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MICHAEL JONES AND DAVID COPE

ECONOMICS RESEARCH IN THE FINNISH
FOREST RESEARCH INSTITUTE, 1969-1974



RUOTSINKYLÄ RESEARCH STATION

Artist: J. Anthony Knipe

PREFACE

The head of a research department consisting of some 20 researchers as well as supplementary office staff has a very limited amount of time outside his administrative duties for his own research. There are two possible ways in which he may approach the task. He may have several research projects of his own and with a number of younger researchers doing the practical part of the work. This centralized approach limits the possibilities for the younger researchers to do independent research work or to pursue their own studies. The alternative method is for the head of the department to lead and co-ordinate the work of the staff, who are able to undertake their own research under his supervision and able to pursue their post-graduate studies. The latter approach allows for greater creativity, although the effectiveness of such a decentralized organization depends on efficient co-ordination and highly talented young scientists. In practice, of course, the two approaches are the opposite ends of a spectrum, and there are various intermediate possibilities combining a mixture of the two.

The research projects outlined in this booklet tend towards realization of the second model. An important aspect of this is that only 20 per cent of the applicants for forestry studies at the University of Helsinki are accepted each year. Thus, the selected graduates of each course who join the Forest Economics Department of the Finnish Forest Research Institute have a good basis for succeeding in research work and are well qualified for further studies. Therefore, most of them are encouraged to pursue a doctorate with one subject in forestry and others in the faculties of political science or philosophy. Additionally, they are required to develop a good command of a major language, preferably English, but also Russian or German.

The research at present being undertaken in the Forest Economics Department includes both the traditional duties

and newer activities. The booklet attempts to present a concise and comprehensive outline of the research and other activities carried on in the department in the last year and of the plans for the next two years or so, as well as short biographical notes on the research personnel currently working there. The aim of the booklet is to provide information for people both in Finland and outside on the range and scope of current research in forest economics at the Finnish Forest Research Institute. I hope that it will be of use not only for those whose interests are in forestry and economics, but also for those in other disciplines who have an interest in Finland.

In this way we wish above all to make personal contacts between people working in the same field of research.

It is also hoped that the idea of producing similar publications will be taken up by other institutions working in the field of forest economics in Scandinavia and other parts of the world. By this means the planning of research could be carried out with less wasteful duplication of effort. I look forward to an exchange of such information, which for practical reasons might best be made jointly for groups of institutions, e.g. for all institutions and persons dealing with forest economics in the whole of Scandinavia. In this way contacts between people of similar interests in different countries may be strengthened.

Any correspondence - comments, ideas, information requests, etc. - should be sent to this address:

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Forest Economics Department
Kaisaniemenkatu 1 A
Helsinki 10, Finland

It only remains for me to express my thanks to Michael Jones and David Cope for their work in compiling and writing this booklet.

Lauri Heikinheimo
June 1970

INTRODUCTION

Forest economics research in Finland is carried on at two main institutions, the Finnish Forest Research Institute and the Faculty of Agriculture and Forestry of the University of Helsinki. In the former case, the research is centralized in the Department of Forest Economics, while in the latter it is undertaken in three Departments: Depts. of Social Economics of Forestry, Business Economics of Forestry and Marketing of Forest Products. In addition, individual researchers from outside institutes or organizations may be associated with particular research projects.

The Finnish Forest Research Institute is a government research institute subordinated to the Ministry of Agriculture, and the Forest Economics Department is therefore dependent on the state budget for most of its funds. Research at the University Faculty is financed by various institutions, the most important being the National Research Council for Agriculture and Forestry. Emphasis tends to be placed at the University on theoretical and methodological research, while applied research, especially projects depending on longterm experiment, is undertaken at the Forest Research Institute, although the distinction between the two institutions is not rigid in this respect.

This booklet presents the economics research which was carried out at the Finnish Forest Research Institute, and in which the Director, who is also an economist, has participated. It is intended as part of a more comprehensive work to include at a later stage all other forest economics research undertaken in Finland, and, it is hoped, in the whole of Scandinavia.

The Finnish Forest Research Institute (Director, Professor Viljo Holopainen) is located in the centre of Helsinki. Research work is undertaken in 10 departments: Silviculture, Forest Inventory and Yield, Soil Science, Peatland Forestry, Forest Economics, Forest Technology, Forest Biology, Forest Zoology, Forest Genetics, and Mathematics. In addition there is an office in charge of forest experiment stations, a Nature Conservation Office and an Administrative unit. The Director and the heads of the departments and offices form the Governing Board of the Institute.

Each department is headed by a professor, who, besides carrying out research in his own field, is responsible for supervising the research undertaken in his department and editing and publishing the results.

Although the Institute has no teaching obligations, many of the professors and other researchers give instruction at the University of Helsinki.

A more comprehensive historical summary of the Institute is published in: *Communicationes Instituti Forestalis Fenniae* 65, 1967.

The Department of Forest Economics is staffed by employees consisting of two professors (The Head of Department and a Special Research Officer), 18 researchers, a departmental secretary and 15 persons of office staff.

The main objectives of the department are: to provide a continuous economic analysis of forestry and the forest industry in Finland; to measure and forecast the timber supply and demand as well as other needs of the forest industry; and to study the interactions between forestry, the forest industry and society. The research work of the department is carried out in four general fields: 1) studies of wood consumption, removals and resource trends (forest balance), 2) social economics of forestry; e.g. application of economics, social policy, sociology and economic geography to forestry and forest industry, 3) business economics of forestry; forestry as (a part of) an enterprise and 4) studies of forest and forest industry products marketing; e.g. timber trends.

Historical summary

- 1917 Senate decree founding Forestry Experimental Institute.
- 1918 Forestry Experimental Institute began activities. Originally 3 departments: Silviculture, Forest Mensuration and Soil Science.
- 1927 Professor Eino Saari began first comprehensive wood utilization enquiry for Finland.
- 1928 Forestry Experimental Institute became Forest Research Institute. Department of Forest Economics founded (followed by other departments). Professor Yrjö Ilvessalo became acting Head of Department. Pre-war research carried on in the Department included: wood utilization and removal studies; development of methods of measurement of wood products, bark proportions and wastage in felling; and studies of firewood and fuel consumption. Further studies included: a survey of the economics of small-farm forestry in Finland, and compilation of statistics on forest ownership; investigations into forest taxation; study of world forest resources and international trade in wood products; and a study of the internal market for products of the wood-working industries.

- 1930 Forest Research Institute, previously subordinate to State Forest Service, transferred to direct control of Ministry of Agriculture.
- 1938 Professor N A Osara became Head of Department of Forest Economics.
Commencement of the second study of wood utilization and removal in Finland. Research in the following years included: studies of the relationship between wood use and silviculture on farm-forests; investigations into Finnish pasture conditions and fence construction; fuel studies; studies concerning in the size structure of farms and forest-ownership; and studies of timber transport.
- 1939 Forest Research Institute moved to new premises in Metsätalo (The Forestry Building)
- 1940 - 45 Disruption of work by wartime
- 1950 Professor Viljo Pöntynen became Head of Department of Forest Economics (acting from 1948).
Studies continued in the fields of wood utilization and removal; research was undertaken into fuel use, waste-wood in sawmilling and floating losses; and investigations were made into stumpage prices and forest taxation.
- 1963 Professor Lauri Heikinheimo appointed Head of

Department (acting from 1961).

Research continued along its former lines with the gradual extension of studies into the fields of forest balance; social economics, with investigations into prices, labour productivity and earnings; sociology, with studies of attitudes of private forest owners; micro-economic studies such as profitability of planting and fertilization; and marketing, for example, competition between plastics and wood, methods of forecasting, and Finland's forestry and forest industry in the world economy.

- 1968 Removal of Department of Forest Economics to Kaisaniemenkatu 1 A, Helsinki 10.

A long-term plan for 1967 - 1974 has been drawn up for the budgeting and organization of the Institute. The work of the Economics Department, until recently has emphasized studies of wood utilization and forest balance, but by 1974 this situation will have changed markedly. The continuous studies of wood consumption and cutting quantity, waste wood, total drain and forest balance will constitute the main part of the work in one section. In the other three sections - social economics of forestry, business economics of forestry and marketing of forest products - the projects will increase both in number and

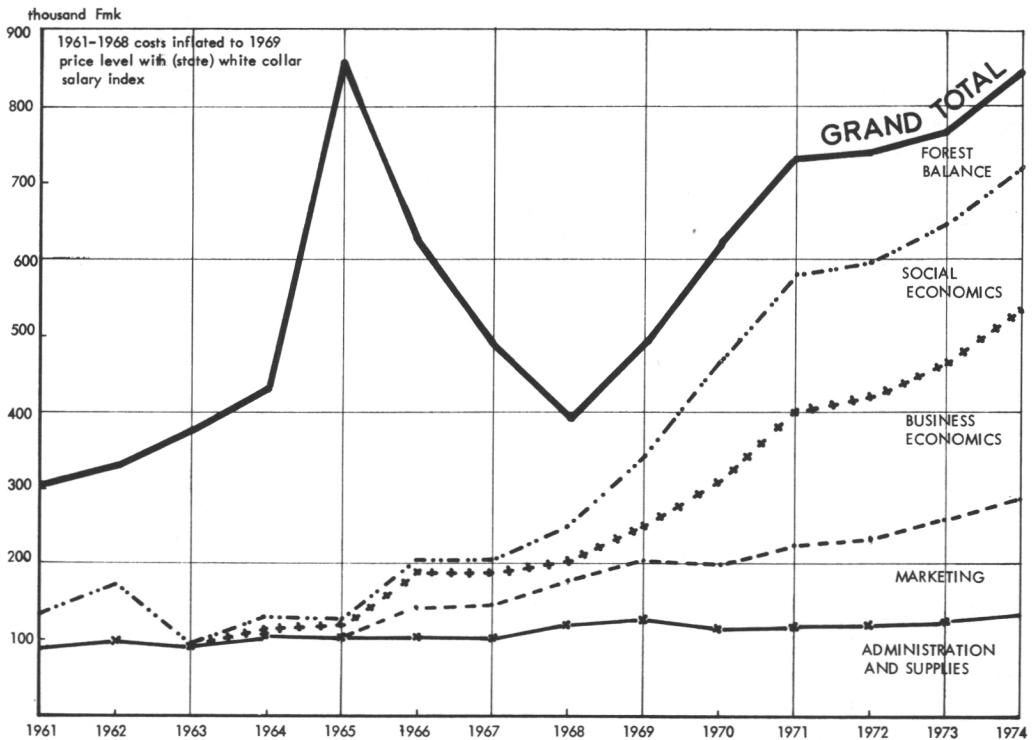


Fig. 1. State budget funds of the Forest Economics Department. Actual costs for 1961-69, budget for 1970 and projected costs 1971-74.

size. Thus, it is hoped, a better coverage of the whole economics sector of the forestry and forest industry research will be achieved.

The budgetary breakdown (only State funds) for the planning period is presented in Figure 1. The projects to 1974 include the following additions to departmental personnel: a professorship in business economics should be established by 1971; another officer for special research should be added in 1972 - 73 two additional senior research positions in 1972 - 73 and several new research assistantships by 1974 are planned to be established.

Financial support towards the current research programme of the department, in addition to the normal state grant for the departmental budget, has in 1969 and 1970 been received from the following organizations: Forestry Work Pension Fund (Project 2.04), State Board of Forestry, Finnish Woodworking Industry Employers' Association, Finnish Foresters' Association, Forest Technicians' Association and Forest Foremen's Association (Project 2.06), National Research Council for Agriculture and Forestry (Projects 2.07, 2.13, 3.01 and 3.02), Central Association of Finnish Woodworking Industries (Project 2.08), Forest Economics Institute of the Royal College of Forestry in Sweden (Stockholm) and Forest Economics Institute of the Norwegian College of Agriculture (Vollebekk) (Projects 3.03 and 3.09), Kellogg Foundation (Fellowship for 1 year to Dr. Matti Palo for study at the University of California, Berkeley) (Projects 3.06 and 4.09), National Resource Research Foundation (To Aarne Reunala for Project 2.13).

