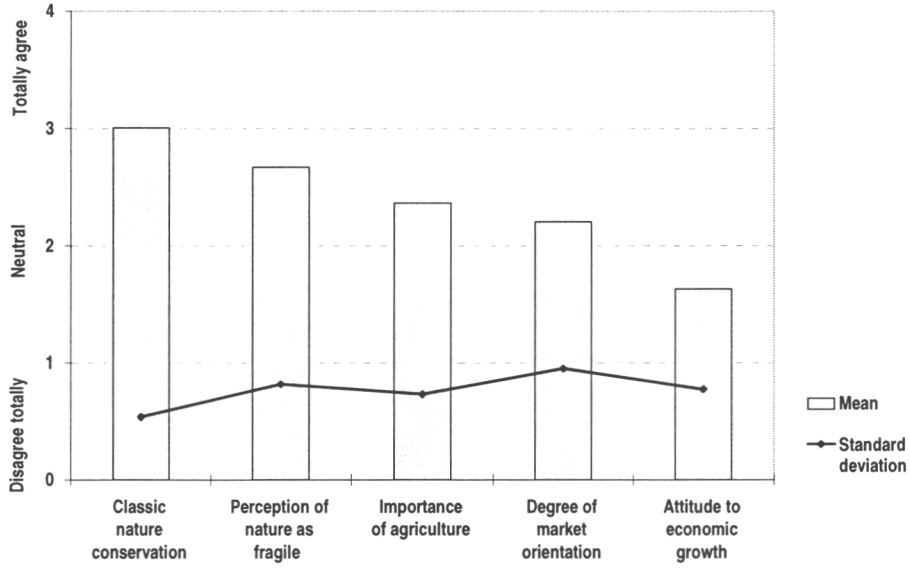


Figure 1. Attitudes of officials from all environmental administration sectors to environmental issues.

working in the agricultural sector. Officials in this sector have a less positive view of classic nature conservation than other officials.

Female officials perceive *nature as fragile* to a higher degree than male officials. Many of the educational variables have a significant negative effect on this perception. The regression coefficients for the educational variables are all negative. In the regression analysis all educational variables are so called "dummy" variables. This implies that we need a reference category. The reference category for the educational variables are those with humanistic and archaeological education. The analysis indicates that those in the reference group to a higher degree share the perception of a fragile nature than the other educational groups.The analysis also shows that leaders to a smaller degree than others perceive nature as fragile.

Regarding the perception of the *importance of agriculture*, working in the Department of Agriculture under the County Governors has a strong positive and significant effect. Also working with Culture and Cultural Heritage protection in the county municipalities has a significant positive effect on this attitude. Both institutions are at the regional level. The institutions at a central level in the Agricultural and Cultural Heritage sector both have positive regression

Table 2. Independent variables that affect the attitudes of the environmental officials in Norway.

	Attitude to classic nature conservation		Perception of nature as fragile		Significance of agriculture		Degree of market orientation		Attitude to economic growth	
Independent variables that affect the attitudes of the officials	Reg. coef.	Stand. reg. coef.	Reg. coef.	Stand. reg. coef.	Reg. coef.	Stand. reg. coef.	Reg. coef.	Stand. reg. coef.	Reg. coef.	Stand. reg. coef.
Rural or urban place of origin	-0.01	-0.04	-0.01	-0.02	0.05	0.02	-0.02	-0.04	-0.01	-0.02
Female	-0.04	-0.03	0.21	0.11 **	0.09	0.05	-0.33	-0.15 ***	-0.15	-0.08 *
Age	0.00	-0.07	0.00	0.04	0.01	0.12 **	0.00	-0.05	0.02	0.20 ***
Administrative/ economic	-0.05	-0.02	-0.17	-0.04	-0.29	-0.07 *	0.83	0.16 ***	0.55	0.13 ***
Technical/ engineering	-0.02	-0.02	-0.33	-0.18 **	-0.11	-0.07	0.32	0.15 *	0.36	0.20 **
Legal	-0.13	0.05	-0.04	-0.01	-0.10	-0.03	0.34	0.07	0.41	0.10 **
Architecture	-0.13	-0.06	-0.38	-0.13 **	-0.08	-0.03	0.01	0.03	0.16	0.06
Agricultural science	-0.15	-0.12	-0.30	-0.17 *	-0.13	-0.08	-0.07	-0.03	-0.05	-0.03
Natural science	-0.03	-0.02	-0.37	-0.18 **	-0.04	-0.02	0.09	0.04	0.16	0.08
Social science	0.02	0.01	-0.30	-0.10 *	-0.16	-0.06	0.25	0.07	0.30	0.10 *
Importance placed on education			0.01	0.01	0.07	0.07 *	0.08	0.06	0.03	0.03
Ministry of the Environment	0.02	0.01	-0.24	-0.07	0.08	0.03	-0.28	-0.07	-0.56	-0.18 **
Dir. for nature management			-0.17	-0.05	0.13	0.04	-0.16	-0.04	-0.50	-0.15 **
Pollution Control Authority	0.06	0.03	-0.19	-0.07	0.13	0.06	-0.13	-0.04	-0.37	-0.15 *
Dep. of The Environment under the County Gov.	0.15	0.11	-0.03	-0.01	0.20	0.10	0.00		-0.59	-0.28 ***
Planning in the county municipalities	-0.03	-0.02	-0.12	-0.05	0.12	0.05	-0.07	-0.02	-0.34	-0.13
Dir. of Cultural Heritage	-0.09	-0.03	-0.03	-0.01	0.40	0.08	0.01	0.00	-0.52	-0.10 *
Cultural Heritage prot. in the county municipalities	0.02	0.01	0.13	0.04	0.44	0.14 *	-0.21	-0.05	-0.49	-0.15 *
Ministry of Agriculture	-0.42	-0.09 *	-0.46	-0.06	0.33	0.05	-0.32	-0.04	0.10	0.02
Dep. of Agriculture under the County Governors	-0.34	-0.26 **	-0.20	-0.10	0.70	0.40 ***	-0.26	-0.11	-0.06	-0.03
Public Roads Adm. in the counties.	0.02	0.01	-0.11	-0.05	0.10	0.04	0.00		-0.12	-0.05
Ministry of Transport and Communications	0.02	0.00	0.07	0.01	-0.30	-0.04	0.29	0.03	0.06	0.01
Dir. of Public Roads	0.13	0.04	-0.03	0.00	-0.03	-0.01	0.20	0.03	-0.24	-0.05
Experience		-0.01	0.01	0.05	0.00	-0.05	0.01	0.04	0.01	0.09 *
Leaders	-0.04	-0.03	-0.23	-0.13 ***	-0.11	-0.07 *	0.01	0.00	0.03	0.02
Constant	3.34	***	2.89	***	1.54	***	1.93	***	0.97	***
R^2	0.19		0.07		0.25		0.12		0.23	

*** Significance p < 0.001

** Significance p < 0.01

* Significance p < 0.05

coefficients, but no significant effects. It is not surprising that people working in the agricultural sector are positive to agriculture. The fact that persons working with protecting the cultural heritage to a certain degree share this perception may reflect that agricultural landscapes are often considered as worth protection. Age has a positive effect on the perception of agriculture. Somewhat more surprising, those officials that placed a high value on their professional education also placed a higher value on agriculture than other officials. On the other side leaders and officials with an administrative/economic education placed a lower value on agriculture than the rest of the officials.

Administrative/economic and technical/engineering oriented education has a significant positive effect on the *degree of market orientation*. Being a female official on the other hand has a significant negative effect on the degree of market orientation.

For the *Attitude to economic growth* the results were particularly interesting. Working in almost all the institutions in the Environmental and Cultural Heritage sectors gave a significant negative effect on the attitude to economic growth. The only exception was those working with planning and environmental management in the county municipalities. The type of education does also have an effect on this attitude. Those officials that have administrative/ economic, technical/engineering, legal or social science education have a more positive attitude to economic growth than the rest of the respondents. Age and experience in the bureaucracy gave a significantly more positive attitude to economic growth. Female officials on the other hand have a more negative attitude to economic growth than male officials.

In a multivariate analysis, the different independent variables are controlled against each other, so as to exclude spurious relationships between independent and dependent variables. Even so, one has to be careful in speaking about causal relationships. The reason is that there are two processes. On the one hand we have socialisation within groups, and on the other hand selection into a group. One can not be sure if a person has acquired certain attitudes as a member of a particular social group, or if that person is a member of that group because he has certain attitudes (Zakrisson 1993). To be more precise, the causality can go both ways. The only way to find out what forms the attitudes of persons, is to do longitudinal research. I will come back to this later.

The multivariate analysis shows that, even when controlled against other variables, place of work and sector have an effect on the attitudes for three of the five scales. But, not surprisingly, also other characteristics of the officials such as background and education shape their attitudes.

Cultural differences between the management sectors

If we see the attitudinal differences between the four sectors as signs of differences in the dominant cultures in those sectors, there are clear differences in the organisational cultures between those sectors. Figure 2 shows clear differences between the sectors for all the different attitude scales. A one-way analysis of variance, and the use of Scheffés test identified that the agricultural sector has a significantly more negative attitude to *classic nature conservation* than officials in the other sectors. The bivariate analysis of variance gave the same result as the multivariate test. There were no significant differences between the other three sectors. The officials in the cultural heritage sector more frequently

perceive *Nature as fragile* than the officials in the other sectors. Also the perception of the *importance of agriculture* was different between all sectors. Not surprisingly, the agricultural sector had the most positive attitude to agriculture. But also officials in the cultural heritage sector have a significantly more positive attitude to agriculture than officials in the transport and the environmental sectors. Again the same relationships appear in both the bivariate and multivariate tests. The officials in the transport sector had the most negative attitude to agriculture.

For the *degree of market orientation*, the transport sector was significantly more market oriented than the other sectors. The agricultural sector had the lowest mean on the scale for market orientation. In fact the mean on this scale for the agricultural sector was significantly lower than even the environmental sector. On the attitude to *economic growth*, I got interesting differences. The transport and agricultural sectors have a significantly more positive attitude towards economic growth than the environmental and cultural heritage sectors. The two protection-oriented sectors were more negative against economic growth than the two "production oriented" sectors.

What then about attitudinal differences between different institutions in the sectors? To test whether aggregating institutions hides major attitudinal differences, I carried out a hierarchical cluster analysis. Institutions are closer related to the institutions in the same sector than to institutions in other sectors. If one should classify only on the ground of attitudinal differences, the only change would be to reduce the number of sectors to three, combining the environmental sector with the cultural heritage sectors into a "conservation sector".

If we look back to the multivariate regression analysis, we see that if we control sector or institution against other variables, some of the sector differences do not become significant. In other words some of the sector differences are due to differences between groups that are unevenly distributed between the sectors. In fact there are clear differences in background and education between the different sectors. Figure 3 shows to what degree the officials in the four sectors have grown up in rural/urban conditions. Not surprisingly, the frequency of having a rural background is much higher in the agricultural sector.

If we look at Figure 4 we can see that there are clear educational differences between the sectors. Also the percentage of female officials differs greatly between sectors. The cultural heritage sector has the highest female representa-

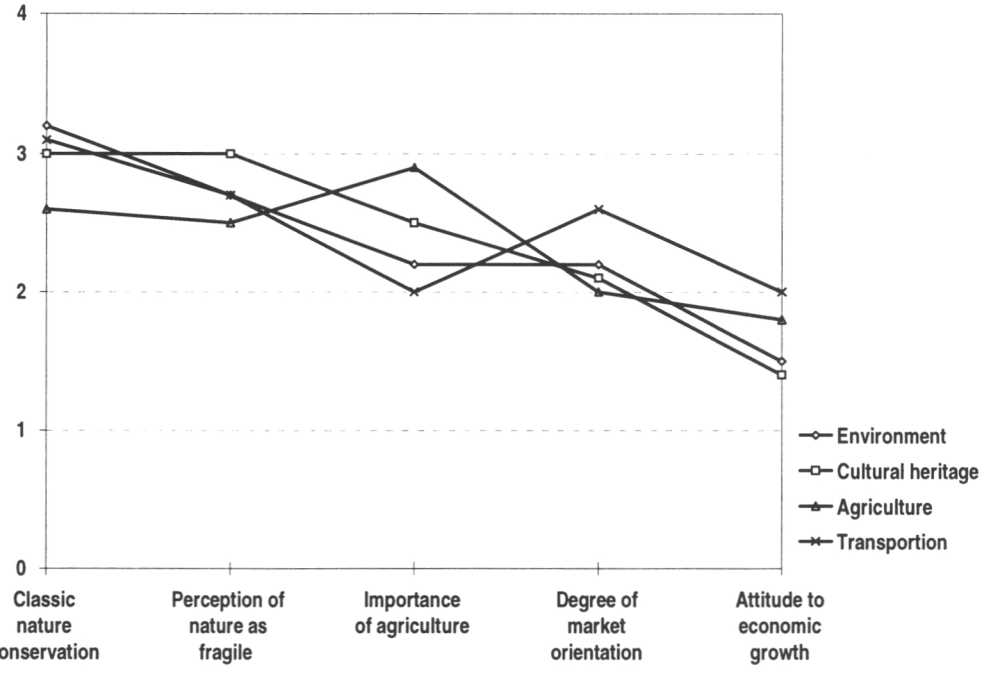


Figure 2. Attitudes among officials by sector. The attitude scales range 4 (= Agree totally) and 0 (= Disagree totally).

tion, almost 50 %. On the other side, the transport and agricultural sectors have the lowest rate of female officials.

Attitudinal differences between groups with different sex or education give attitudinal differences between sectors because of uneven distribution. An example of this is the differences in perception of nature as fragile. From the multivariate analysis we remember that female officials and officials having a humanistic or archaeological education perceived nature as fragile to a higher degree than other officials. Both these groups are strongly represented in the cultural heritage sector. To be somewhat imprecise it can be said that we have a lot more females with a humanistic education in the cultural heritage sector than in any of the other sectors.

The study indicates that not all the attitudinal differences are caused by socialisation in the different management sectors. This does not mean that sectors are unimportant. In my view this is because we actually have two processes forming the culture of the four sectors. In addition to socialisation, we also have a selection process. Persons with the *"dominant"* attitudes choose to be-

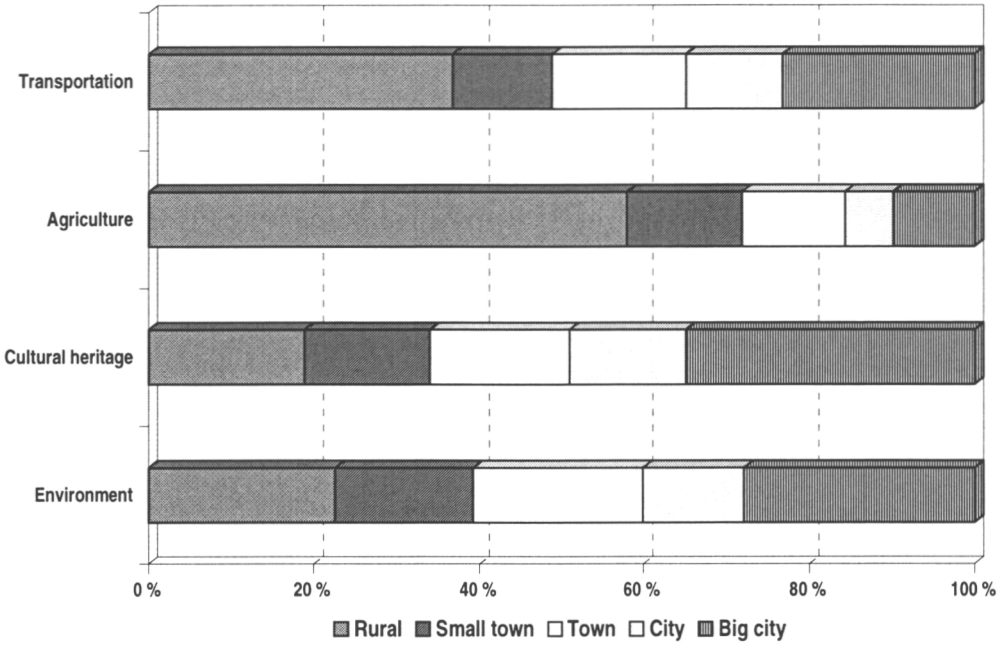


Figure 3. Rural or urban origin of the respondents.