On behalf of the Institute we wish to thank all these Institutions for the support given.

RESEARCH PROJECTS

The research projects in economics started since 1962 are presented in four groups as mentioned above. Each project is reviewed by giving the number and work-title of the study, the research personnel working on it in 1969 - 72, the year of commencement and the planned year of completion, a brief account of the content and of the methods used and finally a list of the publications connected with the project. (For abbreviations used for publication series, see 4. Bibliography).

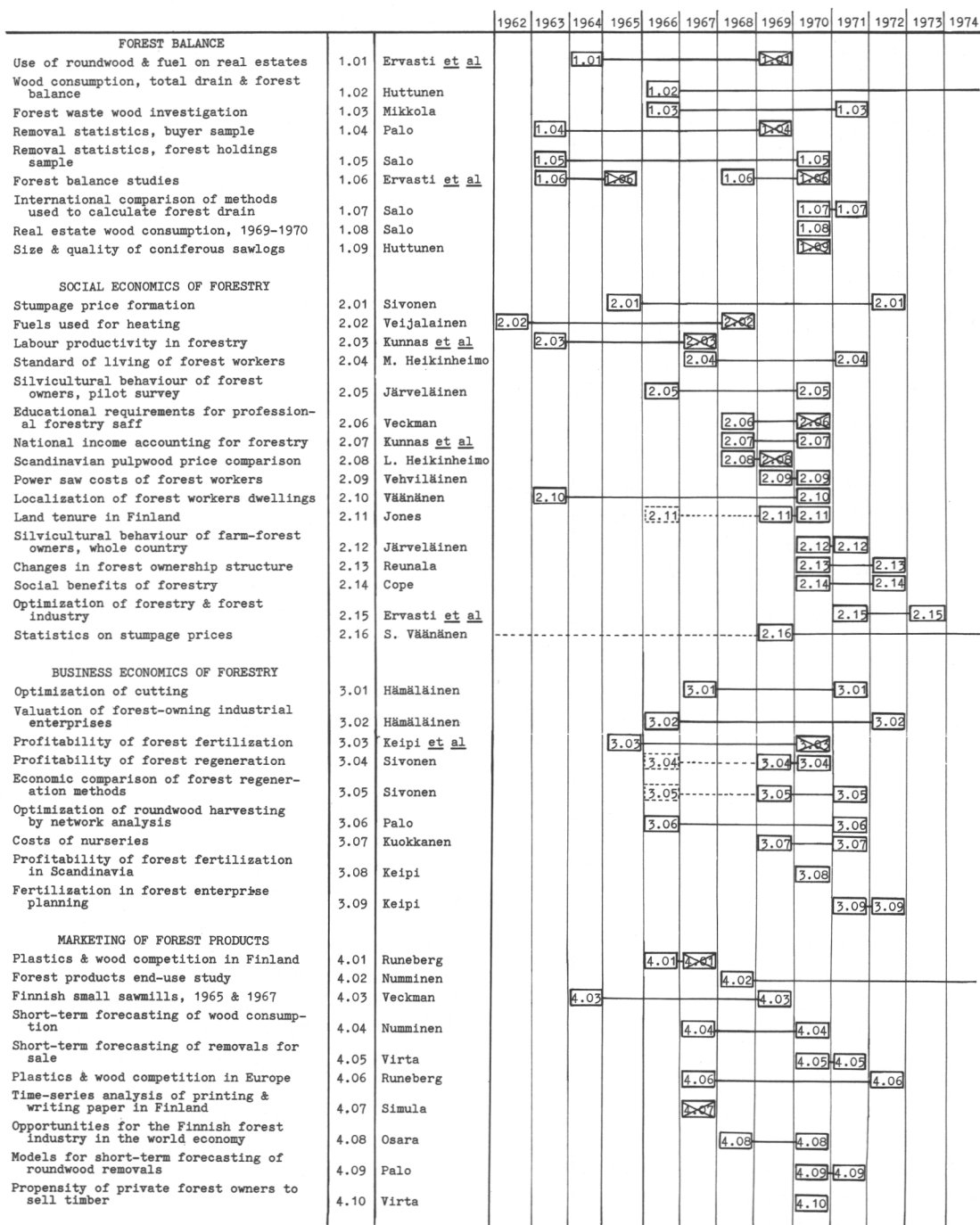
For projects in the current research programme of the department which were completed before this booklet went into print, the main publications presenting the results are given.

The projects to be started in 1971 are presented according to the suggested budget for that year.

A few projects planned to start in 1972 are given as a hint of the direction of the interests of the staff. We hope to develop more team work and also more international co-operation. As can be seen from Fig. 2, most of the projects operating in 1970 will be concluded in favour of a number of new projects for which we hope to get ideas partly by means of this booklet. The projects are listed below.

- 0. Project of the Director
- 0.01 Finnish forest policy in the 1970s
- 1. Forest balance
- 1.01 Use of roundwood and fuel on real estates 1964 - 1966
- 1.02 Wood consumption, total drain and forest balance in Finland 1964 - 1970
- 1.03 Investigation of forest waste wood
- 1.04 Removal statistics based on a sample of buyers
- 1.05 Removal statistics based on a sample of forests holdings
- 1.06 Forest balance studies
- 1.07 International comparison of methods used to calculate forest drain
- 1.08 Wood consumption on real estates, 1969 - 1970
- 1.09 Size and quality of coniferous sawlogs
- 2. Social economics of forestry
- 2.01 Stumpage price formation
- 2.02 Fuels used for heating
- 2.03 Labour productivity in forestry
- 2.04 Standard of living of forest workers
- 2.05 Silvicultural behaviour of forest owners, pilot survey
- 2.06 Educational requirements for professional forestry staff
- 2.07 National income accounting for forestry
- 2.08 Comparison of pulpwood prices in Scandinavia
- 2.09 Power saw costs of forest workers
- 2.10 Localization of forest workers dwellings
- 2.11 Land tenure in Finland
- 2.12 The silvicultural behaviour of farm-forest owners, whole country
- 2.13 Changes in forest ownership structure
- 2.14 Social benefits of forestry in Scandinavia
- 2.15 Optimization of the forestry and forest industry in Finland
- 2.16 Statistics on stumpage prices

Fig.2. Research projects begun since 1962 in the Forest Economics Department.



3. Business economics of forestry

- 3.01 Optimization of cutting
- 3.02 Valuation of forest-owning industrial enterprises
- 3.03 Calculations concerning the profitability of forest fertilization
- 3.04 Profitability of forest regeneration
- 3.05 Economic comparisons of alternative forest regeneration methods
- 3.06 Optimization of roundwood harvesting by network analysis
- 3.07 Costs of nurseries
- 3.08 Forest fertilization profitability calculations in Scandinavia
- 3.09 Fertilization in forest enterprise planning

4. Marketing of forest and forest industry products

- 4.01 Plastics and wood competition in Finland
- 4.02 Forest products end-use study
- 4.03 Finnish small sawmills in 1965 and 1967
- 4.04 Short-term forecasting of wood consumption
- 4.05 Short-term forecasting of removals for sale
- 4.06 Competition between plastics and wood in Europe
- 4.07 Time-series analysis of printing and writing paper in Finland
- 4.08 Opportunities for forestry and the forest industries in Finland seen against the world economy
- 4.09 Models for short-term forecasting of roundwood removals
- 4.10 Propensity of private forest owners to sell timber

0. Project of the Director

Project no. 0.01

Project title: Finnish forest policy in the 1970's

Personnel: Viljo Holopainen

Date of commencement: 1969

Date of completion: 1970

The study is an attempt to discover politico-economic means of increasing wood production in private forests. A brief review of the present forest policy in Finland and the other Scandinavian countries is included.

Particular attention is paid to the financing of forest improvements and to the "correct" regional distribution of state subsidies.

Publications:

Holopainen, Viljo. 60-luvun metsäpolitiikka. (The forest policy of the 1960's in Finland). Porvoo, 1967.

1. Forest balance

Project no. 1.01

Project title: Use of roundwood and fuel on real estates, 1964 - 66.

Personnel: Seppo Ervasti, Esko Salo, Risto Seppälä

Date of commencement: 1964

Date of completion: 1969

The project was an investigation into the use of roundwood and fuel on real estates, comprising all roundwood and fuel used in buildings and property except for raw material and fuel used in manufacturing industries. This information is necessary for the determination of forest balance.

The study involved two-stage sampling: 5000 real estates or buildings were picked from a series of sample communes. Data was collected by retrospective inquiry (covering 1964) and book-keeping (1965). Data collection and the calculation of results was undertaken separately for rural communes and for towns and urban districts.

Publications:

Ervasti, Seppo, Esko Salo & Pekka Tiililä. Kiinteistöjen raakapuun käytön tutkimus vuosina 1964 - 66. Summary: Real estates raw wood utilisation survey in Finland in 1964 - 66. FF, 29. Helsinki, 1967.

Ervasti, Seppo & Esko Salo. Kiinteistöillä lämmön kehittämiseen käytetyt polttoaineet v. 1965. Summary: Fuels used by real estates for the generation of heat in 1965. FF, 33. Helsinki, 1967.

Heikinheimo, Matti & Heikki Veijalainen. Kiinteistöjen polttoainevarastot talvella 1965/66. Summary: Fuel stocks of real estates in Finland in winter 1965/66. FF, 37. Helsinki, 1967.

Sainio, Jorma & Pentti Sorrola. Eri polttoaineet teollisuuden lämmön ja voiman sekä kiinteistöjen lämmön kehittämisessä vuonna 1965. Summary: Different fuels in the generation of industrial heat and power and in the generation of heat by real estates in 1965. FF, 40. Helsinki, 1968.

Peltomäki, Tarmo & Heikki Veijalainen. Kiinteistöjen käyttämän lämpöenergian ominaiskulutus. Summary: Specific consumption of thermal energy utilized by real estates. FF, 48. Helsinki, 1968.

Ervasti, Seppo, Esko Salo, Risto Seppälä & Pekka Tiililä.

Survey of the utilization of roundwood and fuel on real estates in Finland. Methods and results for 1964 - 66 and plan for 1970. CIFF, 68:6. Helsinki, 1969.

Project no. 1.02

Project title: Wood consumption, total drain and forest balance in Finland (annual from 1964)

Personnel: Terho Huttunen

Date of commencement: 1966

Date of completion: continuous project

The compilation of annual statistics of roundwood consumption in Finland is one of the tasks assigned to the department. Roundwood refers to timber from forests, felled green, prior to any primary use. These statistics form the basis for calculations of total drain and forest balance.

The statistics are collected from four groups of users: industry, real estates, export and other. Use by industry and exports of roundwood are computed on the basis of the official Industrial and Customs Statistics, while real estate and other uses are determined by separate studies.

The total drain is obtained by adding cutting, clearing and similar waste, floating losses (all calculated by separate studies) and estimated natural losses to the total consumption of domestic roundwood. The forest balance is calculated by comparing the total drain with allowable cut.

The statistics are published annually in the Folia Forestalia series.

Publications:

Ervasti, Seppo & Terho Huttunen. Suomen puunkäyttö vuonna 1964 ja vuoden 1965 ennakkotiedot. Summary: Wood utilization in Finland in 1964 and preliminary data for the year 1965. FF, 25. Helsinki, 1966.

Ervasti, Seppo & Terho Huttunen. Suomen puunkäyttö vuonna 1965 ja ennakkotietoja vuodelta 1967 ja ennuste vuodelle 1968. Summary: Wood utilization in Finland in 1966, preliminary data for 1967 and forecast for 1968. FF, 46. Helsinki, 1968.