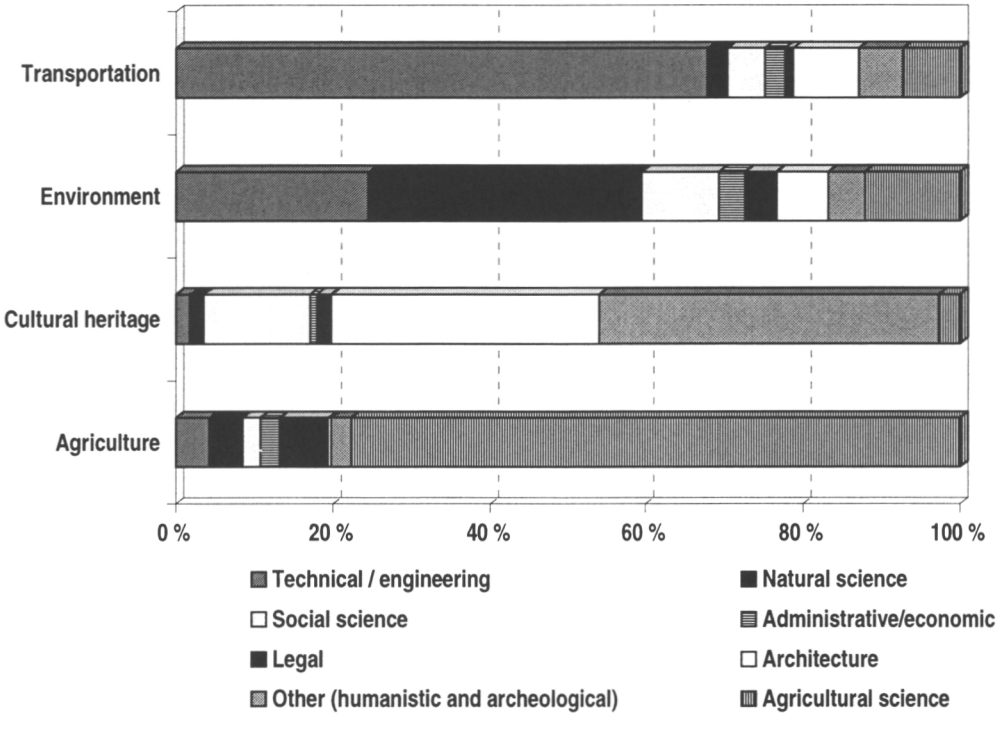


Figure 4. Educational background of the respondents.

come officials in a particular sector, and/or may choose to hire persons with these attitudes. In the model in Figure 5, I have tried to illustrate my view of this combination of selection and socialisation.

4 Final remarks

In conclusion, I would claim that this survey has added to knowledge about attitudes and attitudinal differences between officials working with environmental issues in different sectors. Even if this presentation is empirically oriented, I think that the life-cycle model in Figure 5, and placing importance on institutions like sector-organisations, can also inspire theoretical development. On the other hand, the life-cycle model in Figure 5 is primarily used as a help to interpret my results, and not to validate the model. The model underlines that causality is more difficult to establish than simply showing a significant effect from an independent variable on a dependent variable in a multivariate analysis. With the formation of attitudes one often has *"the chicken and egg"* problem, for example, between a particular attitude and a particular education.

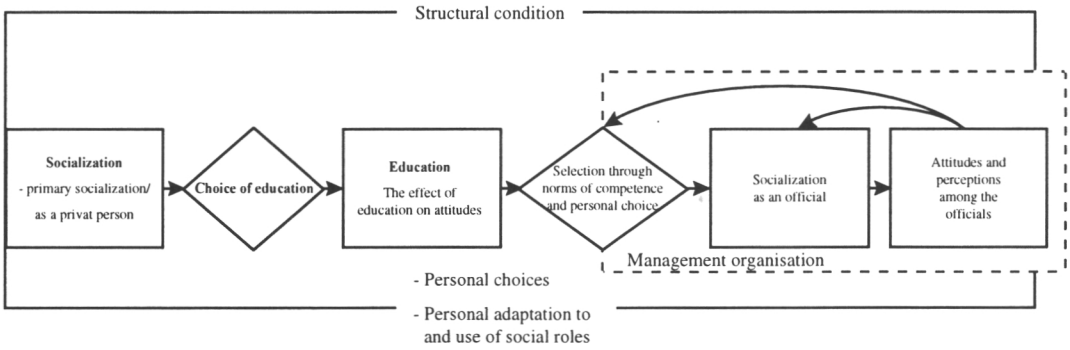


Figure 5. Life-cycle based model on factors that shape the attitudes of the environmental managers.

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Role of recreation in social sustainability of forestry and use of natural resources

Tuija Sievänen

Abstract

This article discusses social sustainability in the context of recreational use of natural resources and forestry. The concept of social sustainability is looked from different viewpoints such as equity, locality and rights of use. Important issues are the quality and management of recreational environment. The recreational use of natural resources is divided into two categories: nature-based recreation by local people and nature-based tourism. The focus of the discussion is on the problems in the Nordic countries.

Keywords: nature tourism, land-use rights, accessibility, local communities, values, Nordic countries.

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1 Introduction

The statement that human beings are at the center of concerns for sustainable development is defined to be the core of social sustainability. It means that people are entitled to a healthy and productive life in harmony with nature (UNCED 1993). Sustainable development is a key term when talking about policy issues connected to natural resources. There are some basic principles that are discussed in this context. First of all, social sustainability includes the issue of equity. It means development for all, equalisation of opportunities and freedom of choice independent of economic status, gender, or religious or ethnic group (Wiman 1994). These general principles apply also to the discussion of sustainable use of natural resources for recreation.

In Finland, an important basis for recreation is everyman's right which includes a right of access to all undeveloped lands for non-motorized recreational use. It offers an opportunity for everybody to get into nature. Also many recreation services provided by state or community agencies are mainly accessible free of charge for the public. This policy offers a basic equity in supply of recreation opportunities. The aim to provide a good quality of recreation environment and services is still a challenge to be faced. The term 'recreation resource' used here refers both to land and services. The sustainable use of recreation resources from economic, social and ecological points of view is essential. In this paper only social sustainability is discussed.

The focus of this article is to look at the problems concerning outdoor recreation and nature-based tourism on forested land and in the context of forestry. There are problems both among different types of recreational uses and between recreation and other kinds of forest uses. Starting from general point of view, there is a need to look for a balance between conflicting interests in use of natural resources needed for recreation. First, it is a question of intragenerational equity. Recreation opportunities belong to all, and particularly to local people. Second, consideration of the needs of future generations stresses the intergenerational equity aspect. Concerning the use of natural resources, sustainability refers to a principle, according to which the needs and aspirations of the present generation are met without compromising people's possibilities to meet them also in future (World Commission of Environment and Development 1986, McCool 1995).

Problems which are discussed along with social sustainability are unemployment, poverty, social injustice, social exclusion, stress and mental distress. These problems are to be discussed from many perspectives when talking about nature-based recreation and tourism. Most often these issues are related to the development of rural, peripheral areas, where the economy is dependent on forestry, agriculture, and now as a new possibility, nature-based tourism. Forests are an important resource for tourism and recreation in rural areas. At the same time, it is a question of rights of local people to use of natural resources, their cultural basis, and social equity. An important aspect of social sustainability is the quality issue: the quality of recreation environment, and the quality of recreation experiences and the benefits gained in nature. The quality of experiences refers to the values expressed by people in choosing recreation activities and environments. These are the main issues discussed in this paper.

2 Nature-based tourism

Sustainable tourism

The concept of sustainable tourism has been interpreted from many different aspects. First, it is described to be an opposite concept to mass tourism, and now it is set as a part of the ultimate goal of sustainable development. Characteristic to sustainable tourism are the issues of small-scaleness, locality, equity, authenticity, environmentally friendly traveling, ecological and physical impacts, social and cultural impacts and education of hosts and tourists (Clarke 1997). One of the goals of sustainable tourism is that holistic planning and strategy-making from both the global and local perspectives need to be implemented (Hinch 1996). Here, the sustainability of nature-based tourism is looked from two perspectives: 1) visitors or tourists and 2) local communities.

Quality of experiences of visitors

One of the main points is to understand that social sustainability of nature-based tourism is dependent on the quality of natural environment. Improvement in material and non-material well-being among people should lead also to good quality of experiences of traveling and leisure. The tourism industry must protect its assets (Driml & Common 1996). This is important when the environment of a tourist destination is affected by other industries but it is also necessary to avoid the deterioration of environment because of tourism industries' own actions. Disagreement on the priorities of different types of industries (forestry,

mining, tourism) using the same resources in a region may lead to decreased quality of environment and consequently to decreased quality of visitors' experiences. It means less benefits gained by visitors, and decreasing number of visits. Finally, this process may cause damage to the whole economy of the region.

Sustainable, nature-based tourism requires the maintenance of a constant level of natural capital, for example, consideration of the quality of the natural environment (Driml & Common 1996, Hunter 1995). A basic tool to achieve sustainable development is cooperation; the needs of several industries and livelihoods are to be considered in a community-based, strategic planning process, in which also local people and their interest groups can participate. This can be achieved by participatory (democratic) planning process. There are some experimental examples from Finland, in which forestry, agriculture and tourism interests are considered simultaneously in a village plan (e.g. Antikainen & Tolonen 1994).

One of the key issues is that the tourists' use of natural resources should not be destructive. The impacts on forest lands and natural resources caused by recreation and tourism may be problematic. Some recreation activities have remarkable negative impacts on nature (e.g. deterioration of fragile areas, disturbance of wildlife) which disturb other recreationists and decrease the recreational benefits they gain from their visit. The destructive activities also may cause economic losses for landowners (decreasing estate value or decreased timber income). These problems are often related to recreation activities using new technologies (snowmobiling, mountain biking, water jets, etc.).

A special issue is the question of tourist (non-local) use of wilderness areas. The resource 'wilderness' itself is problematic to define, and the features of the recreation activities to take place in wilderness are specific in their demand of environmental quality. Here the main issue is if there are enough resources and areas called 'wilderness' to be offered to all interested recreationists in order to provide a wilderness experience? A national need to preserve an area of qualities of silence, scenic views and hiking opportunities may be controversial from the point of view of local needs to keep the area open for hunting, fishing and snowmobiling (e.g. Sandell 1995). It is time to assess, if we are in a situation in which wilderness is a resource for recreation opportunities to be offered only for few, or should we keep all areas open for everybody and for all types of activities even if there is a threat that we loose the 'real wilderness experience'.

In general, tourists look for quality of recreation experiences. But, among recreationists and tourists there are many kinds of people and interest groups which may be in conflict with each other. Conflicts may happen with a direct contact on a site (cross-country skiers vs. snowmobiles; local hunters vs. bird watching tourists). One example is the conflicting interests of hikers and groups of fishermen in the Käsivarsi Wilderness in Northern Finland, which is one of the rare areas which are roadless and difficult to enter in Finland. Most hikers and fishermen come on foot to look for challenge and solitude in the inner parts of the wilderness area. At the same time, some fishermen are allowed to use airplane transportation to the farmost lakes in the wilderness. It is understandable that some hikers feel irritated and disappointed because of the air traffic.

Locals vs. visitors

A problem in development of nature-based tourism in rural and peripheral areas is that tourism may become destructive for local culture and way of life. Some main problems are related to a large-scale, uncontrolled development which is driven with tourist businesses coming from outside the local community. There are many warning examples from developing countries, but the same phenomenon is found in the Nordic countries in smaller scale. This is mainly seen in the change of life style and consumption in rural areas. A region, which has been rich in local food or clothing traditions, begin to change when different types of tourist services come to the area (e.g. a ski resort). The authentic culture of the region may disappear, if the local people and tourism industry (entrepreneurs) are not aware that the local culture is one of the attractions of the area.

A typical conflict between local people and tourists has occurred when a large area is reserved and managed as a tourist destination or as a nature conservation area with special interest of tourist development. There has been long-term resistance against the establishment of many of the big national parks in Northern Finland. Local people have been afraid to loose their rights to use large areas for hunting and reindeer husbandry. In most of these cases, the conflict has been avoided when special rights have been given to local people. Of course, some other problems may follow because of the compromise (ecological sustainability may be threatened in some of the national parks).

Cultural values of local communities may also be in conflict with the interests of the society at large concerning the use of natural resources. In the Nordic countries, this is obvious particularly with the needs of ethnic groups such as the

Sami people. One good example of conflicting interests between local people's needs and outsiders or society at large comes from Finnish Lapland. The hunting law (Metsästyslaki 615/95) gives a free hunting right to all people of local communities on state lands. People coming from outside communities must buy a permit. Now, when the Forest and Park Service has become a business driven agency, the unit of recreation services is in demand to make profit from their holdings of state lands. There is a growing pressure to change the hunting policy, and to demand the local people to pay a permit. Here, the main issue is the rights of distinct social groups regarding the state lands and forest resources.

Sometimes the fight between locals and outsiders may end up in very destructive interest conflicts concerning the protection and utilisation of natural resources. Forest owners may cut a virgin forest stand to avoid the protection of the area. This causes losses both for landowners and the society. An old conflict is caused by timber production. Particularly timber harvesting may damage habitats of game, or digging of peatland may damage the water quality of rivers. These actions cause conflicts between local people and landowner, particularly with those coming from outside the community. The point here is that people who obtain economic, social and cultural benefits from forest resources should be included in the decision-making process when defining the use of these resources and in the distribution of the benefits they generate (Perez 1996). If the tourism industry uses local work force or local businesses and if it respects the rights of local communities, people and their way of life and cultural heritage according to the principles of sustainable tourism, it contributes to a sustainable local economy (Bottrill & Pearce 1995).

The needs of local people are to be taken into consideration in most new tourism projects and programs. Development programs should not be socially or culturally destructive but supportive to the local economic and social welfare and cultural processes of the community. The tools to be used are, for example, the participatory planning methods, in which all stakeholders are participating in decision making (Loikkanen 1995, Sancar 1993). The aim of the planning process is to create a solution by which the needs and conflicting interests of both the community members and the society at large are satisfied.

The protection of both human heritage and biodiversity should be in focus with sustainable tourist developments. Naturally, the idea is that the development of tourism is carried out in such a way that the use of natural resources and productivity can be sustained over the long term for future generations (Bramwell

and Lane 1993). Concerning the supply of tourism services there is need to pay attention both to the intergenerational and intragenerational equity.

3 Nature-based recreation

Recreation opportunities close to home

Locality is a major issue when looking at the use of recreation resources. Recreation is a natural part of daily life among Nordic people. In the Nordic countries forest is the most familiar environment for outdoor recreation. In this sense it is of primary importance in each community to provide forest areas and services for recreation close to home for everybody. A variety of recreational areas and lands are expected to be accessible within an easy walk or a short drive from home. This emphasises a community-based approach in natural resource management and planning in urban forest areas (Christensen 1995). When looking closer at what kind of issues are important when talking about the sustainability of recreational use of natural resources, the key topics seem to be the issues of use and accessibility (Dustin & Knopf 1988).

Issues of use

Issues of use are focused mainly on the rights to use and on the supply of natural resources for recreation. Rights to use natural resources are mainly based on land ownership. In the Nordic countries, we have the everyman's rights which give the opportunity to use private lands for recreation. This means that private persons as individuals have this right. Sometimes there is a need to use private lands also for providing recreation services (e.g. trails) for people of a community. In such cases, a community agency builds and maintains the recreation services according to an agreement with landowners.

In some cases, all recreation developments or some types of recreation developments are restricted or denied by landowners. This is a relevant problem, for example, when there is a need to lead a long-distance hiking trail through private lands. A one hundred kilometers long trail may go across areas of one hundred landowners. Not all landowners are willing to allow the construction of the trail, and few may be willing to consider the landscape values along the trail when some forest management actions are actual (Kyöstiö & Sievänen 1992). The estate structure may become a hindrance to the development of the

trail. There are several examples of trails having these difficulties in Finland (e.g. Seitsemän veljeksen reitti, Raision-Kuhankuonon reitistö).

An equity issue is people's recreational possibilities dependent on land ownership such as fishing (trout fishing) and hunting, use of motorised vehicles, use of shore areas for landing a boat, etc. Sometimes land-use rights are transferred from landowner to a private company or person by a leasing system, which is comparable to ownership. Often the leasing of rights leads to limited rights for others to use the same resource, and it also may lead to exploitation of resources. In the Nordic countries, the common right of access to all land and also the right to collect a variety of forest products is valuable for people who do not have land of their own. In Finland, one positive step in this respect was taken recently when ice-fishing rights were changed to be an everyman's right, and fishing permit system was made easier.

Many institutional systems and rules have an effect on recreation opportunities. Laws and organisations set people in different categories in terms of rights and privileges. In the Nordic countries, it is not common to reserve large areas of land for clubs of privileged membership or clientele, but in some other countries the right to close areas from local people may be a serious limitation for nature-based recreation opportunities.

Finally, the quality of close to home recreation experience is also important and actual in the Nordic countries. Because the major part of recreational visits to forest areas are based on everyman's rights, the quality of recreation environment is a crucial question. Forest management practices and other actions change the quality of recreation environment, and influence the quality of recreation experience. Practical problems appear when forest management causes drastic visual changes in landscapes. They may be caused by clearcuttings on slopes, ridges and lake shores, and when the management actions in the forest make walking or other types of moving difficult. Trails may disappear because of soil management. There may be fences without gates and deep ditches without bridges, or dams may close rivers used by canoeists and fishermen. The availability and existence of landscapes, habitats and species, which are great attractions to recreationists may be endangered. The supply of all types of recreational opportunities which are getting rare in future, are to be considered as an equity question from the intergenerational point of view (Driml & Common 1996).

Accessibility

Accessibility refers to entering to and availability of recreation areas, and to finding opportunities for nature-based recreation. The question is about socially and economically equitable opportunities to use recreation resources and services.

Two kinds of recreation opportunities are needed. First, opportunities to fulfil the needs of daily-based recreation. How well accessible are urban recreational areas to the majority of urban dwellers? Accessibility in urban areas means, first of all, short distance to a park or forest, and secondly, safe routes to recreation areas. Accessibility includes also the idea of the availability of a safe and pleasant environment, in which the recreational needs of people can be satisfied. In most Nordic countries, the supply of urban recreation opportunities is fairly satisfying. Another question is the accessibility of the resources which are located further away from home, for example, the areas for weekend use and resources needed for special activities such as hunting, fishing, boating or downhill skiing.

Equity is also affected by institutional restrictions. This refers to things such as limited access to certain areas (e.g. military areas), maintenance of roads (public or private roads), supply of public transportation and supply of maps. In some societies even restrictions to travel or lack of essential recreational services or facilities (harbours, roads) may be serious restrictions. In the Nordic countries, accessibility is not a major problem concerning the close to home recreation opportunities for the majority of population, but some problems may appear concerning recreational opportunities of special groups such as disabled individuals, children and older people.

In the Nordic countries, we can talk about 'traditions of outdoor recreation as a way of life'. This tradition has got much new content with the process of urbanisation. In some regions there is a strong opinion among landowners of the need to restrict the everyman's right. This is not a problem in areas where there is an abundance of space and areas for recreation, but in most cases this kind of opinions occur in regions where there is an absolute shortage of areas for recreation. From this perspective, the existence of public land and recreation services accessible by public transportation is important for urban population.

5 Discussion: problems and questions

Many problems in practical actions and shortages of policies are obvious in our society concerning social sustainability of recreation and leisure practices, particularly the management of recreation environment. There is a need to develop planning practices for the use of natural resources and forests which consider issues from a larger perspective than before. Land-use planning is well regulated in towns, but there is no 'obligatory' planning of rural areas. In Finland, only if the use of shores for development increases to a certain level, a land-use plan is demanded for that special, limited area. In most cases, only the interests of landowners are considered in the planning process.

Holistic, community-based planning is not common concerning the use of natural resources, and participatory planning is not a rule in most of the parks and recreation areas in Finland. There are some projects, for example, by the Forest and Park Service (Loikkanen 1997) and the City of Helsinki (Helsinki, metsäinen... 1995) implementing new planning methods. There is not much experience if the participatory planning does lead to more satisfactory solutions than methods used before, but the new way of thinking is at least one possibility to solve conflicts and increase the overall satisfaction.

One of the problems is that important recreation areas and resources are without rules and control of use. There is no legislation to give the community authorities a chance to regulate the use of such areas, not even when there is an obvious need to solve some user conflicts. Sometimes there is a need to have a set of rules for visitors as a tool to improve and to enhance socially sustainable use of the resource. This problem may appear as well in urban forests as in wilderness areas.

There are many questions to be raised:

1. Which recreational needs are satisfied, for example, what kind of recreation opportunities should be provided by the society? Are public agencies providing opportunities to fulfil the basic needs of the whole population (public goods) or of some special groups of population (private goods)? A controversial example is the Finnish Forest and Park Service selling lake shore lots from public forests for private use.

2. Which recreation activities are allowed in which areas? Is snowmobiling to be allowed everywhere? Here we need to look at the problems both from intragenerational and intergenerational perspectives.

3. Whose needs are satisfied? Who is allowed to enjoy the wilderness environment? Who has the right to limit recreational use of wilderness? The issue of equity between different social groups is also important.

4. Whose values and interests are the strongest or the most important? Are fees and payments justified and fair? Should everybody (local people, domestic tourists and foreign tourists) pay the same price of a hunting permission on state land?

5. How to define the criteria of social sustainability of the use of recreation resources, and how to monitor the changes of use.

Social sustainability is a large package of issues, all of which are not compatible in a technical sense, and which could be solved by the help of research. Research on these issues may help to define some criteria and indicators in order to evaluate the practices, and particularly to monitor the changes caused by the implemented policy programmes. In Finland, a project 'National Outdoor Recreation Demand and Supply Assessment Study' has been started to produce statistics and databases for monitoring the recreational use of forests and other natural resources. On a long run, it will provide a good basis to follow the criteria of social sustainability of the use of forests and other natural resources for recreation.

Many of the issues of social sustainability are related to the basic values and attitudes toward development and change of the society. They are policy issues. The discussion needed concerns the basic values in the society. In many practical cases there can be found sets of values of older generation versus values of new generation, for example, traditional economic values and environmental values. The discussion of values is necessary also in the context of the use of recreation resources and management practices of recreation environment such as forests in the Nordic countries.

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Role of forest-based tourism in rural development

Mirja Turunen

Abstract

Forest tourism involves reconciling and harmonising several activities and principles. These include the management and use of forests, sustainability, environmental protection and nature conservation, preservation of natural diversity, and the needs and demands of both locals and visitors. The most important goal is to give the traveller as broad and many-faceted a picture as possible of what forests have meant to the people of the locality and what they mean today. Because of this informative aspect, competent forest guides are needed. The article presents examples of forest tourism products, and gives advice for drafting a forest-tourism development plan for a municipality or village and for establishing a forest-tourism company. These efforts also give local people an opportunity to study their history and surroundings.

Keywords: tourism, forestry, rural areas, private entrepreneurs, product development, sustainability, Finland.

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1 Forest tourism as a concept

Forest tourism involves reconciling and harmonising several activities and principles. These include the management and use of forests, sustainability, environmental protection and nature conservation, preservation of natural diversity and, last but not least, the needs and demands of both locals and visitors. People's social and cultural environment and the carrying capacity of nature are also taken into the equation. Success in achieving all of these goals requires cooperation between many different instances and people from the earliest planning stage to the production and consumption of services and then follow-up.

Forest tourism is more than just outdoor activities, beneficial exercise, experiences of natural environments or recreation. These things do, of course, feature in the background, but the most important goal is to give the traveller as broad and many-faceted a picture as possible of what forests - green gold - have meant to the people of the locality and what they mean today. Forest tourism always has a strong informative aspect, in which the intention is to ensure that visitors receive, via all of their senses, at least a vague notion of everything that forests mean to us. For that to be achieved, competent forest guides are needed. They can also be forest-owners and forestry workers. Thus forest tourism needs two parties: one to tell, the other to listen, and they must understand each other.

The information mediated must be honest, in addition to which the guide's own anecdotes and observations are welcome, together with a generous dash of forest-related mystique and lore. Guides must also be able to tell about the normal cycle of nature, forestry and the various purposes to which forests and the wood that they yield are used. In keeping with the demands and expectations of our times, there must also be an ability and willingness to talk openly about mistakes that have been made and current problems. Tourists alone (e.g. visitors going to the forest unaccompanied) do not necessarily have the background knowledge to enable them to understand, for example, that pines do not grow tall on rocky ground - a person from Central Europe would probably suspect environmental damage. Thus forest guides have a very important role; they mediate a certain, desired picture of the area and country to the visitor and provide an insight into the culture and everyday life of the region.

2 Examples of forest-tourism products

Visitors can take part in building a tar-burning mound and hear about the methods used to produce tar in the old days, how it was transported from the backwoods to export harbours, the kinds of people that did those jobs, and the stories they told. They can see how tar is used as an impregnation agent, as a liniment and as a giver of health. There are breaks for meals prepared using the bounty of the forest and served in vessels made of wood and bark. At night, visitors can slip between linen sheets and enjoy the warmth of a stove fuelled by split alder logs in a peaceful cabin, or they can sit under a tarpaulin tent beneath the darkening sky and listen to tales of lumberjacks in days gone by. Departing visitors can be sold or given (price included in package) a souvenir gift of a product made by oneself or a neighbour from materials garnered from the forest.

Visitors can also be taught things about present-day silviculture, for example:

- on what grounds some trees are left standing, whilst others are selected for felling,
- how scenery, wildlife, berries and mushrooms have been taken into consideration in conducting felling operations in accordance with forest-management plans, and
- how logs are bundled in preparation for floating and then, during the summer, are floated to the paper mill.

Visitors themselves can take part in floating operations, making part of their trip on a tugboat. They can see how many different work stages have to be completed before a tree is transformed into paper and finally they can paint a card of their own or make paper.

Whatever forest-tourism products happen to be produced, it is essential that their contents are such as to enable visitors to conclude that the area will continue to be endowed with forests that are healthy and rich in diversity, that there is an ability and a will to use the raw materials that the forest yields and to process them in many ways, that the people of the area are proud of their cultural heritage, their memories of ancient times, their village and their country and that they want to develop their livelihoods without forgetting the past nor neglecting to learn from mistakes.

3 How to develop tourism with forests as its destination

3.1 Drafting a plan for a municipality/village

It is essential when a comprehensive plan is being drafted that all linkage groups are included in discussions. That means also those groups that are skeptical about the development of tourism. In addition to residents of the area, outside experts are also needed: professional foresters, ecologists, landscape planners, museum authorities, anthropologists and professionals from the tourism sector. The most important goal is that of developing and improving the environment in which local people live and their opportunities to earn a livelihood. Another important aim is to develop their living environment - not overlooking its non-material aspects - in such a way that visitors to the area are able to share the local way of life.

Developing a comprehensive plan begins with an analysis of the current situation, identifying the area's weak and strong points, examining how the forests there have been managed, what industries exist, whether there are small businesses that process wood, berries, mushrooms, meat, fish or herbs. The way how tourism in the area has developed should be looked at. When conclusions are being made, the general development trends identifiable in tourism should be taken into consideration, likewise the competition situation. On that basis, alternative development models - ranging from positive to negative - will be drafted. When the situation has been evaluated and a development model chosen, the measures by means of which the goals set will be achieved are agreed on. Finally, the measures are implemented and their success monitored, adjustments being made where necessary. The use of interactive forest planning is an absolute precondition for success.

When a comprehensive plan is being drawn up, the members of the working group have to deal with a variety of problems that arise: how to arrange access to the area for public transport vehicles, how to get around in the area, how to take the environment and local architectural traditions into account when new buildings are erected, how to remedy any mistakes that may have been made in forest management, and how waste management is to be taken care of. Also to be looked at: how to have products made by local enterprises more widely on sale, how to exploit the professional expertise available in different sectors, and in which sectors additional skilled personnel is required.

3.2 Developing a forest-tourism company

When a company is being planned, it is essential to consider the capacity of the areas in question to bear the strain of visitors and to find the alternatives and traffic arrangements that burden the environment least. Buildings must conform to the traditions typical of the area, with wood used where possible, and should harmonise with the environment and landscape. Topography must be taken into consideration in planning the location of buildings for reasons that include facilitating the use of solar and wind energy and to save energy in future years. It absolutely behooves a forest-tourism enterprise to use fireplaces with heat-storage capacity and to favour wood as a heating fuel. Likewise, domestically-sourced wood should be used extensively in interior decoration, furniture and fittings. Wherever possible, tar should be used as a wood-protection agent, the boat on the lakeshore beside the sauna is of course also made of wood, as is the garden furniture.

In tending forests, particular attention must be paid to landscape management: that traditional cultural and natural landscapes are cherished and the diversity of the environment preserved are absolute requirements. Any ancient monuments located in the forests must be taken properly into consideration. Nature trails and forest paths should follow old routes rather than new ones being laid out. In relation to the production of tourism services, it is essential constantly to follow up what new criteria visitors set with respect to the way in which forests are tended and used, and what features attract their attention. Given the range and great diversity of visitors' wishes and expectations, it is obvious that a single company cannot provide all of them and that cooperation between all of the people living in the area is needed.

When programme services are being planned, it is advisable to give preference to public transport and mobility based on the use of muscle power: hiking, cycling, skiing, riding, and driving dog and reindeer teams. On the waterways conoeing, rowing and sailing are nature-friendly forms of traveling.

The development of forest tourism must be underpinned by comprehensive planning in which the opinions and wishes of all of the various linkage groups are taken into consideration. Planning can help reduce the conflicts that result from differences between the goals pursued by the various linkage groups and permit tourism services to be produced in ways that are ecologically, culturally and socially most appropriate. With proper planning, construction and production

can take place at the right time of year from the perspective of saving energy and minimising the impact on the environment, in addition to reducing the danger of structural and construction defects. Planning is also required to ensure that optimal use of local resources is made when services are planned, produced and marketed.

4 Why forest tourism?

Foreign visitors appreciate an opportunity to be involved in our way of life for the time that they stay here. A survey of foreign visitors conducted by the Finnish Tourist Board in 1994 revealed that the most satisfied of all were those that had spent their holidays in the countryside, taken part in activities like hiking, fishing, berry- and mushroom-picking or canoeing, met local people and attended local social events (such as dancing at open-air floors or sauna evenings). Consequently, 63-70 % of respondents declared a willingness to recommend Finland unreservedly to others. (The figure for those who had not participated in the pursuits mentioned above was 35-55 %).

It is very difficult for an entrepreneur in the tourism business to gain financially from outdoor pursuits and recreation alone, for which reason there is a need to transform forests into products. Doing this creates job opportunities and additional income for guides, forest-owners, makers of handcraft articles and those who process wild berries, mushrooms and herbs.

In forest tourism, visitors are informed on the spot. They see with their own eyes how forests are managed and how forestry work is done. Thus the informative aspect is constantly very much present.

When planning and developing forest tourism, one has to make an exact study of what has happened to the natural environment and people of the area between the end of the Ice Age and now. This gives locals an opportunity to study their own history and thereby find their roots. Village committees, heritage societies and museum associations can establish villages that operate on ecomuseum principles and deal with various aspects of forestry and wood-processing. In many cases, this can be done in collaboration with regional museums. Working together in this way is conducive to bolstering local self-confidence and welfare (in both non-material and material sense), which in turn shows on the outside and makes visitors enjoy themselves even more.