Huttunen, Terho. Suomen puunkäyttöä, poistuma ja metsätase vuosina 1967 - 69. Summary: Wood consumption, total drain and forest balance in Finland in 1967 - 69. FF, 67. Helsinki, 1969.

Project no. 1.03

Project title: Investigation of forest waste wood

Personnel: Pertti Mikkola

Date of commencement: 1966

Planned date of completion: 1971

The purpose of the study is to determine the percentage of forest waste wood in the total cut for various tree species in the different Forestry Board Districts of Finland.

The study uses the same sample-plot system as in the National Forest Inventory. Measurements are made of stumps and of cutting losses from trees felled in the previous 12 months. At the end of 1969, measurements had been completed in 14 Forestry Board Districts in southern Finland. The two remaining northern Forestry Board Districts will be measured in 1971.

Results so far show that the proportion of waste wood is in all districts and for all tree species higher than previously thought, due mainly to the high proportion of small-tree waste wood which results from clearing and the tending of seedling stands.

Publications:

Mikkola, Pertti. Metsähukkapuun osuus hakkuupoistumasta Etelä-Suomessa. Summary: Proportion of waste-wood in the total cut in southern Finland. FF, 74. Helsinki, 1969.

Project no.1.04

Project title: Removal statistics based on a sample of buyers

Personnel: Matti Palo

Date of commencement: 1963

Date of completion: 1969

The purpose of the study was to develop methods of providing statistical data on roundwood removal at minimum expense but with sufficient accuracy to provide a base for practical and scientific decisions. Buyers included all firms, individuals, co-operatives, state organizations, and others buying roundwood or marked stands directly from the forest owner. The data is useful for regional total drain/allowable cut comparisons, for national income calculations in national accounting, for labour demand forecasts in planning relief work and the national budget, and for general regional and specific traffic-channel planning.

The data was collected from a buyer sample mainly by mail enquiry. The work also required two preliminary studies to establish effective observation and statistical methods.

Stratified random sampling using optimum allocation was applied. The population of buyers was stratified first regionally and then by quantity bought within sub-regions. The experiments indicated that the precision of the removal statistics can be further improved by the application of regression estimation, by using partial replacement of samples and by systematic sampling, without enlarging the size of the sample. As a result of this study, the continuous sample estimates on roundwood removals for sale now collected both monthly and annually are now based on the method that was developed.

The study was published as a doctoral thesis.

Publications:

Palo, Matti. Markkinapuun alueittaiset hankintamäärät v. 1962. Ennakkoselostus. Summary: Removals of commercial roundwood in Finland by district in 1962. Preliminary report. FF, 2. Helsinki, 1964.

" Markkinahakkuumääräin kausitilastointikokeilu 1.7. - 30.9.1964. Ennakkotulokset. Summary: An experiment on seasonal statistics of commercial roundwood in Finland July - September 1964. Preliminary results. FF, 7. Helsinki, 1964.

" Ostajaotantaan perustuva hakkuutilasto. Summary: Removal statistics based on a sample of buyers. CIFF, 68:1. Helsinki, 1969.

Project no. 1.05

Project title: Removal statistics based on a sample of forest holdings

Personnel: Esko Solo

Date of commencement: 1963

Planned date of completion: 1970

The study investigates the possibilities of calculating forest drain by a sample of forest holdings. Up to the present forest drain calculations have been made on the basis of wood consumption. More accurate figures should be obtained if the drain is calculated at the felling place.

A sample of 650 forest holdings was taken from Vaasa and Etelä-Pohjanmaa Forestry Board Districts. The sample was taken so that calculations could be made in two ways: on the basis of stratified random sampling or on the basis of a two-stage sampling method. The owners of these holdings were interviewed to find out the amount of wood felled in the felling year 1962/63.

The calculations have indicated that, using this method

with a reasonable sample, it is possible to estimate the drain with a known accuracy. It was further found that the two-stage method has no real advantage over the stratified random sample.

The study is planned to be published as a doctoral thesis.

Project no. 1.06

Project title: Forest balance studies

Personnel: Seppo Ervasti, Lauri Heikinheimo, Kullervo Kuusela

Date of commencement: 1968

Planned date of completion: 1970

The most recent of a series of projects investigating Finland's future forest balance was completed at the end of 1969 and concerns Finland's forestry and forest industry from 1970 to 2015. Much of the work is done in conjunction with the comprehensive economic planning and projections of the Economic Research Centre.

The forestry and forest-industry sector of the Finnish economy is of prime importance for economic growth and development. Consequently it is essential that the present situation and future possibilities be examined as thoroughly as possible. The project attempts to provide this information through a comprehensive review of the status of and trends in the country's wood consumption, total drain and forest balance, a detailed examination of industrial capacity and expansion plans, and consideration of the world market for wood products and the position of Finnish exports. Using these investigations as a base, alternative forecasts for industrial expansion and increased forest production can be prepared and the requisite investments examined in the light of the resources available for their implementation and their expected general effects on the country's economic growth and development.

Publications:

Ervasti, Seppo, Lauri Heikinheimo, Viljo Holopainen, Kullervo Kuusela & Gustaf Sirén. The development of Finland's forests in 1964 - 2000. SF, 117:2. Helsinki, 1966.

Ervasti, Seppo & Kullervo Kuusela. Suomen metsätase vuosina 1953 - 66. Summary: Forest balance of Finland in 1953 - 66. FF, 49. Helsinki, 1968.

" Reliability comparisons of growing stock, income and drain estimates in Finland in 1953 - 1966. CIFF, 68:3. Helsinki, 1969.

Ervasti, Seppo, Lauri Heikinheimo, Kullervo Kuusela & Veikko Mäkinen. Suomen metsä- ja puutalouden tuotantomahdollisuudet vuosina 1970 - 2015 (Finnish forest and wood industry production forecasts, 1970 - 2015.) Talousneuvosto.

Mimeographed. Helsinki, 1969.

" Forestry and forest industry production alternatives in Finland, 1970 - 2015. FF, 88. Helsinki, 1970.

Heikinheimo, Lauri. Finland's forestry and forest industry up to 2000. Bank of Finland Monthly Bulletin, 43:9. Helsinki, 1969.

Teollisuusneuvottelukunnan Metsätasetoimikunta. Pohjois-Suomen metsätase vuoteen 2000. (Northern Finland's forest balance to 2000). Mimeographed. Helsinki, 1968.

Project no. 1.07

Project title: International comparison of methods used to calculate forest drain

Personnel: Esko Salo

Date of commencement: 1970

Planned date of completion: 1971

A comparative study is planned of methods used to calculate forest drain in a number of European countries. The object is to assess the relative work requirements of different methods and to compare the accuracy of the estimations. A proposal concerning the study has been made to FAO, by which forest-drain statistics and information on the various methods provided by FAO would be used.

Project no. 1.08

Project title: Wood consumption on real estates, 1969 - 1970

Personnel: Esko Salo, Risto Seppälä, Pertti Mikkola

Date of commencement: 1970

Planned date of completion: 1970

An examination will be made of the roundwood consumption on real estates, excluding farms, in rural districts. Since the normal interval of ten years between surveys of wood utilization on real estates is too long to guarantee, by extrapolation, sufficiently accurate results for the intervening years, the study will make an intermediate survey covering the felling year 1969 - 1970. The study is aimed at improving current knowledge of forest drain

in Finland.

The survey will be made by interviewing a sample of about 900 real-estate owners taken from the sample population of the 1964 - 66 real-estate survey (Project 1.01), which was based on the real-estate census of 1960. Use of roundwood in buildings constructed in the period 1961 - 68 can be estimated by multiplying the unit use per cubic volume (from the 1964 - 66 survey) by total unit volume of the new buildings.

A similar survey for farms will be made by the Board of Agriculture for the year 1969 - 1970 on some 25 000 sample farms.

Project no. 1.09

Project title: Size and quality of coniferous sawlogs

Personnel: Terho Huttunen

Date of commencement: 1970

Planned date of completion: 1970

The project is planned as a successor to the study of the size and quality of coniferous sawlogs in western Finland in 1966, carried out in 1967 - 68. The aim is to find out how much coniferous timber below normal Finnish size and quality requirements was sawn in 1968.

The study will be based on a sample of sawmills from the whole of Finland. Data will be collected by personal interviews with sawmill managers.

Earlier publications:

Huttunen, Terho. Länsi-Suomen havusahatukkien koko ja laatu vuonna 1966. Summary: The size and quality of coniferous sawlogs in western Finland in 1966. FF, 56. Helsinki, 1969.

2. Social economics of forestry

Project no. 2.01

Project title: Stumpage price formation

Personnel: Sampsa Sivonen

Date of commencement: 1965

Planned date of completion: 1972

The study attempts to build a dynamic macro-economic model for stumpage price formation and to undertake empirical testing of this model. Methods include the analysis of demand and supply factors in timber markets on the basis of which demand, supply and price functions can be constructed and tested.

The results can be used in the forecasting of wood

prices and the demand for forest labour. They may also serve as a guide in price negotiations between wood buyers and sellers.

Publications:

- Sivonen, Sampsa. Machine costs in logging with power saw in Finland in 1951 - 1963. Selostus: Konekustannukset hakkuutyössä moottorisahalla v. 1951 - 1963. CIFF, 59:4. Helsinki, 1965.
- " Sahapuun kantohinnan riippuvuus sahatavaran vientihinnasta sahatelollisuuden kustannusrakenteen valossa. (Sawlog prices in relation to sawn wood export prices on the basis of the cost structure of the sawmill industry). Metsätaloudellinen Aikakauslehti, 82:11. Helsinki, 1965.
- Sivonen, Sampsa & Matti Uusitalo. Puun kasvatuksen kulut hakkuuvuonna 1965/66. Summary: Expenses of timber production in Finland in the cutting season 1965/66. FF, 26. Helsinki, 1966.
- Heikinheimo, Lauri. Kantorahamalli I. Summary: A stumpage value model I. Metsätaloudellinen Aikakauslehti, 83:12. Helsinki, 1966.
- Heikinheimo, Lauri, Kullervo Kuusela & Sampsa Sivonen. Metsätalouden hinta-, kustannus- ja kannattavuusarvio. (Estimation of forest industry price, costs and profitability). Suomen Pankin Taloustieteellisen Tutkimuslaitoksen Julkaisuja, C/5. Helsinki, 1967.
- Heikinheimo, Lauri & Sampsa Sivonen. Kantohinnat. (Stumpage prices). Insinöörijärjestöjen Koulutuskeskus, Julkaisu, no. 12. Helsinki, 1968.

Project no. 2.02

Project title: Fuels used for heating

Personnel: Tarmo Peltomäki, Heikki Veijalainen

Date of commencement: 1962

Date completed: 1968

Publication:

- Peltomäki, Tarmo & Heikki Veijalainen. Kiinteistöjen käyttämän lämpöenergian ominaiskulutus. Summary: Specific consumption of thermal energy utilized by real estates. FF, 48. Helsinki, 1968.

Project no. 2.03

Project title: Labour productivity in forestry

Personnel: Heikki Kunnas, Lauri Heikinheimo

Date of commencement: 1963

Date completed: 1967

Publications:

- Heikinheimo, Lauri. Productivity of labour in forestry. Proceedings of the 13th Congress of IUFRO, II:2. Wien, 1962.
- Kunnas, Heikki. Työllisyyden riippuvuus tuotannosta metsätaloudessa 1950-luvulla. Summary: The dependence of employment upon production in Finnish forestry. "Kokonaistaloudellisia ongelmia", Kansantaloudellisia Tutkimuksia, 25. Helsinki, 1964.
- Heikinheimo, Lauri. Metsätalouden tuottavuuden ja työllisyyden kehitysnesteita. (Trends of productivity and employment in forestry). Metsätaloudellinen Aikakauslehti, 84:3. Helsinki, 1967.
- Kunnas, Heikki. Productivity trends in Finland's forestry in 1948 - 1961. XIV. IUFRO-kongressi, VIII. München, 1967.
- Heikinheimo, Lauri & Heikki Kunnas. On the absolute level of productivity of wood harvesting for some Finnish pulp mills. XIV. IUFRO-kongressi, VIII. München, 1967.
- " Metsätalouden tuottavuus. (Productivity in forestry). Metsätaloudellinen Aikakauslehti, 84:11. Helsinki, 1967.