Hytönen, M. (ed.). 1998. Social sustainability of forestry in the Baltic Sea Region.
The Finnish Forest Research Institute, Research Papers 704: 291-297.

Public participation, nature tourism and community development

Päivi Piispa

Abstract

This article describes some of the key issues in relation to the role of public participation in community development. Development efforts aiming at local initiatives, self-sufficiency, income and employment generation, cooperation and partnership on sustainable basis are crucial for rural areas. The Pilot Villages' Project of the Uusimaa Region in Finland has produced experiences since 1995 on the methods and the possibilities of strengthening people´s own development initiatives. The process is continuing, and the results of the participation can at best be verified through the succesful micro-projects implemented by the local people. The recent activities and plans for future of the village of Bromarf are presented as an example of local initiatives.

Keywords: rural development, environmental management, tourism products, Finland.

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1 Rural-urban relationship in change

The national Pilot Villages' Programme started in late 1995 simultaneously in two Finnish regions, in Uusimaa and Päijät-Häme. As the means of livelihood and the possibilities for guaranteeing basic services in rural areas have changed a lot and are continuously changing, development programmes aiming at local initiatives, self-sustainability, income and employment generation, cooperation and partnership on sustainable basis are crucial for rural areas.

In rural areas, glocalisation (instead of globalisation) characterices the economic and social development. As a concept, glocalisation covers both globalisation and strengthened role of regional (growth) centres. For rural areas, the inter-relationship with the town centres becomes more and more important. Traditionally, the rural-urban relationship has been based on clearly defined labour division. Rural areas have had the role of producing goods for the markets and urban areas have had the role of consuming these goods. In the modern society, rural areas have already mixed roles in the local economy. In future, new and innovative solutions of rural-urban interaction become even more important. Otherwise, rural areas can not survive in the globalised competition.

The rural-urban interaction can be characterised to be at best a positive partnership which gives mutual advantages. In the modern society, the partnership should also fulfil the principles of sustainable development. For example, tourists and summer guests are being welcomed by their host villages as long as they are able to feed up the local economy. For the villages, unspoiled and virgin nature acts as an economic asset. If the quality of the services or the environment is deprived, the tourism business will suffer from the negative environmental impacts.

2 Environmental responsibility has a preventive role

Environmental responsilibity and care has become an international marketing issue. In international tourism market, clean nature and high quality tourism are particularly the Finnish label. Finland can gain comparative advantages through sound environmental management in tourism. Lately, a lot of new nature tourism activities have got started.

The Eco-Management and Audit Scheme (EMAS) of the European Union is also available and adaptable for tourism services. The Finnish Tourist Board

started in 1993 a project to apply the environmental management systems to hotels and restaurants. The system is based on the ISO 14001 standard and the EMAS statute. In the project, the system was developed and tested in 18 pilot companies of different type and size all around the country. One major outcome of the project was that the development of the environmental management system for hotels and restaurants is useful despite of the company size. The preparation of the system is not complicated and does not require excessive resources. After realising the benefits of the environmental management system, the pilot companies have considered it as an efficient and useful tool for management and marketing.

The companies listed the advantages of applying the system as follows:

- increase in environmental care and environmental awareness,
- management systems become more efficient,
- motivation to improve the management and production systems increases,
- liability and credibility among the customers increases,
- ability to identify environmental impacts increases and reparedness to face environmental risks and hazards is improved,
- amount of waste decreases and waste management systems are improved,
- savings in energy costs,
- marketing advantages, and
- economic benefits.

The experience gained in the testing project and the new guidelines to apply the environmental management systems will facilitate building up the environmental label for Finnish tourism in future.

3 Nature tourism will be prioritised

In January 1998, the Ministry of Agriculture and Forestry published an Action plan to promote nature-based small-scale business in Finland. The Action plan emphasises the sustainable management of natural resources as part of tourism business. Particularly, the branch of nature and adventure tourism is seen profitable. Traditionally, the northern and eastern part of Finland has been considered to provide the best potential for all kinds of nature tourism. In future, development potential is seen also in southern Finland. This is natural, as two-thirds of the tourists travelling in Finland pay their visits to the southern Finland. In the light of the statistics, this share is expected to increase. Thus, the

role of the Uusimaa region as an administrator, marketing coordinator and development agent for the municipalities is important in tourism business.

4 The Pilot Villages' Programme motivates local initiatives

A lot of different kinds of development initiatives have taken place in the municipalities since the Pilot Villages' Programme started in 1995. Development of village level nature tourism activities are among the micro-projects of the Programme. The new tourism branch is expected to give extra earnings for people living in rural areas of Uusimaa region. At present, there are 11 villages in eight different municipalities participating in the Programme. Seven villages out of the 11 have potential for development of tourism business. In all seven villages there is potential for development of nature tourism. Five villages have already a tourism development plan to be applied.

The design and development of nature tourism products are being carried out by the local people themselves with the help of outside supportive consults. The consult assistance includes, for example, feasibility studies on tourism potential, joint planning sessions, workshops, visit and learning tours, and specially tailored training. The rationale behind every development activity is to encourage local people to take the lead of actions and to share responsibilities.

Sharing of responsibilities is important, and is the best way of public participation. As a matter of fact, to make all these village level actions (i.e. activities and services) more business-oriented, villagers have organised their activities under registered associations or cooperatives. Proper organisation makes it easier to share responsibilities in equal terms, and to apply for financing when necessary. The more people share the responsibilities the more people are aware of the planned actions and the development potential of their own village. This leads to increased willingness to invest in their common future.

5 The actions taken show strong local ownership

Since the beginning of the Programme, a lot of micro-projects have started in villages. Here are some examples of them:

- establishment of a preparatory primary school,
- improvement of social services for elderly people and children,
- provision of service catalogues in all villages,

- improvement of recreation possibilities,
- development of public traffic services,
- study on the development of the maintenance of rural feeder roads,
- protection and sustainable management of lakes and rivers, including improvement of the quality of water, and
- development of sustainable environmental management systems to promote educational activities, recreation and village-level nature tourism.

In 1998, there is a plan to start a larger project on developing sustainable rural-urban logistics. This project will cover both the villages and urban suburbs in the Helsinki Metropolitan area. The aim of the project is to minimise traffic and air pollution and to rationalise and combine public traffic connections. People living in villages and suburbs will participate in developing the ideas and planning the whole logistic system.

The financing of the Programme and the micro-projects is based on the principle of co-financing. The village level activities are being financed by the local people themselves, local entrepreneurs, municipalities and towns, and regional-level administration.

6 Bromarf village provides an insight to a village developing nature tourism

Bromarf village is situated in the southwestern archipelago of Finland. Nowadays Bromarf village is run under Tammisaari city administration.

The history of Bromarf community dates back to 1100 century and is closely related to the Viking era of the Nordic countries. The economy of the community has throughout the history been based on fishery, small-scale agriculture and farm forestry. Today, small enteprises broaden the local economy, and provide extra earnings to farmers as well. Due to the economic activity of the village, all the basic services except doctor can still be found in the village. Good basic services attract new people, for instance young families to move to live permanently in the village.

Nowadays Bromarf village has some 773 inhabitants of which nearly 95 % speak Swedish as their mother tongue. During the summer season, the amount of summer guests increases the amount of inhabitants three-fold. Summer guests also feed up the seasonal economic activity by consuming services and local

products. For instance, some Bromarf farmers produce eco-labelled flour, honey and flowers. They are special products which are of summer guests' interest.

The major touristic attractions are the archipelago, forests, undulating rural landscape, the architecturally highly-appreaciated cottages and villas of summer guests from last century, ordinary rural houses and the famous swimming shore, called Pavda strand. This shore belongs to a national nature conservation programme and is the place from where the Finnish Salpausselkä - an important geological formation - begins. According to recent studies (Bondestam & Bonn 1994, Bonn 1992), both on islands and in inland special biotopes and species have become less common as a result of the intensive construction of housing facilities for summer guests.

Skärgårdskontoret - The Archipelago Bureau - is the name of the special development effort to promote the touristic services and specified products of nature tourism in the village. The Bureau was established in April 1997, and since its creation a lot of developments have occurred. Last autumn after the holiday season, the villagers and entrepreneurs were trained in guiding special outdoor excursions, in guiding bus group tours, and in cooperative business management. Currently, regulations for service cooperatives are under formulation. The training is being tailored according to local needs which are monitored regularly with the help of the training needs´ assessments carried out by the Skärgårdskontoret.

In 1997, Skärgårdskontoret published maps for cycling tours. Last season, the amount of cyclists rose prominently as a consequence of a new ferry connection. The new ferry line links the community to the touristic route of Turku city and Sweden. Bromarf also received funding from European Union and from national sources to improve the small-scale marina services for tourists sailing or travelling by motor-boats.

For the next season, special routes for canoes are under planning, as well as guided tours for fishermen. Summer guests have also been involved in the planning by asking them through an inquiry advice for the development of the touristic services of the village. As many of the summer guests come from the Helsinki Metropolitan area, this approach gives possibilities to find out new and innovative solutions for promoting rural-urban partnership.

7 Promotion of nature tourism is a new means to strengthen sustainable management of natural resources

When increasing nature tourism, special care to prevent potential negative impacts has to be taken. The experience gained in the pilot project of the Finnish Tourism Board on sound environmental management in tourism business provides important information for newcomers in the branch. The guidelines (LT-Consultants 1997) are understandable and detailed enough to be applied, for instance, on village level tourism development projects. However, a lot of actions are needed to train local people to understand the environmental impacts of their activities and services, to be aware of all kinds of regulations and to apply sound environmental management in their everyday business.

In future, successful marketing of tourism services will be a question of quality - environmental quality. One can not market services under nature tourism, if one can not guarantee the quality of the activities. If the air will be polluted as a result of increased numbers of private cars circulating from one village to another in search of unique adventures in unspoiled nature, the eco-label is doubtful and not marketable any longer.

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Hytönen, M. (ed.). 1998. Social sustainability of forestry in the Baltic Sea Region.
The Finnish Forest Research Institute, Research Papers 704: 299-308.

Sustainability and the development of tourism

Jarkko Saarinen

Abstract

This article discusses the development of tourism and issues of sustainability and tourism carrying capacity. Sustainable tourism can be understood from three basic dimensions: ecological, socio-cultural and economic sustainability. The long-term perspective, comprehensiveness (in space and time) and the synergistic relationship between the basic dimensions of sustainability are central to the practices of sustainable tourism. The concept of carrying capacity occupies a key position with regard to sustainable tourism. The problematic nature of this concept is discussed briefly in the context of tourism development and natural resource studies.

Keywords: sustainable tourism, carrying capacity, natural resources, cultural resources.

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1 Introduction

Tourism is a socio-economic activity with the potential to make significant impacts and contributions in certain regions. As an industry, it accounts for about seven percent of world trade. Places, cities and regions are planned and converted in a way that will attract more and more tourists and tourism investors; even whole countries can be highly dependent on tourists and the tourism industry. According to the World Tourism Organization (WTO), international tourism will have almost tripled by the year 2020, from the present 600 million to 1.6 billion tourists per year (WTO 1997).

The questions of tourism development, sustainability and carrying capacity are closely related to the use of natural resources, especially forestry and nature conservation issues. The growth of tourism in peripheral regions has many effects on natural resources and local socio-cultural systems. From the perspective of traditional economic activities such as forestry, the development of tourism can represent a competing and conflicting activity and form of land-use, and this is also the case nowadays with nature conservation and wilderness issues (see Sidaway 1995, Saarinen 1998a). Historically, the relation of tourism and conservation has been more or less a synergistic one, but as the tourism has grown, this "promising" relationship has turned into a conflicting one in many places.

The current development of tourism and tourist destinations will not be acceptable or even possible in the long run without intervention in the practices of the tourism industry. One of the growing issues concerning the management and prevention of socio-cultural, ecological and economic changes and problems caused by tourism is the idea of sustainable development. Sustainability and sustainable development have been central themes in the discussion on tourism development during the 1990's, based on the notions of the Brundtland Commission report "Our Common Future" (WCED 1987). This report defines sustainable development as a form of development that satisfies the needs of present generations without endangering the ability of future generations to meet their own needs (WCED 1987). This widely cited statement has sometimes been criticised for its indefiniteness, and this may be justified (see Lele 1991, Burr 1995), but sustainability and sustainable tourism should not be seen strictly as an operational method to be implemented step by step. It is rather a point of view from which it is possible to set out to design, plan and manage tourism or

other practices and their ecological, socio-cultural and economic effects in the long run and with justice on different spatial and temporal scales.

This article discusses the development of tourism and the issues of sustainability and tourism carrying capacity. The purpose is to introduce briefly the discussion that is going on in tourism studies concerning the development of tourism and the limits of carrying capacity. The traditional perspective on the concept of carrying capacity and its relation to the idea of a life cycle in tourism are evaluated critically. The aim here is to provide a conceptual basis for studying the use of natural and cultural resources in the context of (sustainable) tourism development.

2 Sustainable tourism

In tourism, as in other fields, sustainability and sustainable development lie on a foundation formed by three dimensions: ecological, socio-cultural and economic (Figure 1). In general, the ecological dimension of the sustainability of tourism reflects the ecological effects and changes that tourism can cause in the environment and the acceptability of those changes in the long run. The socio-cultural dimension refers to the social and cultural changes caused by tourism and the economic dimension illustrates the effects of economic changes and their long-term acceptability in the context of local economies.

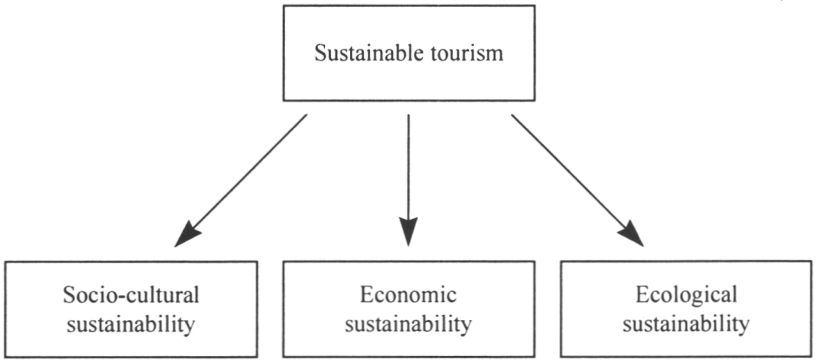


Figure 1. The basic dimensions of sustainable tourism.

The definitions above are quite general and vague in nature. Indeed, many commentators have stated that there are no exact definitions of sustainable tourism (see Burr 1995, Hunter & Green 1995, McCool 1995, Nash 1996). As

stated before in the context of sustainable development, sustainable tourism is a point of view rather than an "operational" definition. The concept of sustainable tourism is contested and there are many interpretative problems at the conceptual and practical levels.

One of the characteristic problems affecting the conceptual framework for sustainable tourism lies in the relationship between the basic dimensions, which are sometimes seen as separate entities. Indeed, the basic dimensions of sustainability are identifiable as separate categories, and there are also conflicting issues between them. Without a synergistic approach with a holistic view, however, the possibilities for developing sustainable tourism and practices will be lost or will become complicated in the long run (see Wolfe 1983, Martin & Uysal 1990, Ashworth & Dietvorst 1995). The division of sustainable tourism into ecological, socio-cultural and economic dimensions is a conceptual one which helps us to understand the multi-valent nature of sustainability. In the context of sustainable development, however, these dimensions should be understood and defined as interactive processes - not as competing and conflicting goals. The synergistic approach is naturally not an easy one in practice.