Project no. 2.04

Project title: Standard of living of forest workers

Personnel: Matti Heikinheimo, Aarne Reunala, Lauri Heikinheimo

Date of commencement: 1967

Planned date of completion: 1971

Using the United Nations' definitions, the study investigates the standard of living of Finland's forest workers employed in manual forest labour such as harvesting, hauling and silvicultural work. Statistical analysis is based on samples covering the whole country.

A detailed study of the health of forest workers has been made by a medical examination of a sample of 300 men. Income level is also being investigated and earnings compared with those in other occupation groups and in other countries (Norway, Sweden and the USSR).

The study will be useful for understanding the situation of forest workers when planning social policy.

Earlier publications:

Heikinheimo, Lauri. Metsätöyriemien ansiotasotaso. Ennakkot-

selostus. Summary: Level of earnings of forest workers in Finland. Preliminary report. FF, 1. Helsinki, 1963.

Järveläinen, Veli-Pekka & Veli Snellman. Suomen metsätyömiesten asumistaso v. 1950 ja v. 1963.

Summary: Level of housing of forest workers in Finland in 1950 and 1963. FF, 13. Helsinki, 1965.

Project no. 2.05

Project title: Silvicultural behaviour of forest owners

Personnel: Veli-Pekka Järveläinen

Date of commencement: 1966

Planned date of completion: 1970

The project is an exploratory study aimed at obtaining relevant information about the behaviour of forest owners, especially about their opinions, attitudes and actions in regard to silviculture. In particular, forest-policy makers need such information in order to know the effects of different kinds of policies.

The study is based on interviews carried out in summer, 1966, in the communes of Jämsä and Karstula. A total of 289 farm-forest owners of these communes were selected at random. Jämsä was considered representative of an economically and socially advanced rural commune on its way towards modernization, whereas Karstula was a typical rural community with an economic structure based on the traditional rural occupations of agriculture and forestry. The selection of these communes gives a possibility of exploring some effects of the changing social environment on forestry, in particular silvicultural behaviour.

Methods used in the study include multivariate procedures, especially factor analysis and multiple-regression analysis.

The study will be published as a doctoral thesis.

Publications:

Järveläinen, Veli-Pekka. Maatilametsänomistajan metsätaloudellinen asennoituminen. (Farm-forest owners' attitudes towards forestry.) Metsätaloudellinen Aikakauslehti, 82:11. Helsinki, 1965.

" Metsänomistajan tavoitteet. (The goals of forest owners.) Metsätaloudellinen Aikakauslehti, 85:3. Helsinki, 1968.

Järveläinen, Veli-Pekka & Totte Vadén. Ammattitietous ja sen leviäminen maatilametsätaloudessa.

Summary: Professional insight and its diffusion within farm forestry. SF, 2:4. Helsinki, 1968.

Järveläinen, Veli-Pekka. Metsähoitolliset mielipiteet ja

metsänhoitollinen toiminta maatilametsätaloudessa. Summary: Opinions about silviculture in farm forestry, and practical steps taken. SF, 3:3. Helsinki, 1969.

Project no. 2.06

Project title: Educational requirements for professional forestry staff

Personnel: Pertti Veckman

Date of commencement: 1968

Date of completion: 1970

The study attempts to provide estimates concerning demand for and supply of educated forestry personnel in Finland in the 1970's. This group consists of technically-trained and supervisory personnel, i.e., foresters, technicians, and foremen. The work has involved studying trends in the numbers of present personnel and students in university and forest-school courses to determine supply. Demand forecasts have been made on the basis of an enquiry sent to forestry and forest-industry employers.

Both quantitative and qualitative educational factors have been examined. Qualitative factors include such items as curriculum content and substitution between different educational groups and levels.

Publications:

Veckman, Pertti. Metsäalan toimihenkilöiden lähivuosien koulutustarve (The educational requirements of professional forestry staff in Finnish forestry in the near future). Metsä ja puu, n:o 9. Helsinki, 1969.

" Uuden yhteiskunnan metsäteknikkokoulutus (Training of forest technicians in modern society). Metsämies, n:o 9. Helsinki, 1969.

" Metsäalan toimihenkilöiden koulutustarve 1970-luvulla. Summary: Educational requirements of professional forestry staff in the 1970's. FF, 86. Helsinki, 1970.

Project no. 2.07

Project title: National income accounting for forestry

Personnel: Heikki Kunnas, Lauri Heikinheimo

Date of commencement: 1968

Planned date of completion: 1970

The project is being undertaken in connection with the Working Group on Forestry in National Accountancy of Section 31, International Union of Forest Research Organizations (IUFRO).

The aim of the working group is to prepare a report on the present methods of calculating national income

with respect to forestry. A draft proposal will then be prepared presenting a model for standardized national-income accounting in accordance with the United Nations' accounting procedures. It is hoped that in this way at least some of the disparities in forestry national-income accounting between countries (this is quite sizeable and presents major difficulties in comparison) can be alleviated.

The work is being done for the IUFRO congress to be held in the spring of 1971.

Project no. 2.08

Project title: Comparison of pulpwood prices in Scandinavia

Personnel: Lauri Heikinheimo, Seppo Paananen, Hannu Vehviläinen

Date of commencement: 1968

Date of completion: 1969

The object of the study was to obtain comparable data on stumpage and contract prices for pulpwood during the felling seasons 1958/59 - 1968/69. Data was provided by forestry organizations in Finland, Norway and Sweden. A particular problem encountered was the question of the reliability of comparisons based on official rates of exchange. A comparison of prices not affected by the rates of exchange was undertaken by measuring mean export prices of certain pulpwood products, calculated from foreign trade statistics, in relation to the stumpage price of roundwood.

The study also presents preliminary calculations for 1969/70 on the basis of price recommendation agreements which came into force in 1969. The study was undertaken for the Central Association of Finnish Woodworking Industries.

Publication:

Heikinheimo, Lauri, Seppo Paananen & Hannu Vehviläinen.

Stumpage and contract prices of pulpwood in Norway, Sweden and Finland in the felling seasons 1958/59 - 1968/69 and 1969/70.

FF, 68. Helsinki, 1969.

Project no. 2.09

Project title: Power saw costs of forest workers

Personnel: Hannu Vehviläinen

Date of commencement: 1969

Planned date of completion: 1970

The study, initiated by Parliament, involves a survey of forest workers using power saws and the costs they have incurred in their work. These figures, taken from a sample of forest workers, are compared with the earnings of the workers in the sample. Data has been collected for both summer and winter conditions by using two surveys.

The results should be useful in planning connected with problems of taxation rates for forest workers and the adjustment of social security benefits for them.

Earlier publication:

Sivonen, Sampsa. Machine costs in logging with power saw in Finland in 1951 - 1963. *Seloste: Konekustannukset hakkuutyössä moottorisahalla v. 1951 - 1963.* CIFF, 59:4. Helsinki, 1965.

Project no. 2.10

Project title: Location of the dwellings of forest workers

Personnel: Eero Vääntänen

Date of commencement: 1963

Planned date of completion: 1970

The investigation studies the effect of location and type of dwelling on the standard of living and social contacts of forest workers. The location of dwelling in relation to workplace is also important economically.

Data was collected by mail enquiry in 1963 in connection with a preliminary investigation on the level of earnings of forest workers being undertaken at the same time (Project 2.04). A random sample of 240 workers provided information on: type of farm; size and structure of household; ownership situation; standard of equipment in use; distance from services, transport and workplace; population density of the immediate vicinity; mode of transport used; and frequency of social contacts. This was subject to statistical analysis.

Publication:

FAO/ECE report: Log/140 Add. 1. Edinburgh, 1964.

Project no. 2.11

Project title: Land tenure in Finland

Personnel: Michael Jones

Date of commencement: (1966) 1969

Planned date of completion: 1970

The project involves a study of land-tenure legislation and its underlying principles in Finland during the

last 200 years. The study attempts to achieve a better understanding of the interaction between legislation and spatial patterns of land tenure and use.

A model is developed to describe the influence of legislation on land tenure and use. Legislation is regarded as a "model solution" to particular problems; the model solution is compared with actual solutions (i. e. , spatial patterns of land tenure and use) and an attempt is made to explain the discrepancies. Source material is provided by field work and archive study, especially official land-survey records.

The model is applicable in a variety of situations involving land tenure and use, including a study of forest holdings in Finland. So far it has been applied to a geographical study of the human response to emergent land along the Finnish coast.

The project forms part of a doctoral thesis for London University, England.

Publications:

Jones, Michael. Land tenure problems in coastal areas of western Finland. Bloomsbury Geographer, 2. London, 1969.

" A model of human response to land emergence in the Vaasa area, Finland. Tiivistelmä: Malli ihmisen reagoinnista maannousuun Vaasan seudulla. Terra, 82:1. Helsinki, 1970.

Project no. 2.12

Project title: The silvicultural behaviour of forest owners, throughout the whole country

Personnel: Veli-Pekka Järveläinen

Date of commencement: 1970

Planned date of completion: 1971

The project is a development of the investigation into the silvicultural behaviour of forest owners (Project 2.05) and will cover the whole of Finland. The study will make an "inventory" of the silvicultural opinions, attitudes and practical actions of forest owners, analyze the factors affecting their behaviour and look for regional differences in this behaviour. Information of this nature is valuable for forest-policy makers.

The study will be based on two-stage sampling: forest owners will be randomly selected from a sample including both industrialized and traditionally-orientated rural communes. Data will be collected by interviewing a total of 1200 - 1500 forest owners. The material will be analyzed by cross-tabulation techniques and multivariate procedures.

Publications: See Project 2.05.

Project no. 2.13

Project title: Changes in forest ownership structure

Personnel: Aarne Reunala

Date of commencement: 1970

Planned date of completion: 1972

The aim of the study is to acquire precise knowledge on the number of private forest owners without arable land and on the structure of this category of ownership, which apparently has increased during the last twenty years to at least some 20 % of private forest owners.

The study will describe the changes in the structure of private forest ownership in 1950 - 1970, analyze the factors affecting the changes and forecast the number of private forest owners and the structure of ownership in 1980. The study should provide information of basic importance for forest-policy decisions.

The study is planned as a doctoral thesis.

Project no. 2.14

Project title: Social benefits of forestry

Personnel: David Cope and representatives from the Scandinavian countries

Planned date of commencement: 1970

Planned date of completion: partial results in 1971 and 1972

This project results basically from the meeting of experts on Capital Formation in Forestry of FAO/ECE Joint Working Party on Forest and Forest Products Statistics (FAO/ECE/STATS-F1/10) in Geneva, 14 - 16 April 1969 and on the recommendations of the Working Party at its 18th session 16 - 20 March 1970. At the latter meeting the delegate of Finland offered a full time forest economist to work in this field during 1972.

This project is planned to start with a small scale pilot survey on the indirect benefits of one of the national parks in Lapland and deal with the recreational requirements of the European population coming to that area. The aim would be to produce basic information for formulation of a proper land use policy for Lapland.

Project no. 2.15

Project title: Optimization of the forestry and forest industry in Finland.

Personnel: The responsible researcher is not yet nominated.