3 The development of tourism and the limits of carrying capacity

In spite of the definitional problems and weaknesses, the concept of carrying capacity occupies a key position with regard to sustainable tourism and tourism studies. According to Mathieson & Wall (1982) carrying capacity refers to the maximum number of people who can visit a tourist destination without an unacceptable alteration in the physical environment and without an unacceptable decline in the quality of the tourist experience. From a more social perspective, tourism carrying capacity has been defined as the point in the growth of tourism where local people perceive on balance an unacceptable level of social disadvantages from the development of tourism (D'Amore 1983, see Wall 1982, O'Reilly 1986).

The concept of carrying capacity is closely connected with the evolution cycle for a tourism region (Figure 2) put forward by Butler (1980), according to whom tourism regions can be seen as dynamic spatial units that develop and change with time. Every tourism region has a limit of growth, however, which cannot be overstepped without negative consequences for the destination and for the tourism industry in the long run. Butler defines that point as the limit of carrying capacity. At the early stages of tourism development, the *exploration*

stage and the *involvement stage*, minimal facilities and infrastructure are provided for tourists and the region is visited by only a few people. During the d*evelopment stage*, infrastructure and services are constructed rapidly and local involvement in tourism development and control over it declines.

Natural and cultural attractions are developed and they are manipulated and supplemented partly by man-made facilities. Entering the *consolidation and stagnation stage*, with high-class, artificial facilities, the main tourist type of the region is the organised mass tourist, with major effects on the local social and economic sphere. The original tourist attractions are replaced by artificial ones, and the limits of carrying capacity for many variables have been reached or even exceeded. The growth of the tourism region stabilises and even declines as a result of the weakened attractiveness of the destination and increasing social, ecological and economic problems.

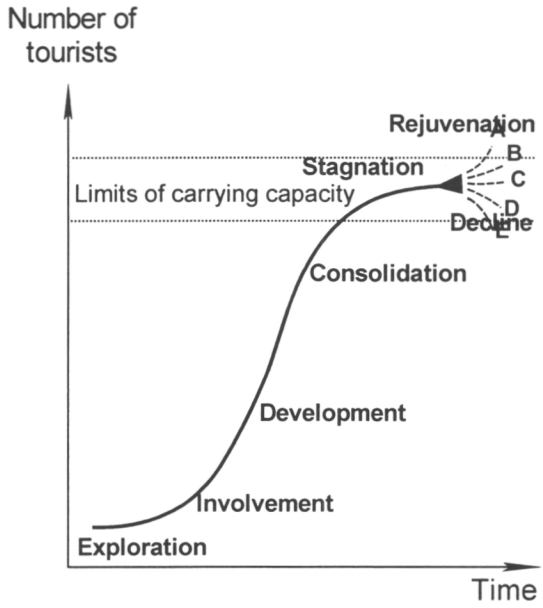


Figure 2. The evolution cycle of a tourism region, after Butler (1980).

The tourism evolution cycle can be interpreted as a story which describes the development of tourism in a certain spatial unit and more or less inescapable destruction and ruination of tourism in a region if the necessary precautions have not been taken during the development process. As in every story, the narration has an educational content, but there are also elements which simpli-

fy the understanding of the development process (see Cooper 1989, Saarinen 1998b). Especially in the context of sustainable tourism, the conceptual problem of the relationship between the evolution cycle and the limits of carrying capacity must be brought out critically.

One of the advantages of the evolution cycle proposed for a tourism region is its logical nature and the idea of a limit of growth, which is crystallised in the concept of carrying capacity. As discussed above, carrying capacity is a limit that cannot be crossed without harmful effects on the destination, but its connection with the limit of carrying capacity in the evolution cycle is confusing or even conflicting when we are talking about the ecological, social or economic carrying capacity and sustainability demonstrated earlier in this work.

The idea of an evolution cycle is based on population ecology and an S-shaped curve, but as far as tourism studies are concerned it originates directly from the product life cycle concept of marketing research and strategic planning. In marketing every product has a life cycle, and its evolution generally passes through the stages of introduction, growth, maturity and decline. Also, the life cycle can be modified by changing the product or its markets (see Dhalla and Yuspeh 1976, Day 1981, Tse and Elwood 1990).

This product in a marketing context might be a chocolate bar or brand of shampoo, but in tourism the product is not that simple to define. One can say that the product of tourism is the experience that the tourist gains from his or her journey. Here, in the context of the evolution cycle of a tourism region, the product can be defined as a tourist destination. The destination and its activities, facilities, services, representations and potential experiences is the unit that is marketed to tourists. According to Butler's model (1980), the curve representing the life cycle of a tourism region - a destination - can be extended by changing the marketing and the attractions and by introducing new types of facilities for tourists (see Butler 1993, Prosser 1994). Sometimes this development requires more effective environmental modification, land-use and construction work, and sometimes even marginalisation of the local population and culture in matters of the local economy, land-use planning and rights over the land (see Shaw & Williams 1994, Saarinen 1998b).

These changes in the product of tourism can be deeply conflicting with the ideas of sustainable tourism development and carrying capacity. By developing a small-scale nature-based tourist centre into a fashionable spa and down-hill skiing

resort with an accommodation capacity of thousands, the life cycle of the destination can be extended at the expense of redefining the "limits of carrying capacity" at a higher level. Ecological resources as well as traditional local economies and socio-cultural systems can nevertheless be damaged in such a way that the carrying capacity of the original tourism product - in this case a small-scale nature-based tourist centre - can be interpreted as having been exceeded much earlier. Thus the limit of carrying capacity in the model of the evolution cycle is not necessarily the limit of sustainability or of the carrying capacity of the region or its natural and cultural resources. This is a question of the development of tourism and the elements limiting its growth in a certain spatial context. The limiting elements can be environmental, cultural and so on, but competition between destinations, lack of capital and changes in tourist consumption and fashion are also capable of detracting from the growth of tourism regions.

On the other hand, the carrying capacity of a tourism region can be understood as being inherently unstable, a dynamic concept which is continually being constructed and reconstructed. Thus, the limit of carrying capacity does not wait at a specific, pre-defined level; it is defined and redefined continually during the development of the tourism region by the different interest groups involved. Its determination is contingent on the impacts and consequences of tourism at the destination, and also on changes in attitudes, values or priorities within society and new knowledge that can cause changes in people's perceptions of the acceptable level of tourism impacts. The purpose here is not to question the ecological changes and their nature in an objective or measurable sense, for example, for they exist in the physical world without human values and interests, and tourism development undoubtedly does change ecosystems, destroy habitats and disturb wildlife. The question of whether these changes are acceptable or unacceptable depends on the "stage" of tourism development and our (societal) values, attitudes and priorities concerning the role and impacts of tourism. The determination of carrying capacity naturally also depends on the variables and units of measurement that are chosen. Thus, the concept of tourism carrying capacity is a social construct in nature that is meaningless without the specification of goals (Wall 1982, Lindberg et al. 1997). Therefore it is possible that the process of developing a nature-based tourist centre into a skiing resort or theme park might also alter the criteria and goals through which the limits of carrying capacity are evaluated. This process of re-evaluation will not proceed without conflicts between interest groups, conservationists vs. the developers, or the traditional economies vs. the tourism industry, etc.

In a broader sense, determination of the limits of carrying capacity and the sustainability of tourism is concerned with *power relations* on a local, national and finally global scale. For example, who can define and decide what is an ecologically acceptable practice or change, or what is sustainable development for a local culture and economy? Whose limit of acceptable change is the right one, and whose is not? In most cases the answers to these questions are not derived from the object itself and its change, but from the practices of power relations behind them. It is a question of the historical practices in economies and politics through which different interest groups define and argue for the appropriate goal, method and level of the use of natural and cultural resources in certain spatial context. In practice these questions are not easy to evaluate or investigate at the local level (see Power 1996).

4 Summary

The purpose of this paper was to provide conceptual frameworks and starting points for approaching issues of carrying capacity and the sustainability of tourism development and resource management. The paper has discussed the sustainability of tourism development, noting that issues of sustainability and sustainable development are ones where final statements or conclusions are difficult to find and draw. Sustainable tourism development is conceptualised here through the three basic dimensions, as an ideological perspective for evaluating and planning tourism development in a way that will ensure that its consequences will not be regarded as unacceptable in the long run. At the moment, sustainable tourism is more of a point of view than an operational practice or a method for resource management.

The carrying capacity of a tourism region, conceptualised as a social construct, is discussed above in the context of critical analyses of the notion of a tourism life cycle. Tourism carrying capacity can be defined as the maximum level of impacts of tourism on the tourism region that can be allowed before people consider it too disturbing from the perspectives of specific interest groups that have sufficient (definitional and institutional) power over the indicators chosen to represent it. Thus, the carrying capacity is not an objective concept, but rather a policy tool.

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Local participation in the West-Estonian Archipelago Biosphere Reserve: the case of Hiiumaa

Ruuben Post

Abstract

The article describes the activities of the Hiiumaa Biosphere Reserve Centre of the West-Estonian Archipelago Biosphere Reserve. The main activities of the Centre are connected to promoting nature protection and sustainable development through community-based policies, participatory planning and collaborative management. The activities of the Centre are affected by the same problems as other regions in countries in transition, i.e. general fall in production and economic possibilities for farmers, the process of land reform and switching to free market economy. The Centre has started various projects mainly in the fields of traditional nature protection, collaborative land-use planning and nature tourism. Many different communicative tools are used in carrying out the projects and international cooperation plays an important role in developing the methods.

Keywords: public participation, nature conservation, sustainable development, market economy, Estonia.

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1 Introduction

The West-Estonian Archipelago Biosphere Reserve, which includes the island of Hiiumaa, was established in 1990, prior to the Estonian independence, with objectives mainly in the field of nature protection. Only an extensive use of a 'top-down' approach was possible in the context of the totalitarian state-building by the Soviet mode. The Biosphere Reserve has now been developed in a new direction, towards creating a model region of sustainable development. It means an approach using community-based policies, participatory planning and collaborative management. This new direction demands that much more attention than before is paid to collaboration with local communities, to aspects of individual and social life, and to problems in communicative governance on the basis of convincing information exchange and interactive involvement of society. Creating democratic decision-making processes is an important objective and a basic need.

2 Problems of the transition period

The experience of the West-Estonian Archipelago Biosphere Reserve casts light on a mix of political, economic and environmental problems on the island of Hiiumaa (1 000 km^2, 12 000 inhabitants), which are endemic to the transition process. Starting points for these problems were the general fall in production and economic possibilities for the farmers, the process of land reform to return land to former owners and switching to free market economy. The recent changes are illustrated by the following examples:

- More than 50 % of marginal agricultural land is no longer farmed. The extremely valuable semi-natural habitats with high biodiversity and rare species such as orchids may be lost through lack of management.

- At the end of 1950s and in 1960s, large areas were set aside as protected natural areas. Today, owners reclaim land that belonged to them prior to 1940, the year in which Soviet occupation began. This situation is causing conflicts between former owners and nature protection officials. Land owners are rather dubious about strict nature protection on private lands because there are no clearly stated economic incentives from the state or from other institutions.

- Because of the transition to market economy, hopes for rapid economic growth frequently overshadow awareness of the need for sustainable nature use and nature conservation. For instance, at the beginning of 1990 one third of Estonia's undisturbed natural forests grew on Hiiumaa island. This figure is reducing rapidly due to intensified cutting. Another example results from overfishing in the coastal waters - the once rich fish stock around the island has become poor.

- The first conflicts between private and public interests have emerged. The conflict between construction activities and protection of the coastal zone seems to have become an especially hot issue. There is a growing market for selling coastal land to people not native to the island and many farmers are willing to sell their land in exchange for what appear to be lucrative offers.

There is forest growing on about 63 000 ha on Hiiumaa, covering about 60 % of the whole area of the island. About half of the forest area is private and its management is worth a comment. The problem is that the forest is given back to the descendants of the former owners, who mostly do not have even an elementary knowledge about forestry and who, not understanding the value of a continuous forest, sell it to forestallers and companies for immediate clearcutting. The ignorant forest owners are frequently cheated and forest management rules are ignored. Characteristic to the situation in 1997, for example, was the case of a clearcutting covering 50 ha of private forest, after which no forest planting neither any measures to guarantee natural regeneration were carried out.

3 Approaches to problem-solving

In response to the situation described above, the Biosphere Reserve is trying to find solutions based on ideas of local participation and conservation of valuable natural areas in order to promote sustainable development. Several different approaches are used to educate local people, municipalities and state agencies on these issues.

First, the Biosphere Reserve has proposed that different valuable habitats, forests, wetlands and landscapes should be incorporated into the core areas to protect them legally by a traditional top-down policy style. About 40 protected core areas of the Biosphere Reserve cover 7 % of the island territory. At the moment they comprise mainly state-owned forests and uninhabited wetlands.

The problem is that there is not enough funding today to protect semi-natural plant associations, habitats and landscapes, i.e. protection which is possible only by specific management regimes.

Second, the Biosphere Reserve tries to provide a basis for broad cooperation within management of areas which have high conservation value. To this end, the Biosphere Reserve has 1) developed the Käina Bay Integrated Management Plan for a wetland area that meets the criteria of the Ramsar agreement and belongs to category I of the List of Important Bird Areas, and 2) supported local village groups to create land-use plans in Kassari Landscape Reserve and on the coastal zone of the village Luidja, which both have very high visitor pressure. The interests of different stakeholders as well as conflicts were identified by these activities.

There are several key factors in making this type of cooperation projects work, among them the challenge to create and hold together a coalition long enough to find resources and to implement the management plan, and being well prepared by having made financial arrangements for the implementation prior to beginning the public process. People begin to lose interest in the process if they are asked to wait for financing to be approved before they can begin to be 'hands on' involved.

Third, in today's new conditions Hiiumaa island needs additional efforts to achieve a stable rural economy. Therefore, people are looking increasingly towards tourism as a way to build up the future of their island. The growth of tourism in rural areas might also provide both an incentive and funding for conservation work. Biodiversity and landscapes are the key resources for rural tourism products - this fact should convince decision makers of the importance of nature conservation and sustainable use. That is why the Biosphere Reserve has initiated a series of creative collaborative activities to promote tourism, is looking for "good examples" of rural and island tourism, and takes part in the European Ecoislands Network.

Tourist accommodation firms and restaurants that operate in an environmentally sound manner are awarded the Hiiumaa Green Label. The campaign has increased the interest to cooperate between tourism entrepreneurs and other stakeholders. This fact encourages to extend the Hiiumaa Green Label project to include both ecological farming and forestry. The criteria of the label will in

future include also conservation of biological diversity and other aspects of sustainability.

A community-based project with an objective to establish a specially managed nature tourism destination on Hiiumaa Islets Landscape Reserve is planned to provide benefits for local development in terms of job opportunities, income, development of local infrastructure, etc. for the Salinõmme village as a "gate" to the islets. The project aims to guide the development of tourism along lines which respect the limited capacity of the reserve to absorb the pressure of visitors and their activities. Another community-based large-scale tourism development effort where an participatory approach to the planning and management will be implemented by using simultaneously ecological, social and economic criteria is planned to be carried out on the Kõpu peninsula. Forestry and forest-based tourism as well as coastal zone management belong to the target sectors of this project. Because of the very broad scale of stakeholders, the paradigm of planning as learning is used in this case.

4 Using social-communicative implementation tools

In order to create a constructive atmosphere for decision making, local people need to be informed, educated and convinced that the new processes will benefit them. Communicative governance tries to induce behavioral change by involvement that requires commitment but also allows for self-regulation and social freedom. Activities in this field are going on in cooperation with different interest groups and the newly recreated local NGOs in the form of open forums, workshops and seminars, oriented to solve problems and work out local development visions and land-use plans.

A sociological study carried out by the Hiiumaa Biosphere Reserve Centre indicated that the local societies are threatened by a social void. People feel that they are unable to influence decision making. They need assistance in their search for development alternatives and additional economic possibilities. People also need assistance in the re-establishment of civil society after the long period of totalitarian power, by return to the social and spiritual values. At the moment, the Biosphere Reserve is planning capacity building for further collaborative planning and management with a focus on self-reliance and change from "bottom" rather than from "top".

The sociological study also indicated that the islanders' interest in nature is often spiritual. About 50 % of the population associate the forest as well as the sea primarily with positive inner feelings (freedom, joy, purity). Less than one third acknowledged that their primary associations with forests were direct economic interests. These research results show that in developing the management strategy for the Biosphere Reserve there is a good reason to appeal to people's hearts as well as to their minds.

The Biosphere Reserve Centre uses different channels and means of communication. There is a regularly published newsletter "Kaitseala Teataja", oriented to the local people introducing objectives and activities of the Centre. A book series "Pirrujaak" is oriented to teachers, school children and guides, and enlightens the natural values of Hiiumaa and results of research work. Preparing and publishing of the series "Environmental Atlas of Hiiumaa" has also started and will inform and educate the general public about various themes (e.g. protection of biodiversity, forestry, coastal zone management).

A television programme entitled "Let's Make a Model out of Wood" has been made about wooden sculptures portraying different aspects of sustainability. One of them demonstrates the involvement of the head, the heart and the hand (cognitive, affective and skill domain of environmental education). Another one demonstrates the interconnected principles and basic needs of environment, social goals, material life and equity. Both sculptures are now on permanent display at the Soera farm heritage museum close to Kärdla. On seeing them, people ask for more information about sustainability. We have found that these sculptures are amazingly effective in creating an image of sustainable development which is readily understandable and with which people have an immediate connection.

Environmental policy instruments consist of 1) direct regulation by laws, prohibitions and permits, 2) indirect regulation by economic incentives, taxes, fines and subsidies, and 3) influencing attitudes through education, information and communication. The last group is often underestimated in the newly independent societies. Frequently, even if communication and education are valued, there are no skills or adequate familiarity with methods which will help to achieve the set goals. Cooperation on the international level helps to overcome these difficulties.

Hytönen, M. (ed.). 1998. Social sustainability of forestry in the Baltic Sea Region.
The Finnish Forest Research Institute, Research Papers 704: 315-323.

Role of biosphere reserves in promoting sustainability of forestry and regional development

Ilkka Eisto

Abstract

The main socio-economic problems of nature conservation in Finland are related to employment issues and challenges to restructure remote regional economies. The article describes possibilities of Biosphere Reserves to find balance between nature conservation and regional development goals. These issues are focused within forestry. A short examination of the relations between the ecological, economic and social dimensions of sustainable development is also included.

Keywords: Biosphere Reserves, social sustainability, ecological modernisation, forestry, regional development, Finland.

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1 Sustainable development - a worn-out concept?

In 1988, the United Nations published the report of the World Commission on Environment and Development. The most important aspect of the report was the general recognition accorded to sustainable development, the concept describing the relationship between economics and the environment. The concept was rapidly adopted, particularly as a catchphrase in administration and planning. Fundamentally, sustainable development refers to activities which seek to ensure the continuance of the essential operational conditions of a given phenomenon (cf. van der Bergh & Nijkamp 1991).

Many social scientists think that the concept is problematic and have criticised its theoretical ambiguity, lack of concreteness as well as the internal contradictions in its objectives (cf. e.g. Lele 1991, Redlglift 1992). In practice, the concept of sustainable development has been used in the struggle over political determinative power and as an operational principle it is by no means based on scientific achievements but rather on political compromises (e.g. Dietz et al. 1992). As a loosely constructed international strategy, it provides opportunities at the national level to justify very different actions, some of which may also be

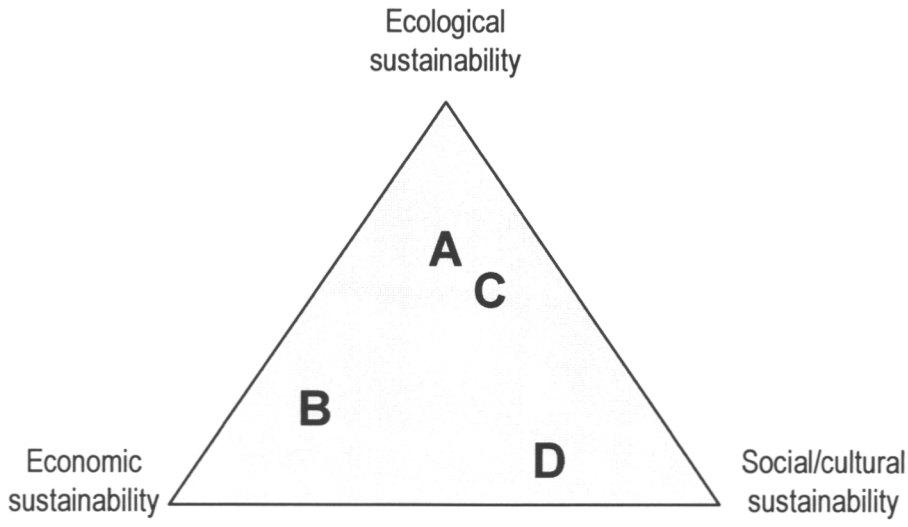


Figure 1. The dimensions of sustainable development.

destructive from the perspective of people's well-being and the environment (Jokinen 1995).

Sustainable development can be divided into three main dimensions: ecological, economic and social sustainability. Economic sustainability refers to the efficient allocation of the resources of society, guaranteeing the competitive position of the production fields and determining the limits of economic growth. Ecologically sustainable development involves biodiversity, the continuance of biological processes and preservation of nature's ability to reproduce. The concept of social sustainability requires that society ensures in its development the individual's control over his/her life and reinforces people's social identities. Often the issue of the equitable distribution of income in society is related to it. The determination of the mutual relations and harmony between these dimensions in respect to the development objectives of different interest groups is not, however, unambiguous.

The conceptual diversity of sustainable development is expressed in Figure 1. The area delineated by the various dimensions contains several different "solutions" (marked with letters from A to D) for achieving sustainable development; the ecological and social effects and the practical means of implementation employed in them may, however, diverge from one another. Sustainable development offers no single optimal solution to the question of the compatibility of nature and human actions since different actors in society accentuate these dimensions in different ways. Sustainable development always includes the possibility of conflicts existing between values and interests. Hence, instead of trying to define what might be the concensus solution one should try to establish learning processes by which the agents could reconcile their opposing points of view.

2 Social sustainability

Economic as well as ecological sustainability is often examined at the spatial or ecosystem level. Social sustainability, in turn, is commonly associated with the examination of a person's individual level. The content of the concept should, however, be examined on a broader scale. For example, in remote rural villages, where the population is very sparse, one individual's decisions may affect the entire village. The survival of the village shop may in the end be dependent on the decision of a few families to leave. On the other hand, social sustainability is becoming an even more significant criterion for sustaining activities in a given production field, such as forestry.

From the regional perspective the development of a specific area is socially sustainable if it occurs autonomously, independent of the development of other areas. It is obvious that different regions have always been connected to one another economically or through production externalities. Socially independent development in this context indicates that the region has sufficient social capital to permit development. In contrast, we may speak of adequate socio-economic diversity, which refers to the region's stable population base, a favourable age structure, sufficiently diversified sources of income and industries as well as the existence of services. It is also essential that the region's actors themselves are capable of influencing decisions governing development.

On the other hand, social sustainability can also be examined from the operational perspective, where the criteria for development are associated with individual actors and groups of actors. In this case, for instance, socially sustainable forestry can represent operations which seek to increase the well-being of the people of a certain region and ensure the basic conditions for living (cf. Saastamoinen 1996). Individual criteria for assessing activities can, for example, be the development of employment in an industrial field, the possibilities of different interest groups to participate in the decision-making processes, the openness and equitability of actions, and questions connected to education, occupational safety and equality. We must, however, remember that although an individual group of actors or a production field may satisfy the conditions for operational sustainability, the development of the area in which it is located may not necessarily be socially sustainable from the regional perspective.

3 Social sustainability and ecological modernisation

As a result of the debate in German and Dutch social science circles, particularly in the early 1990s concerning the environment, a theory of ecological modernisation began to take shape alongside with the concept of sustainable development. Ecological modernisation describes the manner in which the development of the key institutions of society must be brought about in order to resolve the most fundamental questions of the ecological crisis (Spaargaren & Mol 1992). According to Jokinen (1995), ecological modernisation can on the general level be considered to be an alternative to the concept of sustainable development.

In practice, ecological modernisation refers to specified and concrete programmes and strategies through which the direction of environmental policy

can be guided and through which its results can be assessed. For example, Jänicke (1990) distinguishes three strategies of environmental policy which affect the development of production (cf. also Jokinen 1995):

1) cleansing and filtering policy
2) ecological modernisation policy
3) ecologically post-industrial policy.

The strategies can be outlined as development processes which progress in stages. The reduction of environmental load or the damaging environmental externalities caused by production and consumption is achieved by a shift towards ecologically and economically efficient forms of production. As a result of ecological modernisation the role of economic actors in resolving environmental problems becomes active rather than passive. This is not simply a case of reacting to signals produced by environmental change and consumer demand, but an attempt to develop more environmentally friendly production processes than previously existed and planning and decision-making systems which encompass the entire production chain.

When employing the terminology of sustainable development, ecological modernisation satisfies the criteria of economic and ecological sustainability, but not necessarily the conditions for social sustainability. Production can become less detrimental to the environment if institutional processes and technology are reformed. It may, on the other hand, become increasingly dominated by capital, if the new procedures reduce the need for labour.

4 Modernisation of Finnish forestry policy

The main objective of Finnish forestry policy, at least through the latter half of the 1980s, was increased timber production (cf. Seppälä 1997). The heightened environmental consciousness among forest owners and buyers of timber products has in the 1990s made environmental issues in forestry as important as production goals. Greater attention than before has been payed to multiple use of forests and biodiversity. Though environmental consciousness arose as early as the late 1970s, more far-reaching changes have only come about during this decade.

The "ecologicalisation" of forestry policy in Finland occurred rapidly. The environmental program for forestry drafted in 1994 was followed by a programme

seeking to preserve virgin forests, and reforms in forestry legislation. Although the Finnish forest sector has in the past few decades undergone a significant change, the development cannot unequivocally be considered an example of ecological modernisation. The change has chiefly been a result of the concerns on the part of the forestry industry over the competitive position of its products. The far-reaching nature of the change as such supports this assertion, and the reduction of environmental load specifically by the industry has also generated new know-how in environmental technology. On the other hand, there is no way of knowing how far the ecological modernisation of forestry has progressed. For example, in conjunction with forest certification, it has been difficult to find clear indicators for certain certification criteria.

In examining different periods of forestry policy, the focus of attention is drawn to the shift away from economic issues to ecological, and in recent years to social, questions. Furthermore, in the discussion concerning sustainable development similar shifts from one topic to another have been evident. There is no reason, however, to separate the dimensions of sustainable development from one another into individual discourses, but they should always be studied holistically, in relation to each other.

5 Biosphere reserves - socially sustainable development as a learning process

UNESCO, the scientific and cultural organisation of the United Nations, has long been engaged in multidisciplinary environmental research which strives to bring about concrete development activities. In 1971, the organisation initiated the Man and Biosphere (MAB) programme. The programme was the first broad-based international attempt to determine the conditions and practical actions through which the sustainable development of the earth's ecosystem could be implemented (Batisse 1990). The general objective is to preserve the biosphere, the zone of the earth which provides a living environment to human beings, animals and plant species. The programme is composed of sub-programmes concerning specific questions, a world-wide network of researchers, and biosphere reserves which epitomise various biotopes.

As a whole biosphere reserve activities and research can be examined as a vehicle for global environmental policy. An attempt has been made through research and planning methods in the biosphere reserves to promote a balanced interaction between human beings and nature. The key operational prin-

ciple is in situ conservation, through which the objectives of conservation are to be achieved by affecting the use of nature in significant key biotopes without the establishment of any separate conservation areas. The reserves also differ from traditional conservation areas because they actively seek to improve the living conditions of the local people without endangering conservation objectives.

According to Batisse (1985), biosphere reserves have three main functions: 1. protection of nature (the preservation of genetic material, species and ecosystems on an international basis), 2. international multidisciplinary research (research and follow-up cooperation in an internationally coordinated research programme), and 3. development activities (outlining methods for using natural resources in accordance with sustainable development in collaboration with the local people). In addition, local residents are encouraged to participate in planning and, as much as they are willing or able, in the research as well.

It is characteristic of biosphere reserve activities that when examining problems involving the use of nature, the various dimensions of sustainable development are taken into account. The activities can be categorised as interdisciplinary research and interactive broad-based learning processes. If the actors in the biosphere reserve are capable of such cooperation which can successfully integrate the ecological, economic and social dimensions of sustainable development into a practical project, then they will give rise to a social process that may be called socially sustainable. The creation of such processes is the main objective of biosphere reserve activities. At the same time, however, there are substantial problems. For example, it is not easy to determine a policy for conserving virgin forests which would be ecologically suitable, economically profitable and locally acceptable. This requires that the actors in the biosphere reserve can formulate local conservation solutions.

In Finland there are two biosphere reserves, one in eastern Finland and the other in the southwestern archipelago. Both are situated in remote, sparsely populated rural regions where the population is ageing and the importance of the regions for residential or vacation purposes has been accentuated in comparison to production. Thus, the activities going on in the reserves have emphasised the development problems of remote areas and the compatibility of using and conserving nature.

If regional and local expectations are selected as the basis, the objectives of biosphere reserves will substantially enlarge the tasks set for environmental policy. Local expectations are chiefly focused on those methods which can keep remote rural villages populated and functioning. From the local perspective it is essential to guarantee basic services to local communities and possibilities for the residents to earn a living. Particularly in eastern Finland forestry is still a significant employer. As people move from villages to residential areas and towns, the importance of jobs which still exist in the countryside increases. Employment has in these areas become an important indicator of social sustainability.

Biosphere reserve activities should also be linked to local and regional development organisations: to the operation of municipalities and provincial administrative organisations (e.g. the new regional Employment and Development Centres in Finland). This way trial programmes and research and development projects could constitute a realistic basis for implementing the activities, in which cooperation in the biosphere reserve supports the objectives of the involved organisations (cf. Kruse-Grauman 1995).

The objectives of biosphere reserves emphasise the importance of cooperation between different actors. In eastern Finland they reflect the changes in the operational environment of the regionally significant forest economy, for example the new demands which have arisen as a result of nature conservation. In practice, initiating cooperation and determining operational contents has proven difficult. This alone cannot, however, be seen as a problem of biosphere reserve activities. There exist desires and needs in the reserve to create new forms of cooperation between different actors. The biosphere reserve has a natural role to play in promoting this. It can be viewed as a missing link between the main dimensions of the sustainable development.

The biosphere reserves represent a new way of thinking in respect to local environmental and development policies. They might therefore be among the most feasible efforts to implement ideas concerning development that are ecologically, economically and socially sustainable. Although the Finnish government has committed itself to the MAB programme, the biosphere reserves in Finland do not have a legal status as development and demostration areas. The joint activities of different interest groups in these areas are hence based on voluntary agreements. Therefore one of the most topical tasks is to try to define and expose the practical means to achieve commonly accepted objectives which the different interests groups can find beneficial.

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Forestry planning in coastal biosphere reserves in Estonia, Finland and Germany

Martin Welp

Abstract

Forestry in coastal areas and on small islands is characterised by limited resource base and intense pressure caused by various human activities. In forestry planning in coastal areas the need for balancing between various land and water uses is emphasised. The concept of 'integrated coastal management' (ICM) has emerged to overcome the so far sectoralised planning practice in coastal areas. It has certain implications also for forestry planning. The study is concerned with two important aspects of forestry planning: cross-sectoral cooperation and public participation. Three coastal biosphere reserves have been chosen as case study areas. These are the West-Estonian Archipelago Biosphere Reserve (the island of Hiiumaa), the Archipelago Sea Biosphere Reserve in Finland and the Southeast Rügen Biosphere Reserve in Germany.

Keywords: forestry planning, biosphere reserves, coastal areas, islands, participation, cross-sectoral cooperation, integrated coastal management.