In the advisory team: Seppo Ervasti, Lauri Heikinheimo, Viljo Holopainen, Pekka Kilkki

Planned date of commencement: 1971, depends on funds
Planned date of completion: 1973

This project has been planned, during a year or so, by the researchers dealing with forestry and forest industry planning in the Institute and the staff of the Economic Planning Center doing long term planning for the whole national economy. Professor Bottomley from Bradford University has been consulted on the possibilities of assessing the effects of changing forestry inputs on the national economy.

The project has no funds as yet.

Project no. 2.16

Project title: Statistics on stumpage prices in Finland
Personnel: Sulo Väätänen
Date of commencement: (1934/35) 1969
Date of completion: continuous project

Yearly stumpage prices for roundwood assortments are collected from the authorities of each local taxation area. They form the bases for the income calculations in forest taxation, based on fixed roundwood quantities and moving prices.

The material collected forms the essential part of Finland's statistics on stumpage prices.

Publications:

Stumpage prices for districts and roundwood assortments have been published by Lauri Selin for the years 1935 - 1955 in Cliff, 48:5 and by Sulo Väätänen for the seasons 1955/56 - 1965/66 and 1968/69 in FF, 5, 11, 18, 30, 81. The prices are also reviewed in the latest (1969) Yearbook of Forest Statistics, FF, 70.

3. Business economics of forestry

Project no. 3.01

Project title: Optimization of cutting
Personnel: Jouko Hämmäläinen
Date of commencement: 1967
Planned date of completion: 1971

The study deals with the profitability of growing *Vaccinium* site-type Scotch pine stands. Calculations will be made initially for separate stands, in which the volume and timing of cuttings and rotation and regeneration practices will be considered. Calculation

methods are those used in general investment theory. The optimum production for given stands can be assessed from a series of alternatives. The second stage will examine the situation from the point of view of a forest enterprise.

The results should be helpful in dealing with specific practical forestry decisions, such as the methods and amount of thinning, regeneration means and length of rotation.

The work is planned for both licentiate and doctoral theses.

Project no. 3.02

Project title: Valuation of forest-owning industrial enterprises
Personnel: Jouko Hämmäläinen
Date of commencement: 1966
Planned date of completion: 1972

In this study valuation of an integrated forest-industry enterprise is viewed on the basis of its sales and purchases. Methods used are similar to the actual long-term planning methods of industry. The purpose is to test and perhaps to develop valuation theory using an empirical case-industry.

The methods will have application in the field of structural rationalization of integrated forest enterprises, as well as other fields.

Publications:

Hämmäläinen, Jouko. Yrityksen arvon määrittämisen pääpiirteitä (Principal features of enterprise valuation). Metstataloudellinen Aikakauslehti, 85:3. Helsinki, 1969; & Kaupparkeakoulun Julkaisuja, C:III:3. Helsinki, 1969.

" Principal features of the valuation of an integrated forest industry enterprise. Readings in forest economics. Oslo, 1969.

Project no. 3.03

Project title: The profitability of forest fertilization
Personnel: Kari Keipi, Otto Kekkonen
Date of commencement: 1965
Date of completion: 1970

The project involves a study of forest fertilization profitability calculation methods and the rate of return on investment at various ages of the stand. The study reviews fertilization from the perspective of a private forest owner. The discussion of the returns and costs occasioned by fertilization was limited to apply to the fertilized stand alone, not the whole wood-lot.

Various calculations were carried out concerning the profitability of fertilization in Scots pine and Norway spruce stands nearing their final cutting age. According to the results obtained the fertilization is more profitable the larger the average d.b.h. of the growing stock and the shorter the remaining rotation after fertilization loses its effect.

Publication:

Keipi, Kari & Otto Kekkonen. Calculations concerning the profitability of forest fertilization. *FF*, 84. Helsinki, 1970.

Project no. 3.04

Project title: Profitability of forest regeneration

Personnel: Sampsa Sivonen

Date of commencement: (1966) 1969

Planned date of completion: 1970

The study was started for the State Committee on Forest Cultivation Costs in 1966 and was taken into the departmental research programme in 1969. The purpose is to produce practical information on investment returns from afforestation and regeneration, for use by private forest owners in their decision-making. General models are developed, based on the situation in southern Finland where information is most complete, and include such variables as can be specifically calculated for various site-types, species, rotations, and regions.

The work is being done in two parts. First, investment in afforestation by planting or seeding is analyzed using the discounted net revenue and internal rate of return methods. Second, these same methods are used for comparing natural regeneration with artificial planting or seeding. The two parts when combined will present a picture of the investment alternatives and their order of preference for private forest owners.

Project no. 3.05

Project title: Economic comparisons of alternative forest regeneration methods

Personnel: Sampsa Sivonen

Date of commencement: (1966) 1969

Planned date of completion: 1971

Started for the State Committee on Forest Cultivation Costs in 1966 in conjunction with Project 3.04, the study was taken into the departmental research programme in 1969. The object is to examine the theoretical back-

ground, advantages and disadvantages of four methods commonly used to evaluate investments made in artificial regeneration and the alternative natural regeneration. These four methods are based on: internal rate of return; discounted net revenue; net annual income (forest rent); and contribution margin.

Examples are taken from southern Finland and comparisons are made for both individual stands and the larger forest ownership units. The analysis is approached from the point of view of the private forest owner and involves discussion of the timing of investment decisions and the results of the different approaches as well as examining their theory and background.

Project no. 3.06

Project title: Optimization of roundwood harvesting by network analysis

Personnel: Matti Palo

Date of commencement: 1966

Planned date of completion: 1971

The aim of the project is to deepen and enlarge the work presented as an MMK thesis dealing with network planning in timber harvesting. The theoretical planning model will be developed in three respects: for the most effective co-ordination of the planning of the system as a whole a frame model will be constructed by using system analysis; the network-flow programming will be developed; and the planning model will be expanded into theories of inventory and queuing.

Another main aspect of the project is to test the theoretical planning model with empirical material from a real timber-harvesting project. On the basis of the feedback from these tests, a mainly computer-programmed planning model suitable for timber-harvesting projects is aimed at. Compared with the "normal planning procedure" the utilization of this model should produce lower costs and ensure the completion of a project on a given schedule.

Project no. 3.07

Project title: Costs of nurseries

Personnel: Pentti Kuokkanen

Date of commencement: 1969

Planned date of completion: 1971

The study is an investigation into the costs of plant and seedling production in nurseries in Finland through the use of cost accounting techniques. Thus the work has

centered on devising an adequate book-keeping and cost information questionnaire; the most difficult part has been labour costs. It has also been necessary to devise means of properly allocating the total costs among the various plant species being raised in the nurseries.

The questionnaire and cost analysis give information on costs associated with various production techniques, working methods, species, etc. When cost information for 1970 is received from the Forest Research Institute's nursery at Suonenjoki, the centre of the cost study, the results will be analyzed.

One interesting application of the study will be a cost comparison between the present methods of nursery production and the newly developed Nisula system which attempts to introduce industrial production methods to large scale nursery operations.

Project no. 3.08

Project title: Forest fertilization profitability calculations in Scandinavia

Personnel: Kari Keipi

Date of commencement: 1970

Planned date of completion: 1970

The object of the study is to present calculations concerning the profitability of forest fertilization that have been made in Norway, Sweden and Finland. The material for this study was collected in Sweden and Norway in the summer of 1969 and after that in Finland. The work involved reading studies and articles concerning the problem of the profitability of forest fertilization. Several research workers and practicing foresters were interviewed, as well.

In the study the costs of various fertilization methods and prices of fertilizers in those three Nordic countries will be compared. Several ways of measuring the returns to fertilization from a single tree or the stand or the whole forest enterprise will be presented. The possibilities of increasing the co-operation between researchers working in this field will also be considered.

Project no. 3.09

Project title: Fertilization in forest enterprise planning

Personnel: Kari Keipi

Date of commencement: 1971

Planned date of completion: 1972

The aim of the project is to investigate the effect of forest fertilization on other silvicultural measures in

a forest enterprise. When knowing this effect and knowing the effect of other silvicultural means in the net income of the enterprise it is possible to make a model for finding the best combination of investments.

The solution of the problem begins with very simple models and goes on to more and more complicated structures of the enterprise.

4. Marketing of forest and forest industry products

Project no. 4.01

Project title: Plastics and wood competition in Finland

Personnel: Lorenzo Runeberg

Date of commencement: 1966

Date completed: 1967

Publication:

Runeberg, Lorenzo. Plaster som konkurrens- och kombinationsmaterial inom skogsindustrin i Finland.

Summary: Plastics as competitive and cooperative materials in the Finnish forest industry.

CIFF, 62:8. Helsinki, 1967.

See also Project no. 4.06.

Project no. 4.02

Project title: Forest products end-use study

Personnel: Juhani Numminen

Date of commencement: 1968

Planned date of completion: continuing, first results in 1970.

The end-use study involves collecting and analyzing data on the final uses of forest products in Finland. This is done with three long-term goals in mind: producing forecasts of domestic consumption of forest products, providing basic information on the utilization of forest products for marketing research by forest industries, and creating annual end-use statistics. Thus far, due to a lack of funds, it has been necessary to concentrate on panel products used in construction. In 1971 this will be expanded to include the whole panel board industry.

Data concerning end-uses of forest products is important since modern business management is largely based on detailed planning and marketing research which require data on past events and forecasts of future development. Forest industries in Finland have only recently commenced research in this field.

Project no. 4.03

Project title: Finnish small sawmills in 1965 and 1967

Personnel: Pertti Veckman

Date of commencement: 1964

Date of completion: 1969

In 1965, 1200 small sawmills of a total of 11 000 were chosen on the basis of an area sample to provide data on consumption of raw material, type of saw, purpose of sawing and seasonality of sawing. The purpose of the study was to gather material covering wood consumption not included in the Finnish Industrial Statistics. This data was analyzed and in 1967 some 200 of the original mills were surveyed again to obtain information on changes in production.

No earlier studies have been made in Finland in this field and therefore the results have been valuable in providing data which permit more accurate wood consumption statistics and a more complete knowledge of the annual total drain.

Publication:

Veckman, Pertti. Suomen piensahat vuosina 1965 ja 1967.

Summary: Small sawmills in Finland in 1965 and 1967. FF, 54. Helsinki, 1968.

Project no. 4.04

Project title: Short-term forecasting of wood consumption

Personnel: Juhani Numminen

Date of commencement: 1967

Date of completion: 1970

The object of the study was to develop a method for the short-term forecasting of the drain from Finland's forests. The main consumers of roundwood are the forest industries, on which the main emphasis was therefore placed in the study.

The quantity of wood consumed by the primary processing industries was forecast in two stages. First the annual output of the various branches of industry was estimated with regression models on the basis of their output from January to July. In the second stage the wood consumption was estimated from the total forecast output, again applying a regression model. The total drain was then derived by adding forecasts of all other categories of consumption to the consumption forecast for industry.

Publication:

Numminen, Juhani. Short-term forecasting of the total drain, to be published in 1970 in FF, in English with a Finnish summary.

Project no. 4.05 (Jouko Virta): see Project no. 4.09.

Project no. 4.06

Project title: Competition between plastics and wood in Europe.

Personnel: Lorenzo Runeberg

Date of commencement: 1967

Planned date of completion: 1972

The project examines, as an expansion of Project no. 4.01, the role of plastics in competition and in co-operation with forest products in a European context. The question of how far plastics can be expected to supplant and how far they are likely to become integrated with wood products is of major importance for the future development of forestry.

The main fields of study are in the paper and board industries, especially packaging, and in the construction industries. The role of the rapidly expanding wood-plastic composites as well as of competitive plastics will be examined, especially in Britain and West Germany and if possible in other major industrial countries of Europe.

Publications:

Runeberg, L. Plaster som konkurrens- och kombinationsmaterial inom skogsindustrin i Finland. Summary: Plastics as competitive and cooperative materials in the Finnish forest industry. CIFF, 62:8. Helsinki, 1967.

" Metsätalous ja synteettisten aineiden esiinmarssi (Forestry and the impact of synthetic materials). Metsätaloudellinen Aikakauslehti, 85:11. Helsinki, 1968.

" Plastics in competition and co-operation with forest products. Readings in forest economics. Oslo, 1969.

Project no. 4.07

Project title: Time-series analysis of printing and writing paper

Personnel: Markku Simula

Date of commencement: 1967

Date of completion: 1967

The first part of the study was included as a project in the departmental programme and completed in 1967. The study has since been expanded and is expected to be published in English in FF, 1970.

Project no. 4.08

Project title: Opportunities for forestry and the forest industries in Finland seen against the world economy

Personnel: Nils A. Osara

Date of commencement: 1968

Planned date of completion: 1970

The study examines the present forestry situation in Finland in a world context. The development of world forest resources is looked at from the point of view of the present state of exploitation and management and future prospects, regarding both existing forests and new plantations, especially in the developing countries. Basic information is provided by FAO and subsidiary organizations, and national sources. Factors affecting the future development of forestry and the forest industry in Finland are analyzed, taking into account changes in cost factors and in consumption as well as the development of international trade. A special analysis will be carried out of the situation in relation to the USA, Canada, the USSR, Japan, Sweden and Norway, the rest of Europe, and the developing countries as a group.

Conclusions of the study should be of value in indicating the direction of further development as industries and trade evolve.

Publications:

Osara, N. A. Metsätalous ja metsäteollisuus maailmantaloudessa - Suomen asema ja tehtävä. Metsäteollisuus itsenäisessä Suomessa. Helsinki, 1968.

" Skogsbruket och skogsindustrierna i världshushållning - Finlands ställning och uppgifter. Skogsindustrin i det självständiga Finland. Helsingfors, 1968.

" Forestry and the forest industry in the world economy - the position and task of Finland. The forest industry in independent Finland. Helsinki, 1968.

Project no. (4.05 and) 4.09

Project title: Models for short-term forecasting of roundwood removals for sale

Personnel: Matti Palo and Jouko Virta

Date of commencement: 1970

Planned date of completion: 1971

The purpose of the combined studies of Dr. Palo and Mr. Virta is to develop methods for short-term forecasting of roundwood removals for sale by applying an econometric approach based on theories of supply and demand. The study will use statistical material provided by the earlier project on removal statistics (Project no. 1.04).

Earlier publications:

Palo, Matti. Markkinahakkuiden lyhytjaksoinen ennakkointi. (Models for short-term forecasting of roundwood removals for sale). Mimeographed. Helsinki, 1969.

Virta, Jouko. Markkinahakkuiden lyhytjaksoinen ennakkointi (Short-term forecasting of roundwood removals for sale). Manuscript. Helsinki.

Project no. 4.10

Project title: Propensity of private forest owners in western Finland to sell timber, 1970

Personnel: Jouko Virta

Date of commencement: 1970

Planned date of completion: 1970

The project aims to examine factors influencing the decision-making of private forest owners in western Finland regarding sales of timber. It has been observed that although many stands are over-mature, forest owners are often reluctant to sell. The object of the study is to find out the reasons for this.

A random sample of owners will be taken from 40 selected communes. The owners will be interviewed to obtain information on holdings, attitudes towards the sale of timber and the use of the proceeds from sales. The data will probably be analyzed by regression model.

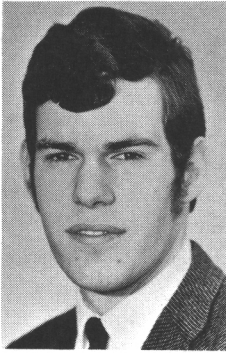
The study will be financed by a number of Finnish forest-industry companies.

PERSONAL INFORMATION

Economics research personnel of the Forest Research Institute, spring 1970.

Cope, David
 Ervasti, Seppo
 Heikinheimo, Lauri
 Heikinheimo, Matti
 Holopainen, Viljo
 Huttunen, Terho
 Hämäläinen, Jouko
 Jha, B. Chandra
 Jones, Michael
 Järveläinen, Veli-Pekka
 Kajander, Paavo
 Keipi, Kari
 Kunnas, Heikki
 Kuokkanen, Pentti
 Mikkola, Pertti
 Numminen, Juhani
 Osara, Nils
 Palo, Matti
 Reunala, Aarne
 Runeberg, Lorenzo
 Salo, Esko
 Sivonen, Sampsa
 Veckman, Pertti
 Vehviläinen, Hannu
 Virta, Jouko
 Väänänen, Sulo

The following information is given about each person:
 Name (surname first)
 Date of birth (b. = born)
 Family details (m. = married)
 Degrees and dates.
 MH = metsänhoitaja (Bachelor of Forestry),
 University of Helsinki
 MMK = maatalous- ja metsätieteiden kandidaatti
 (Master of Agriculture and Forestry),
 University of Helsinki
 MML = maatalous- ja metsätieteiden lisensiaatti
 (Licentiate of Agriculture and Forestry),
 University of Helsinki
 MMT = maatalous- ja metsätieteiden tohtori
 (Doctor of Agriculture and Forestry),
 University of Helsinki
 Ekon. = ekonomi (Bachelor of Economics),
 Helsinki School of Economics
 VTK = valtiotieteiden kandidaatti (Master of
 Political Science), University of Helsinki
 YKK = yhteiskuntatieteiden kandidaatti (Master of
 Social Sciences), University of Tampere
 B.A. = Bachelor of Arts, London University
 A.B. = Bachelor of Arts, Earlham College
 (Indiana, USA)
 B.Sc.(Hons.) = Bachelor of Science with Honours,
 Patna University (India)
 A.I.F.C. (Hons.) = Associateship, the Indian Forest
 College, Dehra Dun (Forest Research
 Institute & College, Dehra Dun, India)
 Positions held in forestry. Years (f. = and following),
 employer, position
 Other positions, i.e., part-time work, committees, etc.
 Present academic studies.
 Languages (only those with working knowledge: reading,
 speaking and writing) in preference order.
 Projects, 1969 - 1971. Project numbers.



David Cope



Seppo Ervasti



Lauri Heikinheimo

Cope, David Harold
b. 15.2.1948

Degrees: A.B. 1969

Positions held:

1968 Forest Research Institute. English instructor

1969 f. Forest Research Institute. Researcher

Present academic studies: MMK in land-use economics,
national economics of forestry
and nature conservation

Languages: English

Projects: 2.14

Ervasti, Seppo Mikael

b. 3.8.1924

Family: 1951 m. Eeva-Liisa Huttunen

Children: Outi Johanna, b. 1952; Oili Katriina,
b. 1955

Degrees: MH 1948, MMK 1951, MML 1951, MMT 1955

Positions held:

1949 - 1950 University of Helsinki. Assistant (Department
of Business Economics of Forestry)

1951 - 1953 University of Helsinki. Assistant (Department
of Silviculture)

1954 - 1956 University of Helsinki. Forestry library
secretary

1956 - 1964 University of Helsinki. Assistant (Department
of National Economics of Forestry)

1959 - 1965 University of Helsinki. Docent in forest-
products marketing

1964 - 1965 Forest Research Institute. Research specialist

1965 f. University of Helsinki. Professor of forest-
products marketing

1965 f. Forest Research Institute. Associated with
forest balance studies

Languages: Finnish, Swedish, English

Projects: 1.06

Heikinheimo, Lauri Johannes

b. 4.6.1917

Family: 1946 m. Alli Karttunen

Children: Erkki, b. 1945; Olli, b. 1952

Degrees: MH 1941, MMK 1946, MML 1954, MMT 1954

Positions held:

1945 - 1955 University of Helsinki. Assistant to
professor of social economics of forestry

1955 - 1956 University of Oxford. British Council
fellowship

1956 f. University of Helsinki. Docent in forest
economics

1957 - 1961 University of Helsinki. Acting professor in
forest economics for varying periods

1957 - 1961 Labour Research Bureau. Head

1958 FAO Forestry Division, Rome. Special
research duties

1958 - 1959 Royal College of Forestry, Stockholm.
Fellowship

1960 United States Department of State. Internat-
ional Educational Exchange Program

1961 - 1963 Forest Research Institute. Acting Professor and
Acting Head of Forest Economics Department



Matti Heikinheimo



Viljo Holopainen



Terho Huttunen

1963 f. Forest Research Institute. Professor and Head of Forest Economics Department
 1968 - 1969 Forest Research Institute. Acting Head of Mathematics Department
 Other positions:
 Various dates. Chairman or member of State committees
 1968 - 1970 Nordic Seminar of Forest Economics. Chairman

Languages: Finnish, Swedish, English, German
 Projects: 1.06, 2.04, 2.07, 2.08

Heikinheimo, Matti Olavi
 b. 24.3.1942
 Family: 1964 m. Raili Grönholm
 Children: Olli-Matti, b. 1964; Liisa, b. 1967

Degrees: MH 1966

Positions held:
 1966 University of Helsinki. Assistant
 1966 - 1967 Hyvinkää Agricultural School. Instructor
 1967 f. Forest Research Institute. Researcher
 Present academic studies: social sciences in Faculty of Political Science

Languages: Finnish, Swedish, English
 Projects: 2.04

Holopainen, Viljo Emil
 b. 13.3.1916
 Family: 1944 m. Helvi Rakel Niinimaa
 Children: Ritva, b. 1946; Marja, b. 1947;
 Mikko, b. 1949

Degrees: MH 1940, MMK 1947, MML 1950
 MMT 1950, VTK 1950

Positions held:
 1944 - 1948 State Board of Forestry.
 District forest officer (Pohjois-Savo)
 1948 - 1952 Forest Research Institute. Researcher
 1950 - 1951 London School of Economics. British Council scholarship
 1952 - 1954 Central Forestry Board "Tapio". Head of Statistical Office
 1954 - 1962 University of Helsinki. Assoc. professor of forestry
 1962 - 1964 University of Helsinki. Professor of forest-products marketing
 1964 University of Michigan. Fulbright scholarship
 1964 f. Forest Research Institute. Director

Languages: Finnish, Swedish, English, German
 Projects: 0.01

Huttunen, Terho Ustavi
 b. 29.7.1919
 Family: 1952 m. Eeva Laurikainen
 Children: Mikko, b. 1953; Johanna, b. 1965

Degrees: MH 1953

Positions held:
 1950 - 1962 Oy Measurers Ab. Timber measurer
 1962 f. Forest Research Institute. Researcher

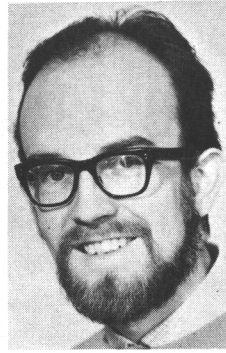
Languages: Finnish, Swedish, English, German
 Projects: 1.02, 1.09



Jouko Hämäläinen



B. Chandra Jha



Michael Jones



Veli-Pekka Järveläinen

Hämäläinen, Jouko Martti Ensio
b. 4.6.1929

Family: 1955 m. Anita Jalkanen
Children: Jaakko, b. 1959; Veli-Martti, b. 1963

Degrees: MH 1952, Ekon. 1962

Positions held:

1953 - 1954 State Board of Forestry. Practising forest officer
1954 - 1962 Forest Research Institute. Researcher
1962 f. National Research Council for Agriculture and
Forestry. Researcher placed in Forest Research
Institute

Present academic studies: Licentiate degree in business
economics of forestry and marketing of forest
products

Languages: Finnish, Swedish, German, English

Projects: 3.01, 3.02

Jha, B. Chandra
b. 2.1.1935

Family: 1954 m. Prabhavati Jha
Children: Chandra Prakash, b. 1958; Kavita,
b. 1961; Alka, b. 1963; Arvind,
b. 1964