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1 Introduction

Biosphere reserves are established within the UNESCO programme 'Man and the Biosphere' (MAB). The programme's objective is to achieve a balance between often conflicting goals of conserving biological diversity, promoting economic development, and maintaining associated cultural values. Biosphere reserves are areas where this objective can be tested, refined, demonstrated and implemented (Biosphere Reserves... 1996). In October 1997 there were 352 biosphere reserves in 87 countries (UNESCO 1998).

An essential element in achieving the above stated objectives is planning, which is here understood as the preparation of decision making carried out by public agencies. For the analysis of planning practices in biosphere reserves, three coastal biosphere reserves have been chosen as case study areas. These are the West-Estonian Archipelago Biosphere Reserve (the island of Hiiumaa), the Archipelago Sea Biosphere Reserve in Finland and the Southeast Rügen Biosphere Reserve in Germany.

Coastal areas are characterised by various and often conflicting human activities ranging from housing, recreation and tourism to marine transport, fishing and aquaculture. In this paper, the focus is on one exemplary sector of coastal resource use, namely forestry. Multiple use of forests has been mainly concerned in finding a balance between various tangible and intanglible forest products. In forestry planning in coastal areas the need for balancing between various land and water uses is emphasised. The concept of 'integrated coastal management' (ICM) has emerged to overcome the so far sectoralized planning practice in coastal areas. It has certain implications also for forestry planning.

The main questions addressed in this paper are:

- How can complex coastal resource use issues be discussed in a more systematic way and simultaneously keep up with transparency and openness of planning?

- What experiences have been made within the field of forestry planning in the three biosphere reserves?

The paper deals with the 'processual' aspects of social sustainability of forestry. This means participation in the planning of the use and protection of forests

and other coastal resources. One of the core values of participation is that people should have a say in decisions concerning actions which affect their lives (Priscoli 1997). With more intensive and conflicting demands on natural resources a more holistic approach has become essential. Especially in coastal areas, where land and water uses interact, and on small islands, which have a limited resource base, more integrated planning is needed (e.g. European Conference... 1997). This can be achieved by a more structured communication and cooperation between different interest groups, public agencies and the public at large.

This study is a part of a larger research project, entitled 'Planning practice in three coastal biosphere reserves in Estonia, Finland and Germany'. It is carried out by M.Sc.(For.) Martin Welp at the Technical University Berlin, and funded by the Academy of Finland and the Maj and Tor Nessling Foundation. Two sub-studies were conducted by forestry students Terhi Ahde (1998) and Sonja Pekkola (1998). Ms. Ahde prepared her Master's thesis on forestry planning on Hiiumaa and Ms. Pekkola on the same theme in the Archipelago Sea Biosphere Reserve. Analyses of planning practices in the three case study areas are based on focused interviews among key persons and collected written material, like newspaper articles and planning documents.

2 'Integrated coastal management' and forestry planning

'Integrated coastal management' has in the last two or three decades emerged as a response to the sectoralised management and planning practice in coastal areas. A 1989 workshop in Charleston involving a group of scientists from 13 different countries developed one of the early definitions of ICM (Knecht and Archer 1993). According to it, ICM is:

> *"a dynamic process in which a coordinated strategy is developed and implemented for the allocation of environmental, socio-cultural, and institutional resources to achieve conservation and sustainable multiple use of the coastal zone' (Sorensen 1993)."*

The concept of ICM came to greater prominence as one of the principal recommendations in the Agenda 21 Action Plan, agreed by all nations in the 1992 Earth Summit (United Nations Conference on Environment and Development, UNCED) (Cicin-Sain 1993, Knecht and Archer 1993). According to the declaration, section 17.5 (Protection of the oceans... 1992):

> *"Coastal states commit themselves to integrated management and sustainable development of coastal areas and the marine environment under their national jurisdiction. To this end, it is necessary to, inter alia: provide for an integrated policy and decision-making process, including all involved sectors, to promote compatibility and a balance of uses;..."*

'Integrated coastal management' (ICM) has much in common with a number of related approaches, familiar to many forestry practitioners and researchers. These approaches share an ecosystem or watershed basis for management of natural resources, rely on cooperation, partnership and negotiated conflict solving between different agencies, stakeholders and the public at large, and intend to generate a common understanding of problems and a consensus for action in order to find ecologically, economically and socially sustainable development options (c.p. Cortner and Moote 1994, Armitage 1995). Closely related approaches include 'ecosystem management' and 'integrated area development' (c.p. Born & Sonzogni 1995). Also approaches like 'collaborative management' (Selin & Chavez 1995), 'adaptive management' (Imperial et al. 1993) and 'locally responsive management' (Reed 1994) intend to find a consensus between affected parties, although the comprehensiveness of these approaches varies. Essentially ICM covers both land and water use issues in a certain geographic area (see Figure 1).

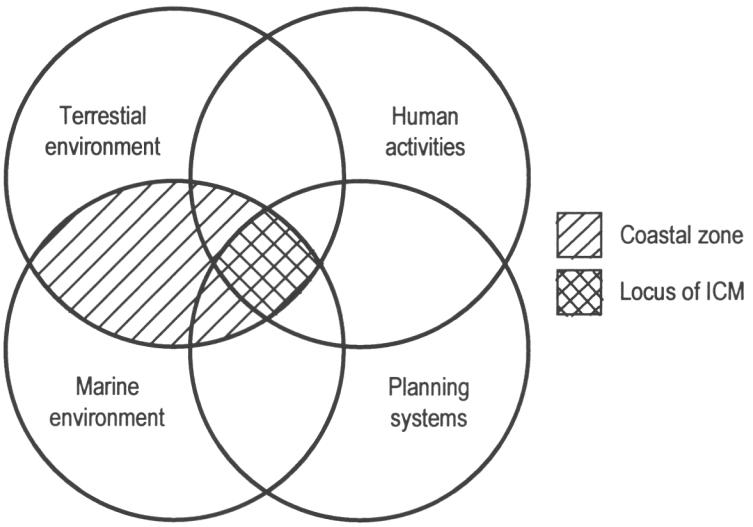


Figure 1. Locus of ICM within the planning systems (Adapted from Chua 1993, Dutton and Saenger 1994).

What implications does ICM have on forestry planning? With what uses there is need for stronger cooperation and coordination and in what issues it is irrelevant? What impacts can forestry practices have on other land and water uses? Clark (1995) has in the 'Coastal Zone Management Handbook' identified the following impacts:

- Increased sediment loading in rivers caused by removal of the forest cover. Water quality is reduced and siltation increases, which can have impacts on aquaculture, fishing, recreation etc.

- Coastal erosion may also be caused when forest cover is removed (land slides on hill slopes may have serious damages for areas lying beneath).

- Of special interest globally are mangrove forests, which are important for fish breeding and an own issue in the coastal management literature. There are also other types of lowland and wetland forests such as tidal swamps.

In the three case study areas of this study we are not confronted with such dramatic interactions with other land and water uses. The issues are rather related to nature and habitat protection, to landscape design, and to some extent coastal protection (i.e. erosion control, protection against storms). Competition occurs also with other land uses, like construction activities, agriculture and tourism. Forestry sector can also contribute to local economic development, which makes regional development planning relevant.

A recent effort to introduce an integrated approach to coastal management, the European Code of Conducts for Coastal Zones, has dedicated attention to coastal forest management, especially to the management of coastal dunes (Rigg 1997). Many of the suggestions of the Code thus concentrate on a narrow coastal strip and the principles promoted fall under the title 'coastal zone management', using the typology of Olsen et al. (1997) (Figure 2). A broader approach would encompass the whole watershed (integrated coastal management). Biosphere reserves provide excellent pilot sites for 'integrated coastal management' efforts (Welp 1996).

Enhanced sectoral management	Coastal zone management	Integrated coastal management
Focus on a single sector or topic, but explicit attention to impacts on and interdependencies with other sectors, ecosystem processes and institutional capacity.	Multi-sectoral planning and regulation focused upon the characteristics and management issues within narrow, geographically delineated stretches of coastline.	Expands the cross sectoral feature of Coastal Zone Management to consideration of the closely connected ecosystem processes within coastal watersheds and oceans.

Figure 2. A typology of coastal management (Olsen et al. 1997).

3 Designation and role of the biosphere reserves

The three case study areas are quite newly established coastal biosphere reserves, which include both land and water areas. The designation of the biosphere reserves took place during the turbulent times of political change in Germany Democratic Republic (GDR) and Estonia in 1990 and 1991. The Archipelago Sea Biosphere Reserve in Finland was established in 1994.

In Germany, the designation of several protected areas under the national park programme was initiated by nature protection professionals, researchers and activists. The biosphere reserve was designated by the GDR Council of Ministers only a few weeks before German unification. The underlying assumption of the initiators was that the areas would be exposed to high pressures caused by touristic and other developments. Thus, the protected areas were established in order to be able to hinder unwanted developments.

The planning of the West-Estonian biosphere reserve started in the middle of 1980s, and after the completion of the preparatory studies and accomplishment of the provisory zonation, the West-Estonian Archipelago Biosphere Reserve was established by an ordinance passed in December 1989. The approval to the UNESCO list of biosphere reserves was confirmed in March 1990.

In Finland, the process of designating the two existing biosphere reserves took little less than 10 years. Various pilot studies were done by working groups and several seminars were organised. The process was quite well documented in

various publications, but still local people and even government agencies had relatively little information about the biosphere reserves.

The biosphere reserve administration is a new actor in all three countries. In each area, an administrative system already existed and the biosphere reserve has thus taken different roles depending on the conditions (Welp 1997). The administration of the Southeast Rügen Biosphere Reserve is the nature protection authority and is thus involved in local land-use planning and various sectoral planning activities. The ordinance on the biosphere reserve states as the goal: "protecting environment by developing models for ecological land use within the sectors: agriculture, forestry, fisheries, traffic and recreation" (Verordnung über... 1990). The most debated issues are land use and construction. The administration of the biosphere reserve is thus mainly involved in giving statements to applications of construction permits and local land-use plans.

On Rügen, the biosphere reserve's administration does not have a coordinating function, but in several cases it has influenced sectoral planning (e.g. forest planning, traffic planning, coastal protection) through negotiations and its formal position as nature protection authority. The concentration of the biosphere reserve on land-use issues, seems to be adequate concerning the high pressures the landscape is exposed to. The other side of the coin is that the public opinion sees the biosphere reserve as mainly something that hinders development. The promotional role of the biosphere reserve has not been strong, although the so called 'model region Rügen' is the strategic vision of the administration (Jahresbericht 1996). A state programme for extensive pasture land and some EU-funded pilot projects have been contributions with a promotional character.

The administration of the West-Estonian Archipelago Biosphere Reserve is subordinated to the Ministry of the Environment, but it has no formal regulative or controlling function. According to the ordinance of the rules of the West-Estonian Archipelago Biosphere Reserve (1994), the tasks of the biosphere reserve centre include, besides traditional tasks within nature protection (zonation, various programmes etc.), also educational work and taking part in regional planning.

The Biosphere Reserve Centre on Hiiumaa is rather an intellectual contributor, which provides new ideas and makes international contacts. Representatives of the biosphere reserve see their main role in education and in producing and transmitting knowledge. A regulatory or controlling function is not wanted. A

regulatory role exists, however, because the centre works out ordinances for protected areas and suggests them to the Ministry of the Environment.

The administration of the Archipelago Sea Biosphere Reserve has been established only recently. The post of the biosphere reserve coordinator is financed jointly by the South-West Finland Regional Environment Centre and the Finnish Forest and Park Service (The Archipelago Park District Office), which have also a say in the focusing of activities. Currently the administration is involved in coordinating research activities and promoting cooperation between various actors, for example, within the tourism sector. It also intends to bring environmental considerations into development programmes.

The difference in comparison with normal coastal areas is that in biosphere reserves there is a public administration which by definition has a more holistic approach to environment and development issues. A cross sectoral view, which aims at sustainable resource use has in that form so far not existed in the administrative system. The roles of the biosphere reserves in the three areas could be roughly characterised as mostly regulative in the Southeast Rügen Biosphere Reserve, as an intellectual contributor and maker of international contacts on Hiiumaa and in the Archipelago sea as focusing on research and promoting cooperation between various actors.

4 Forestry planning in the Southeast Rügen Biosphere Reserve

Big changes have taken place in forestry on Rügen and elsewhere in Eastern Germany since the unification in 1991: the forestry administration has been reorganized, various types of protected areas were designated within the national park programme (including national parks, nature parks and biosphere reserves) and the forestry legislation has been amended on the basis of the federal forest act, which has since 1977 been the framework law for forest legislation in the old Bundesländer.

During the GDR era, the demands of wood-processing industry dictated forestry practices. In contrast to West-German forestry practices, which more or less were based on the principles of sustainability and multiple use, forestry in GDR followed the goal of maximising wood yield.

In the Bundesland Mecklenburg-Western Pomerania, to which Rügen belongs, the Forest Act was issued in 1993. This act laid the foundation for a shift to-

wards close-to-nature multiple purpose oriented forestry. Increasing the share of forested areas was declared as a goal in the law. A decree for the implementation of close-to-nature forestry was launched in 1996. The key characteristics of the close-to-nature forestry programme include: increasing the share of broad-leaved species, increasing the share of mixed and not even-aged forests, limiting the use of exotic tree species, using as far as possible natural regeneration, increasing the share of old forests and dead wood in forests, protection of plant and animal species, designation and management of forest reserves, and increasing nature protection and recreation in forests.

These principles are applied in forestry practices also in the Southeast Rügen Biosphere Reserve, except for the core areas, which are not managed. For example current policy is to transform the coniferous forests (Norwegian spruce, larch) back to broad-leaved forests (Biosphärenreservate... 1995). The decree of the Southeast Rügen Biosphere Reserve has no detailed regulations concerning forestry. The ordinance, however, defines the goal of protecting environment by developing models for ecological land use within the sectors: agriculture, forestry, fisheries, traffic and recreation (Verordnung über... 1990). In this case it can be said that forestry follows the policy guidelines of the state, but that new models of ecological land use within forestry would be developed is perhaps too much said, even though the forestry administration in cooperation with the biosphere reserve takes special notice of nature protection and recreation. A first effort towards combining ecological land use, economic development and increased use of local resources has been the 1st Wood Exhibition of Rügen, which was for the first time organized in summer 1997 (1. Rügener Holzmesse 1997).

There are three main reasons for problems in promoting ecological land use within the forestry sector in the biosphere reserve: firstly, ownership questions have not been solved yet, secondly the biosphere reserve is too small (forest area is only 2 270 ha, 25 % of the total land area of the biosphere reserve), and thirdly there are no markets for timber and there is no local wood-processing industry.

There is currently little privately owned forest. However there are areas on which the ownership questions have not been solved yet. In fact over 60 % belong to the federal state and will presumably be privatised. The forestry administration is managing these forests on a year to year basis, and thus no middle or long range plans can be made.

Cooperation with other agencies and sectors takes place in various forms. The forestry administration and the biosphere reserve administration, which is the nature protection authority in this area, have found agreements about the use of forest resources. The protocol of an early meeting in 1991 clarified the competences and is a rough guideline for forest management (this was before the forest law was issued). According to it, close-to-nature forestry and special silvicultural treatments are preferred in coastal forests. Cooperation takes the form of on-site visits, and the forestry administration usually informs the biosphere reserve administration about major cuttings. In making the management plans, the biosphere reserve is involved in the early phases of planning. Cooperation was considered to work well by all interviewed partners.

There are also other sectoral agencies with which cooperation takes place like coastal protection, tourism, traffic etc. There are several agencies which have a say in coastal protection: the forestry administration, the biosphere reserve administration and the Coastal Protection Division of the Nature Protection Administration (Staatliche Amt für Umwelt und Natur). These three agencies might have different opinion about how coastal protection should be carried out; the Coastal Protection Division has a technical and engineering approach, the forestry department does not want to let forests to be cleared for other coastal protection measures, and the nature protection authority often wants to have natural grasslands.