Degrees: B.Sc.(Hons.) 1955, A.I.F.C.(Hons.) 1959

Position held:

1958 - 1960 Bihar Forest Service. Assistant Conservator
of Forests
1961 - 1965 Bihar Forest Service. Deputy Conservator
of Forests

1966 - 1969 Indian Forest Service. Deputy Conservator
of Forests

1970 f. Forest Research Institute. Finnish Government
scholarship

Present academic studies: MMK in national economics of
forestry, land-use economics and forest
mensuration and inventory

Languages: Hindi, English

Jones, Michael Richard Handley
b. 16.12.1944

Degrees: B.A. 1966

Positions held:

1969 f. Forest Research Institute. Researcher

Present academic studies: doctorate in geography for
London University, England; student of
geography at Helsinki University

Languages: English, Swedish, French

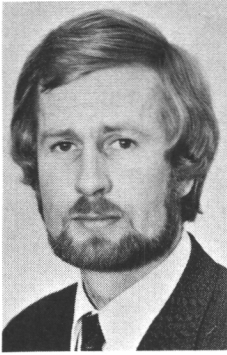
Projects: 2.11

Järveläinen, Veli-Pekka
b. 11.5.1938

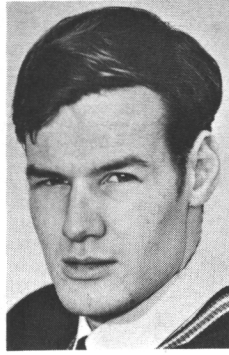
Degrees: MH 1962

Positions held:

1963 - 1966 Forest Research Institute. Researcher
1966 - 1968 National Research Council for Agriculture and
Forestry. Research scholarship
1969 f. Forest Research Institute. Researcher



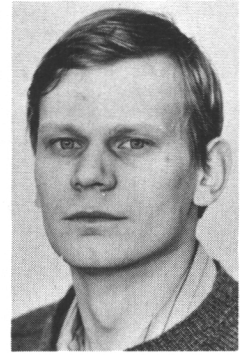
Paavo Kajander



Kari Keipi



Heikki Kunnas



Pentti Kuokkanen

Present academic studies: Studies towards licentiate in forest economics (main subject) and sociology (subsidiary subject); doctorate in national economics of forestry

Languages: Finnish, Swedish, German, English

Projects: 2.05, 2.12

Kajander, Paavo Antero
b. 4.2.1944

Degrees: MH 1970

Positions held:
1967 - 1968 Forest Research Institute. Research worker
1969 - 1970 Forest Research Institute. Departmental secretary
1970 f. Copap, Paris

Present academic studies: French, Spanish, journalism

Languages: Finnish, English, Swedish, German, French

Keipi, Kari Juhani
b. 6.10.1946

Degrees: MH 1969

Positions held:
1969 f. Forest Research Institute. Researcher
Present academic studies: Licentiate degree in forest economics

Languages: Finnish, Swedish, English, German
Projects: 3.03, 3.08, 3.09

Kunnas, Heikki Juhani
b. 15.9.1934

Family: 1958 m. Maija Talvia

Children: Marja, b. 1963; Lauri, b. 1967

Degrees: YKK 1960

Positions held:
1960 - 1969 Central Statistical Office. Researcher
1968 - 1969 Secretariat of the Economic Council.
Temporary secretary
1966 f. Forest Research Institute. Associated with
labour productivity studies and national income accounting
1970 f. Economic Planning Centre. Researcher

Languages: Finnish, Swedish, German, English
Projects: 2.03, 2.07

Kuokkanen, Pentti Olavi
b. 8.11.1945

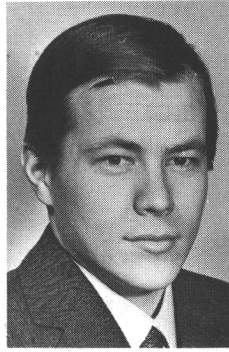
Degrees: MH 1969

Positions held:
1969 f. Forest Research Institute. Researcher
Present academic studies: Ekonomi degree in economics, statistics, and business mathematics

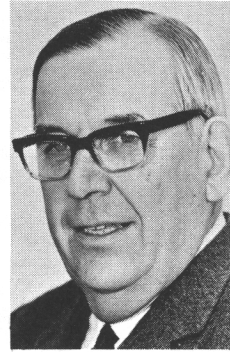
Languages: Finnish, Swedish, English, German
Projects: 3.07



Pertti Mikkola



Juhani Numminen



Nils Osara

Mikkola, Pertti Heikki

b. 17.10.1936

Family: 1969 m. Eeva Hänninen

Degrees: MH 1963

Positions held:

1963 University of Helsinki. Assistant at forestry field station

1963 - 1964 State Board of Forestry. Practising forest officer

1964 f. Forest Research Institute. Researcher

Languages: Finnish, Swedish, English, German

Projects: 1.03, 1.08

Numminen, Juhani Matti

b. 25.2.1944

Family: 1966 m. Sinikka Hammarberg

Children: Sirpa, b. 1966

Degrees: MMK 1970

Positions held:

1967 - 1970 Forest Research Institute. Researcher

1969 Economic Commission for Europe. Timber Division, economic affairs officer

1970 f. Central Association of Finnish Woodworking Industries. Economics officer

Present academic studies: MML in forest economics, marketing of forest products. Also studying general economics

Languages: Finnish, English, Swedish, German

Projects: 4.02, 4.04

Osara, Nils Arthur

b. 29.11.1903

Family: 1937 m. Sirkka Rinne († 1948)

1950 m. Anna Liisa Harjanne

Children: Anna-Kaisa, b. 1956

Degrees: MH 1924, MMK 1926, MMT 1936

Positions held:

1924 - 1926 Helsinki University. Assistant (Department of Mensuration)

1928 - 1931 Forest Research Institute. Researcher

1931 - 1936 Forest Research Institute. Research specialist

1936 - 1937 Central Forestry Association "Tapio". Officer in charge of Forest Management Associations

1938 - 1948 Forest Research Institute. Professor and Head of Forest Economics Department

1947 - 1952 Central Forestry Association "Tapio". Director

1937 - 1952 Helsinki University. Docent in forest policy

1952 - 1960 State Board of Forestry. Director-general

1962 - 1963 FAO Forestry Division. Deputy-director

1963 - 1968 FAO Forestry Division. Director

1969 f. Forest Research Institute. Emeritus Professor of the Economics Department in charge of special studies

Other positions:

1940 - 1947 Ministry of Supply. Head of Department for Fuel and Timber

1943 - 1944 Cabinet member. Minister of Supply and Agriculture ("Minister of Forestry")

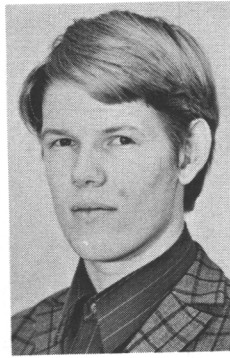
Various dates. Chairman or member of various State boards, trade delegations, etc.

Various dates. Committee chairman or member of leading Finnish forestry organizations

Various dates. Company director of numerous firms



Matti Palo



Aarne Reunala



Lorenzo Runeberg

Languages: Finnish, Swedish, German, English
Projects: 4.08

Palo, Matti Seppo
b. 6.4.1938
Family: 1962 m. Anne-Marie Stenroos
Children: Mika, b. 1965; Heidi, b. 1968

Degrees: MH 1961, MMK 1966, MML 1967, MMT 1969

Positions held:
1961 Forestry Commission of Great Britain. Field work in plantation establishment and in thinning
1962 State Board of Forestry. Practice teaching and drainage work
1963 - 1965 Forest Research Institute. Researcher
1966 Bureau of Statistics. National accounting for forestry (Department of National Accounting)
1966 f. Forest Research Institute. Researcher
1969 - 1970 University of California (Berkeley). W.K. Kellogg Foundation fellowship and Fullbright-Hays grant for visiting scholars
Present academic studies: Econometrics and operations research

Languages: Finnish, English, Swedish
Projects: 1.04, 3.06, 4.09

Reunala, Aarne Olavi
b. 11.2.1946
Family: 1967 m. Helvi Salonharju
Children: Pia, b. 1969

Degrees: MH 1969

Positions held:
1967 f. Forest Research Institute. Researcher
Present academic studies: Advanced (laudatur) degree in statistics; doctorate in forest economics

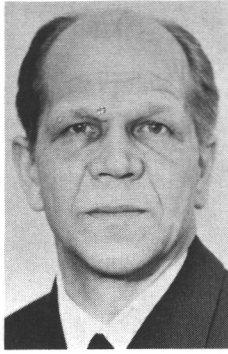
Languages: Finnish, Swedish, English
Projects: 2.04, 2.13

Runeberg, Lorenzo Richardo
b. 7.1.1916
Family: 1940 m. Ulla Westman
Children: Kate, b. 1946; Johan, b. 1949

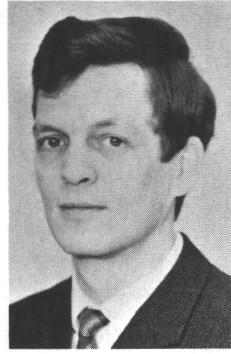
Degrees: MH 1937, MMK 1938, MML 1946, MMT 1946

Positions held:
1950 f. University of Helsinki. Docent in forest economics
1956, 1959 - 1962, 1964 - 1965 University of Helsinki. Acting professor of forest products marketing
1966 f. Forest Research Institute. Professor in charge of special studies
1969 - 1970 Forest Research Institute. On leave of absence
Other positions:
1950 f. Oy Williams Ab. Chairman of board of directors
1955 - 1959 Finnish Plastics Associations. Member of board of directors

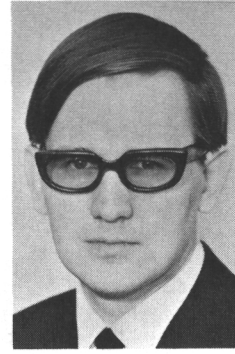
Languages: Swedish, Finnish, English, German, French
Projects: 4.01, 4.06



Esko Salo



Sampsa Sivonen



Pertti Veckman

Salo, Esko Vilho Reinhold

b. 2.8.1923

Family: 1950 m. Hillevi Ritva Ollila

Children: Kari, b. 1951; Jukka-Pekka, b. 1953;
Annika, b. 1959

Degrees: MH 1946, MMK 1950, MML 1961

Positions held:

1946 - 1947 State Board of Forestry. Practising forest officer

1947 - 1954 University of Helsinki. Assistant (Forest Technology Department)

1954 - 1965 Forest Research Institute. Researcher

1965 f. Forest Research Institute. Senior researcher

1966 - 1967 Forest Research Institute. Acting chief of Statistical Office

Other positions:

1955 f. Technical University of Helsinki. Assistant lecturer (Land Survey Department)

1967 f. Helsinki Foresters' Association. Committee member

Present academic studies: Doctorate in national economics of forestry.