Conflicts have emerged also within tourism and recreation. Intensive recreation causes erosion. Sometimes hotels, clinics and camping sites are built too close to the shoreline, which has caused conflicts in coastal erosion control. In the GDR there was a 200 m strip of coastal protection forests, which were managed only for this purpose. Currently the 200 m strip has been included in the nature protection and construction legislations.

Agricultural land is currently being shifted to other uses. Afforesting these areas has so far been limited. Conflicts related to increasing forest area have also emerged. The landscape should not be significantly changed, but on the other hand forest cover should be increased. Finding suitable places for afforestation has been difficult. The forestry administration is also much involved in land-use planning because of the many construction activities. Giving statements to construction permits takes much of the time of the forestry administration.

Some statements concerning forestry can also be found in strategic regional plans made for Rügen. The structure concept which was made in 1991 (before the launching of the forest law) states that: a) the policy of the district government is to increase forest area from 16 % to 18 %, b) no exotic species shall be used, monocultures shall be avoided, forests shall be gradually transformed to appropriate species, clear cuts shall be avoided, c) recreational needs are considered, and d) local atmospheric emissions from industry and animal production shall be avoived.

The draft of the later 'district development plan' includes all these statements except the ban of clear cuts. These plans have no legally binding character, and in fact the forestry administration is not subordinated to the district government which makes the strategic plans, but is directly under the Ministry of Agriculture, Forestry and Nature Protection. The plans are rather policy guidelines for the district government.

There has been no public participation in forestry planning. If forest cutting takes place in sensitive areas, the public may be informed in advance. Strategic forestry planning is made within the forestry administration in close negotiations with the biosphere reserve administration. Advising private forest owners is also a task of the administration. There have been no demands for more participation in forestry planning at the local level.

5 Forestry planning on Hiiumaa (West-Estonian Archipelago Biosphere Reserve)

Hiiumaa is the most forested county in Estonia. About 70 % of the total area is covered by forests. The share of mires is about 10 % and the share of agricultural land about 20 %. Over 80 % of Hiiumaa forests have natural origin. In coniferous forests, the most dominating tree species are pine (47 %) and spruce (12 %). In broad-leaved forests, the most dominating tree species are birch (36 %) and common alder (4 %). (Ahde 1998).

During the Soviet period Hiiumaa was a closed island, for which also the Estonians living on the mainland needed to have a visa. The forests were let to grow in their natural state and their utilisation was not significant. Timber was mainly used as firewood. Therefore the average age of Hiiumaa forests is relatively high. Like on Rügen, forestry and agriculture were separated: agriculture was practiced by state farms and forestry by state-owned forestry enterprises.

The situation is changing due to the land reform. Although state-owned forests still make the biggest share, there is a new group of private forest owners. Small farm forests are thus a new phenomenon on Hiiumaa. A significant change in forestry of Hiiumaa will be the increasing role of private forest owners. The people have owned their forests for a very short time and they do not yet know what to do with their forests. Almost 10 % of the forest owners live outside Hiiumaa. Some are older people and not much interested in using their forest resources.

The West Estonian Archipelago Biosphere Reserve has brought new nature protection objectives to Hiiumaa (Lääne-Eesti saarestiku... 1994). Most of the forests which were classified as the core areas with the formation of the biosphere reserve were already protected according to some former rules. About 1 300 ha of so-called profit-yielding forests were added to the core areas with the formation of the biosphere reserve. There are about 40 strictly protected areas in the traditional sense of nature conservation being included in the core areas of the Hiiumaa biosphere reserve. They cover about 7 % of the area of Hiiumaa. There are special regulations concerning the use of coastal forests. Cuttings are not allowed on a 20 m strip and limited on a 200 m strip (e.g. no clear cuts).

According to the Estonian forest law, the management of all forests is planned and controlled by forest departments. On Hiiumaa the department is divided into 3 forestry districts. These make the management plans for state-owned private forests. The Hiiumaa Forestry Department is working in close cooperation with the Hiiumaa Environmental Department of the County Government and the Hiiumaa Centre for Biosphere Reserve.

According to the Estonian forest law (8 §), forest owners are entitled to take part in the drafting of the forests management plans concerning their forests as well as to be present at the confirming of the plan. In practice, taking part in the drafting the management plan is not common among private forest owners. In planning of state forests, no participatory arrangements have taken place.

So far no demands for public participation have occurred. There have not been any public conflicts related to forestry. Making the management guidelines for the core areas has included some conflict potential with new land owners, but the biosphere reserve adminstration has been able to solve these disagreements through negotiations.

There might also be some disagreement between the Forest Department and the Biosphere Reserve Centre about the amount and location of cuttings, but cooperation has been close and regular communication takes place. From the biosphere reserve's point of view cooperation with private forest owners is more difficult, because they do not often exactly know what they want to do with their forests.

Education for private forests owners is organised by the Hiiumaa Forestry Department. There have also been discussions about a green label for forestry (similar to the already existing green label for tourism enterprises). For example, a Swedish enterprise has offered to pay 3 % higher price for eco-labelled timber to motivate forest owners.

Except for forest planning there are little sectoral planning activities on Hiiumaa. In strategic regional development planning forestry has not been in main focus. Within the preparation of the Hiiumaa Development Action Plan, discussions were carried out whether a separate forestry working group should be established. So far this has not happened and only the so-called rural economy working group was established. General problems related to forestry are the lack of local wood-processing industry and handcrafts, and the separation of agricultural and forestry extension for small farmers.

6 Forestry planning in the Archipelago Sea Biosphere Reserve

Forests in the Archipelago Sea area are mainly in private ownership. Forestry is not a priority economic sector in the archipelago, but forests have importance as additional sources of income especially for farmers. Archipelago forests have also great importance for recreation and nature protection. The archipelago belongs to the oak forest zone and is thus unique in Finland. (Pekkola 1998)

Forestry has never been practised on large scale, due to the small size of most of the islands. Still one of the first environmental conflicts in the archipelago was on forestry practices. The conflict concerning forest cuttings on the island of Nötö was in public media nationwide. Other forestry conflicts have occurred concerning the national nature protection programmes; for example concerning the protection of old-growth forests and groves and more recently concerning the Natura 2000 -areas. The protection of the sea eagle has also been a conflict issue.

There are no specific regulations in the new forest law or nature protection law on forest management practices in the archipelago. Due to the small size of forest estates no large-scale cuttings have been made. No compulsory guidelines exist, but in cooperation with Sweden a book has been made on forest management practices in archipelagos.

The administration of the Archipelago Sea Biosphere Reserve has no specific role related to forestry planning. Although it organisationally belongs to the Regional Environment Centre of South-West Finland, it has no regulatory role concerning, for example, forestry or other land-use planning. It is more involved in research projects and initiating cooperation between different agencies.

The Regional Forestry Centre responsible for the Archipelago Sea area is located in Parainen and is preparing forest management plans for 10 years for private forests. The plans have a guiding character. Participation of forest owners is allowed but does not often take place in forest management planning. According to forest planners this is mainly due to the lack of personnel. Forestry planners, however, emphasise the need for face-to-face discussions, because the management plans alone do not guide the decision making of forest owners.

Demands for more public participation have been expressed mainly by forest owners concerning the designation of protected areas. Obviously informing and consulting forest owners has been insufficient in designating new protected areas. This has created great suspicion towards the nature protection administration.

Cooperation with other sectors was considered as inadequate by most interviewed persons. Especially cooperation between nature protection authorities and forestry professionals has been insufficient. According to the new forest law, the forest districts shall make a strategic forest plan (so-called "tavoiteohjelma"). The plan should be made by the forest district in cooperation with nature protection and other sectoral agencies and interest groups. Because the law was amended only recently and there have in addition been major organisational changes, the methods of cooperation have not evolved yet.

There have been several development programmes which to some extent have taken forestry issues into consideration. The overall tenor has been to promote local wood-processing industry and handcrafting. Also within strategic development planning participation and cooperation procedures are still undeveloped.

7 Conclusions

Biosphere reserves are intended to become model regions for sustainable resources use. Often the biosphere reserve concept is, however, perceived as too abstract and its promotive role as very limited. Within the forestry sector this model character could be demonstrated in an exemplary way. Using local wood resources for local purposes (construction, energy, handcraft, etc.) requires new ways of cooperation between various actors. First steps have been taken in all three biosphere reserves.

Nature protection and forestry often include conflict potential. On Rügen and on Hiiumaa close cooperation takes place between the forestry administration and the biosphere reserves' administration, so that an agreement on the use and protection of forest resources has in most cases been found. In contrast to other sectors, like construction activities and traffic, the conflicts have been small.

Forest management in the case study areas can be characterised as 'sectoral management', or using the typology of Olsen et al. (1997) as 'enhanced sectoral management'. A more integrated management approach would systematically address the use of natural resources and link these closely to regional development efforts. The advisory committees of the biosphere reserves (currently existing on Rügen and in the Archipelago Sea area) could serve as a launching pad for such efforts.

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Starting workshop of the "Nordic research programme on social sustainability of forestry"

30-31 January 1997, Helsinki

Presentations

- **Social sustainability: a forgotten good, an unavoidable bad or the ultimate criterion?** *Olli Saastamoinen, University of Joensuu, Finland.*
- **Social sustainability of forestry; theoretical framework.** *Marjatta Hytönen, Finnish Forest Research Institute/University of Helsinki.*
- **Social sustainability of forestry in the cooperation between Nordic and Baltic countries and NW Russia.** *Pekka Alhojärvi, Ministry of Agriculture and Forestry, Finland.*
- **Methods for managing recreational conflicts in wilderness areas.** *Liisa Kajala, Finnish Forest and Park Service/University of Joensuu.*
- **Public participation in state forest planning.** *Teppo Loikkanen, Community of Enontekiö/University of Joensuu, Finland.*
- **Socio-economic indicators of sustainable forestry.** *Tove Boon, Royal Veterinary and Agricultural University, Denmark.*
- **The influence of NGOs on European forest policy and management.** *Peter Egestad, Institute of Forest Economics, University of Freiburg, Germany/Royal Veterinary and Agricultural University, Denmark.*
- **Science, a rational and objective foundation for natural resource management? An analysis of the role of forest research in the process of decision making and management of forest ecosystems.** *Christian Gamborg, Danish Forest and Landscape Research Institute.*
- **International comparison of environmental forest conflicts.** *Eeva Hellström, Finnish Forest Association/University of Helsinki.*
- **Geneology of environmental valuations: hundred years of forestry in SW Finland.** *Juha Hiedanpää, Satakunta Environmental Research Centre, Finland/University of Helsinki.*
- **Changing environmental consciousness, biodiversity, and the debate on eastern Finnish and NW Russian forests.** *Juha Kotilainen, University of Joensuu, Karelian Institute, Finland.*
- **Joint environmental policy making in Finland.** *Rauno Sairinen, Helsinki University of Technology, Centre for Urban and Regional Studies/ University of Helsinki.*

- **The interaction between forest industry and society in the 20th century: the environmental aspect.** *Sakari Virtanen, University of Oulu, Research and Development Centre of Kajaani, Finland.*
- **Attitudes and management culture in environmental bureaucracy.** *Jørund Aasetre, University of Trondheim, Center for Environment and Development, Norway.*
- **Environmental problems and policies in forestry in Norway.** *Berit Aasen, Norwegian Institute of Urban and Regional Research (NIBR).*
- **Environmental objectives in forestry: interaction and cooperation between forest owners and public administrators.** *Marie Appelstrand, Lund University, Institute of Sociology of Law, Sweden.*
- **The trade-off between development and conservation: a study of land-use conflicts in areas close to Swedish urban centres.** *Roger Berggren, Umeå University, Department of Political Science, Sweden.*
- **Social aspects of forestry in Russia.** *Elena Kopylova, Finnish Forest Research Institute/University of Helsinki.*
- **Urban forestry in Europe: comparative research.** *Cecil Konijnendijk, European Forest Institute/Wageningen Agricultural University, The Netherlands .*
- **An assessment of forest and forest products certification initiatives worldwide.** *Ashley Parasram, European Forest Institute.*

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Nordic-Baltic workshop on social sustainability of forestry

10-12 September 1997, Kärdla, Estonia

Presentations

- **Challenges set by the new Estonian forest policy for social forestry research.** *Erik Kosenkranius, Estonian State Forest Department.*
- **Forestry Agenda 21 for the Baltic countries.** *Marius Lazdinis, Ministry of Agriculture and Forestry/Lithuanian Agricultural University.*
- **Social sustainability of forestry and regional development.** *Henn Tuherm, Latvian University of Agriculture.*
- **Role of biosphere reserves in regional development with special reference to forestry and social sustainability.** *Ilkka Eisto, University of Joensuu, Karelian Institute, Finland.*
- **Biosphere reserves and planning practice with special reference to forestry.** *Martin Welp, Technische Universität Berlin, Institut für Management in der Umweltplanung/Academy of Finland.*
- **Local participation in the West-Estonian Archipelago Biosphere Reserve.** *Ruuben Post, West-Estonian Archipelago Biosphere Reserve.*
- **Role of recreation in social sustainability.** *Tuija Sievänen, Finnish Forest Research Institute.*
- **Role of forest-based tourism in rural development.** *Mirja Turunen, Rural Tourism Working Group of the Finnish Rural Policy Committee/ University of Joensuu.*
- **Public participation in forest management: a Nordic research project, with special emphasis on public participation research in Iceland.** *Karl Gunnarsson, Iceland Forest Research Station.*
- **Planning as learning: a new paradigm for implementing sustainable forestry.** *Jukka Tikkanen, Oulu Polytechnic/University of Joensuu, Finland.*
- **The Russian Karelian forestry settlement Matrossy and Taiga Model Forest -project.** *Katri Karkinen, University of Joensuu, Karelian Institute, Finland.*
- **Public participation in community development with special reference to eco-tourism.** *Päivi Piispa, Uusimaa Regional Council, Finland.*
- **The role of professional foresters in promoting sustainable forestry: situation in Latvian state forest sector.** *Ilva Konstantinova, Latvian*

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- **The role of forestry in the economy of Lithuania.** *Algis Gaizutis, University of Vilnius, Faculty of Economics, Lithuania.*
- **How human impact is reflected in the forest dynamics.** *Kalev Jõgiste, Estonian Agricultural University, Faculty of Forestry.*
- **Natural forests of Latvia: a study of forest history and biodiversity.** *Uvis Susko, Nature Museum of Latvia/WWF Latvia.*
- **Development of forest-conservation area network in Estonia: historical background, biodiversity of Estonian forests and choice of conservation areas.** *Henn Korjus and Kaili Viilma, Estonian Agricultural University, Faculty of Forestry.*
- **Methodology for data collection on non-timber forest products.** *Celeste Lacuna-Richman, University of Joensuu, Faculty of Forestry, Finland.*
- **Private forest ownership in Finland and in Estonia: comparative analysis.** *Heimo Karppinen, Finnish Forest Research Institute.*
- **Sustainability from the point of view of Swedish private forest owners.** *Gunnar Isacsson, County Forestry Board Södra Götaland, Sweden.*
- **Private forest ownership in Lithuania.** *Diana Mizaraite, Lithuanian Forest Research Institute.*
- **Private forestry as an employment guarantee in country-side Latvia.** *Ilze Silamikele, Latvian University of Agriculture, Department of Forest Inventory.*
- **Sustainability and private forestry in Latvia.** *Lelde Vilkriste, Latvian Forestry Research Institute "Silava".*

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The proceedings contain articles on the social and political forestry challenges of the 1990s in the Nordic and Baltic countries and in Russia. The topics include collaborative planning procedures, employment issues, tourism and recreation, private forest ownership and ethical considerations. A special theme is the role of Biosphere Reserves in promoting sustainable rural development. The articles are written by post-graduate students, senior researchers and practical professionals working in various forest-related positions in the countries around the Baltic Sea.

ISBN 951-40-1646-7
ISSN 0358-4283
Hakapaino 1998