Languages: Finnish, Swedish, English, German

Projects: 1.01, 1.05, 1.07, 1.08

Sivonen, Sampsa Paavo Antero

b. 19.6.1938

Family: 1964 m. Aulikki Pitkänen

Children: Eeva, b. 1965, Anna, b. 1968

Degrees: MH 1964

Positions held:

1962 f. Forest Research Institute. Researcher

Other positions:

1966 f. State Committee on Forest Cultivation Costs. Secretary

Present academic studies: MML in business economics of forestry and marketing of forest products

Languages: Finnish, English, Swedish, German

Projects: 2.01, 3.04, 3.05

Veckman, Pertti Juhani

b. 30.9.1945

Positions held:

1965 - 1968 Forest Research Institute. Research worker

1968 - 1970 Forest Research Institute. Researcher

1970 f. Helsinki Municipality. Researcher

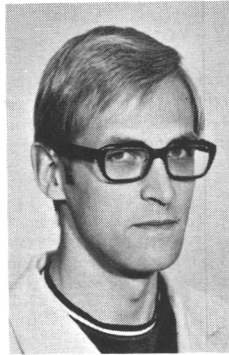
Present academic studies: VTK with economics and statistics

Languages: Finnish, English, Swedish

Projects: 2.06, 4.03



Hannu Vehviläinen



Jouko Virta



Sulo Väänänen

Vehviläinen, Hannu Juhani
b. 30.10.1945

Positions held:
1968 f. Forest Research Institute. Researcher
Present academic studies: MH with extra studies in
economics, statistics and sociology

Languages: Finnish, Swedish, German
Projects: 2.08, 2.09

Virta, Jouko Kalevi
b. 19.9.1945
Family: 1968 v. Eeva Hotti

Degrees: MH 1969

Positions held:
1969 - 1970 University of Helsinki. Assistant (Department of
Forest Products Marketing)
1970 f. Forest Research Institute. Researcher
Present academic studies: Master of Laws (OTK) degree
(to be completed 1970)

Languages: Finnish, Swedish, English, German
Projects: 4.05, 4.10

Väänänen, Sulo Johannes
b. 2.8.1923

Family: 1948 m. Lahja Tuovinen
Children: Hannele, b. 1949; Ilkka, b. 1954;
Marja, b. 1957

Degrees: MH 1950, MMK 1954

Positions held:
1950 - 1955 University of Helsinki. Researcher (Department
of Forest Economics)
1955 - 1963 Forest Research Institute. Researcher
1963 - 1965 Forest Research Institute. Acting chief of
Statistical Office
1965 - 1966 Forest Research Institute. Acting mathematician
in Statistical Office
1966 f. Forest Research Institute. Senior researcher
(Mathematics Department)

Languages: Finnish, English, Swedish, German
Projects: 2.16

BIBLIOGRAPHY FROM 1960

A bibliography from 1960 is provided for past and present research personnel of the Department of Forest Economics and for the Director of the Institute, Professor Viljo Holopainen.

Title abbreviations:

| | | |
|------|---|--|
| CIFF | = | Communicationes Instituti Forestalis Fenniae (Metsäntutkimuslaitoksen julkaisuja - Publications of the Finnish Forest Research Institute) |
| FF | = | Folia Forestalia |
| AFF | = | Acta Forestalia Fennica |
| SF | = | Silva Fennica |
| MA | = | Metsätaloudellinen Aikakauslehti |

CIFF is the main publication series of the Forest Research Institute. FF is for the rapid publication of the more important findings and topical results of research carried out at the Institute. AFF and SF are published by the Society of Forestry in Finland.

- Ervasti, Seppo. Metsäntuotteet Ison-Britannian rakennusaineiden mainonnassa. Summary: The position of forest products in advertising of building materials in Great Britain. SF, 104:3. Helsinki, 1960.
- " Metsätase ja raakapuun vienti. Metsänhoitaja, 12:7. Helsinki, 1962.
- " Suomen sahateollisuuden kausivaihtelu. I. Aineiston hankinta ja käsittely sekä tulosten luotettavuus. Summary: Seasonal variation in the sawmill industry of Finland. I. Collection and treatment of the material and reliability of the results. AFF, 76:1. Helsinki, 1963.
- " Suomen sahatavaran kotimaiset toimitukset. Suomen Puutalous, no. 3. Helsinki, 1963.
- " Suomen sahateollisuuden kausivaihtelu. II. Tutkimustulokset. Summary: Seasonal variations in the sawmill industry of Finland. II. Investigation results. AFF, 76:2. Helsinki, 1964.
- " Sahatavaran tuotoksen ja varastojen kausivaihtelu. MA, 81:4. Helsinki, 1964.
- " Paperin ja kartongin käytön kehitys Länsi-Euroopassa. Suomen Puutalous, no. 5. Helsinki, 1964.
- " Ainespuun hankinta- ja käyttömäärät sekä niiden välinen tase metsähoitolautakunnittain vuosina 1955, 1958 ja 1963. Suomen Puutalous, no. 10. Helsinki, 1965.
- " Suomen puunkäytön ja metsätaseen kehitys 1960-luvulla. Suomen Puutalous, no. 2. Helsinki, 1966.
- " Puunkäytön laskenta ja metsätase v. 1964. Summary: Calculation of the utilization of roundwood, and the forest balance in 1964. MA, 84:5 - 6. Helsinki, 1967.
- " Hakkuusuunnitteen ja markkinatilanteen välisen kehityksen vertailu. Summary: Forestry in the national economy. MA, 85:1. Helsinki, 1968.
- " Metsäteollisuustuotteiden markkinointi Lapin metsien käsittelyn ohjelmavaihtoehtoissa. MA, 85:10. Helsinki, 1968.
- Ervasti, Seppo, Lauri Heikinheimo, Viljo Holopainen, Kullervo Kuusela & Gustaf Sirén. Suomen metsien kehitys vuosina 1964 - 2000. Komiteamietintö, 1964: A 16. Helsinki, 1965.
- " The development of Finland's forests in 1964 - 2000. SF, 117:2. Helsinki, 1965.
- Ervasti, Seppo, Lauri Heikinheimo, Kullervo Kuusela & Veikko Mäkinen. Suomen metsä- ja puutalouden tuotantomahdollisuudet vuosina 1970 - 2015. Talousneuvosto. Mimeographed. Helsinki, 1969.
- " Forestry and forest industry production alternatives in Finland, 1970 - 2015. FF, 88. Helsinki, 1970.
- Ervasti, Seppo, & Terho Huttunen. Suomen puunkäyttö vuonna 1964 ja vuoden 1965 ennakkotiedot. Summary: Wood utilization in Finland in 1964 and preliminary data for the year 1965. FF, 25. Helsinki, 1966.
- " Suomen puunkäyttöä vuonna 1965 ja ennakkotietoja vuodelta 1966. Summary: Wood utilization in Finland in 1965 and preliminary data for the year 1966. FF, 35. Helsinki, 1967.
- Ervasti, Seppo, & Pentti Hämäläinen. Suomen puunkäyttö v. 1962 - 63 ja katsaus sen kehitykseen v. 1955 - 63. Summary: Finland's wood utilization in 1962 - 63 and a review of its development in 1955 - 63. FF, 4. Helsinki, 1964.

- Ervasti, Seppo, & Kullervo Kuusela. Suomen metsätase vuosina 1953 - 66. Summary: Forest balance of Finland in 1953 - 66. FF, 49. Helsinki, 1968.
- Ervasti, Seppo, & Esko Salo. Kiinteistöillä lämmön kehittämiseen käytetyt polttoaineet vuonna 1965. Summary: Fuels used by real estates for the generation of heat in 1965. FF, 33. Helsinki, 1967.
- Ervasti, Seppo, Esko Salo & Pekka Tiillilä. Kiinteistöjen raakapuun käytön tutkimus vuosina 1964 - 66. Summary: Real estates raw wood utilization survey in Finland in 1964 - 66. FF, 29. Helsinki, 1967.
- Ervasti, Seppo, Esko Salo, Risto Seppälä & Pekka Tiillilä. Survey of the utilization of roundwood and fuel on real estates in Finland. Methods and results for 1964 - 66, and plan for 1970. CIFF, 68:6. Helsinki, 1969.
- Grönlund, Seppo, & Juhani Kurikka. Markkinapuun alueittaiset hankintamäärät vuosina 1962 ja 1964. Lopulliset tulokset. Summary: Removals of commercial roundwood in Finland by districts in 1962 and 1964. Final results. FF, 20. Helsinki, 1966.
- Heikinheimo, Lauri. Jatkuva työvoimatutkimus. Summary: The current labour-force survey in Finland. Väestötutkimuksen Vuosikirja. Yearbook of Population Research in Finland, 6. Helsinki, 1960.
- " Henkinen pääoma ja metsätalous. MA, 78:3. Helsinki, 1961.
- " Työttömyyden käsite ja määrittäminen. Työmarkkinat, 4:1. Helsinki, 1961.
- " A plan for statistics on forestry labour input and wages. CIFF, 55:21. Helsinki, 1962.
- " Productivity of labour in forestry. Proceedings of the 13th Congress of the International Union of Forest Research Organizations, 11:2. Wien, 1962.
- " Metsätyövoima vakinaistuu. Työvoimakatsaus, 6. 1962.
- " Työvoima vakinaistuu. MA, 79:11. Helsinki, 1962.
- " Metsätase metsänhoitolautakunnittain 1950-luvun loppupuoliskolla ja arvio 1960-luvun alkupuoliskosta. MA, 80:3. Helsinki, 1963.
- " Metsätyömiesten ansiotaso. Ennakkoselostus. Summary: Level of earnings of forest workers in Finland. Preliminary report. FF, 55. Helsinki, 1963.
- " Työvoima. Yhteiskuntatieteiden käsikirja, II. Keuruu, 1964.
- " Metsänparannustöiden rahoitus. Metsänhoitaja, 15:10. Helsinki, 1965.
- " Kantorahantulon käsittely metsäverotuksessa. MA, 82:11. Helsinki, 1965.
- " Kantorahamalli. I. Raakapuun kuljetuskustannusten vaikutus kantorahaan. Summary: A stumpage value model. The impact of raw timber transport costs on forest owners' stumpage income. MA, 83:12. Helsinki, 1966.
- " Metsätalouden tuottavuuden ja työllisyyden kehitysnesteitä. MA, 84:3. Helsinki, 1967.
- " Kantorahan muodostuminen. Suomen Puutalous, no. 9a. Helsinki, 1967.
- " Metsänviljelyn edullisuus. MA, 84:12. Helsinki, 1967.
- " The profitability of forest plantations in Finland. Bank of Finland Monthly Bulletin, 42:1. Helsinki, 1968.
- " Metsätalouden ja muun kansantalouden vuorivaikutus. MA, 85:1. Helsinki, 1968.
- " Onko metsätalouden kestävyysperiaate muuttumassa dogmiksi? MA, 85:10. Helsinki, 1968.
- " Pohjoismaiden yhteistä metsätutkimuksessa. Summary: Interscandinavian research in forestry. SF, 3:2. Helsinki, 1969.
- " Labour policy in Scandinavian forestry. Readings in forest economics. Oslo, 1969.
- " Finland's forestry and forest industry up to 2000. Bank of Finland Monthly Bulletin, 43:9. Helsinki, 1969.
- " Metsätyövoiman määrä ja rakenne. Metsä ja Puu, no. 9. Helsinki, 1969.
- Heikinheimo, Lauri, Leo Heikurainen, Viljo Holopainen, Matti Keltikangas, Kullervo Kuusela & Tatu Mänttälä. Metsätalouden parannusten työllisyys- ja tulovaikutukset. Summary: Effects of forest improvement on employment and income. SF, 114. Helsinki, 1963.

- Heikinheimo, Lauri, & Heikki Kunnas. On the absolute level of productivity in wood harvesting for some Finnish pulpmills. XIV: IUFRO-kongress, VIII. München, 1967.
- " Metsätalouden tuottavuus. Kansainvälinen vertailu. MA, 84:11. Helsinki, 1967.
- Heikinheimo, Lauri, Kullervo Kuusela & Sampsa Sivonen. Metsätalouden hinta-, kustannus- ja kannattavuusarvio. Suomen Pankin Taloustieteellisen Tutkimuslaitoksen Julkaisuja, C/5. Helsinki, 1967.
- Heikinheimo, Lauri, Seppo Paananen & Hannu Vehviläinen. Stumpage and contract prices of pulpwood in Norway, Sweden and Finland in the felling seasons 1958/59 - 1968/69 and 1969/70. FF, 68. Helsinki, 1969.
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